

Effect of Local Wisdom in the Effectiveness of Saving Electrical Power Supply in the Community

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Abstract: Planting the attitude of local wisdom in saving electrical power supply is a concept of wisdom which gives an overview of a success in achieving the goals of effectiveness, where the use of electrical energy is now an important element of that support various activities in people's everyday lives. Almost any activity undertaken on a daily basis requires electrical energy. Developments of technology, population growth, and economic activity are currently pushing the creation of a variety of electrical equipment to meet the increasingly diverse needs of the community, which resulting in increased consumption of electrical energy from time to time. Several macroeconomic indicators show that our society is still very wasteful in the use of electrical energy, moreover, supported by the economic ability is increasing, so the consumption of electrical energy to do as they wish. Electrical energy savings not just about cutting or reduction of electrical energy consumption, but more associated with awareness and attitude of human.

1 INTRODUCTION

The presence of electrical energy into human life is one of the important things that support the rapid progress of life on earth. Almost any activity undertaken on a daily basis requires electrical energy. The use of electrical energy is an important element that supports various activities in everyday community life. Almost any activity undertaken on a daily basis requires electrical energy. Technological developments, population growth, and economic activity is currently pushing the creation of a variety of electrical equipment to meet the increasingly diverse needs of the community, resulting in increased consumption of electrical energy from time to time.

Several macroeconomic indicators show that in the community, especially in Indonesia today is very wasteful in the use of electrical energy, moreover, supported by the economic ability is increasing, so the consumption of electrical energy to do as they wish.

According to data from the ASEAN Centre for Energy (ACE) also states that the intensity of the electrical energy consumption in Indonesia is around 5932.5 megawatt hour (MWh) compared with Japan that only about 1058.4 MWh. Even our neighboring country Malaysia is only around 5292 MWh. Similarly, when viewed from the elasticity of electrical energy consumption in Indonesia is about

1.84, still worse than Malaysia and Thailand were respectively 1.69 and 1.16. High elasticity shows that to spur economic growth by 1% will result in the growth of electric energy consumption of 1.84% more than at present. So if the government's target to grow the economy by 6%, as a consequence if we do not carry out programs for electric energy savings will increase the need for electrical energy by 11.04%. (Maryam Ayuni, 2015).

According to World Bank data, Indonesia's economic growth increased from 5.7 percent in 2013 to 5.9 percent in 2016, and is projected to reach 6.2 percent in 2017's. While the population of Indonesia, which has now reached 259 million population is expected to increase to more than 290 million in 2020. All of this growth of course, accompanied with the increased demand for energy due to the growing number of houses, a variety of commercial and industrial buildings. If we assume that the average growth in electricity demand amounted to 7 percent per year during the period of 20 years, the electrical energy consumption will rise sharply, for example in the household sector, consumption will increase from 21.52 gigawatt hour (Gwh) in 2010 to around 444.53 Gwh in 2030.

According to data from PLN, if the note there are four main sectors of the electrical energy, namely the household, commercial, industrial and transportation. It is currently the largest electric energy is the

industrial sector with a share of 44.2 percent. And consumption next largest is the transport sector with a share of 40.6 percent. The household sector was ranked third with electrical energy use by 11.4 percent and commercial sectors with energy use by 3.7 percent.

People understand and realize the importance of saving electricity. However, behind the understanding and conscious of the importance of energy saving electricity, it was not accompanied by behavior that should be done. There are still many users of electricity, especially for adults who are negligent and do not care about the excessive use of electricity. Environmental and financial conditions can change lifestyle patterns and power users. In addition, the demands of lifestyle is one factor that makes the application less energy efficient behavior at the present time is in addition supported with complete disregard adolescents. Awareness of electrical energy skimp on adolescents is still very low. A series of preliminary studies show this age group into groups that are considered indifferent to efforts to save electricity.

Seeing these issues would be very difficult if the application of energy-saving behavior focused on adults only. It would be better if the notification and application of electrical energy saving behavior aimed at teenagers. With so consciousness save energy in adolescents will grow so that the behavior will always be applied until later adulthood. Delivery of electrical energy-saving message that is not significant at the community level teenagers bias certainly will not be able to affect change in attitudes, intentions and behavior of electric energy saving among teenagers. Needed a persuasive communication that is appropriate to be able to push the electric energy saving behavior among adolescents, electricity is one of the major energy source that comes from the presence of natural resources as well. When a society can save electrical energy use we can assure that the community has made the form of local knowledge to the surrounding environment. With the electric energy savings it stands to reason that energy such as coal and petroleum is one of the main energy source of electrical energy could be saved by better and certainly more wisely.

Electrical energy savings is indeed require the participation and support from various parties. must not be assumed that if you have money to pay the electricity bills of any size, then we can use electricity no matter how well the magnitude. electrical energy savings should also be cultivated to the community, so it becomes a local cultural communities or indigenous communities that

electrical energy is energy that will quickly run out if continuously used indiscriminately. also keep in mind that saving electricity is not just a matter of cutting or reduction of electrical energy consumption, but will be more straightforward and efficient if it is associated with output and attitude (attitude) human. planting the attitude of local wisdom in saving electrical power source is a process that adds value saving power resources fully into the hearts of the people, so that the spirit and the soul moves based on that understanding. planting occurs through understanding the value of savings as a whole, and forwarded to the awareness of the importance of this understanding, until the discovery of the possibility to make it happen in real life. therefore how much and how far the values of saving electrical power source internalized in a person, it will become a central value will treat everything in his daily life, so that the quality of comprehensive understanding, it is automatically a person will guided on the mindset, attitudes and actions, which will represents the implementation of daily life - the next. based on the description above, the writer is interested in making a study entitled " effect of local wisdom in the effectiveness of saving electrical power supply in the community "

2 METHOD

The method used in this research is descriptive and verification. Descriptive method is a method used to describe or analyze the results of the study but not used to make broader conclusions. While the verification method according to Mashuri (2008: 45) that check whether or when described to test a way with or without the improvements that have been implemented in other places with similar problems with life. The object of research is the local wisdom and resource saving electricity in the District Neglasari Village community Cibeunying Kaler Bandung. The population in this study were all heads of families in the Village Neglasari Cibeunying Kaler Bandung District of the use of power resources by using the technique of random sampling, and sampling using a formula slovin at = 10%, then the number of samples is as much as 84 head of household.

Data processing techniques results of the questionnaire using Likert scale where alternative answers to a positive value of 5 to 1. Scoring is done on the respondents' answers were then given a score by using Likert scale. Where category consists of strongly agree (5), Agree (4), Ragu (3), not Agree (2) and Strongly Disagree (1).

Before the questionnaire used for the actual data collection, trials conducted prior to the respondents who have the same characteristics as the characteristics of the study population. The trial was conducted to determine the level of validity (validity) and consistency (reliability) of measuring instruments of research, in order to obtain items the questions that deserve to be used as a measuring tool for collecting research data. (Umi Narimawati, Dewi Anggadini, Linna Ismawati, 2010: 41). To analyze the overall data used path analysis (path analysis). In principle this same path with the regression analysis as proposed Riduwan and Kuncoro (2012: 4) that the regression model and path analysis models is equally a regression analysis, but the use of these two models is different. This is made clear by Rashid in (Riduwan and Kuncoro, 2012: 4-5) that for the purpose of forecasting the value of Y on the basis of the value of X, the pattern corresponding relationship is the regression model, while the objective causality precise pattern is structural. Path analysis is a method used in a causal model that has been formulated researchers on the basis of theoretical considerations and certain knowledge, in other words, path analysis has usefulness to check or test the causal model theorized and not degrade the causal theory of the (Sudjana, 2003: 293),

Unlike the usual regression model where the effect of independent variables on the dependent variable only form of direct influence. Besides the use of multiple linear regression analysis needs to be performed classical assumption or test requirements so that the multiple regression analysis regression line obtained can actually be used to predict the dependent variable or criterion.

This suggests that the regression model necessary to test the classical assumption of normality test, autocorrelation, and heteroscedasticity which also is requirement test for multiple linear regression analysis. Due path analysis is part of the regression model, the authors test the classic assumption (as previously described).

The relationship between the variables in the path analysis was:

1. The direct effect is usually depicted with an arrow in one direction from one variable to another variable.
2. The indirect effect is described by an arrow in one direction on one variable on other variables, and other variables arrows in one direction to the next variable.

Requirements needed in the analysis of pathways, such as (Riduwan and Kuncoro, 2012: 2):

1. The relationship between the variables should be a linear relationship, additives and are normal.
2. System flow in only one direction and not the reverse
3. All variables residues are not correlated with each other.

Measurement scale well on variable causes or as a result of at least a measuring scale interval before performing path analysis researchers describe in advance the pattern of relationship between variables and variable due to causes that are based on earlier theories.

The shape of the track is the following equation:

$$Y = \rho_{y_1} X_1 + \rho_{y_2} X_2 + \dots + \rho_{y_k} X_k + \varepsilon$$

Remarks:

Y = *endogenous*
 = the path coefficient between the causal variables and variable causes
 = residue

Steps work path analysis is as follows (Muhidin and Abdurahman, 2011: 225-226):

1. Describe the first diagram the path consistent with the hypothesis that will be tested. The point is to describe the complete path diagram, determine the sub-structure and formulate appropriate structural similarities hypothesis. For example the rise and fall of endogenous variables (Y) is significantly affected by exogenous variables (X1).
2. Calculate the correlation matrix between exogenous and endogenous.
3. Calculating the correlation matrix between the exogenous variables that make up the sub-structure.
4. Calculate the inverse matrix.
5. Calculate all coefficients
6. Calculate $R^2_y (X_1 X_2 \dots X_k)$ which is the coefficient of determination total X_1, X_2, \dots, X_k to Y
7. Calculate P_{yE}
8. Testing the overall significance models (partial) using F test hypothesis in this test are as follows:

H₀: $\rho_{yx1} = \rho_{yx2} = \dots = \rho_{yxk} = 0$

H₁: at least $P_{yxj} \neq 0$

Test the statistic

$$F = \frac{(n-k-1)R_y^2 \dots x}{k(1-R_y^2 \dots x)}$$

Test statistical distributions follow F-Snedecor with a degree of freedom $v_1 = k$ and

$v_2 = n - k - 1$. Criteria for rejection:
 Reject H_0 if: $F_{\text{calculate}} > F_{\text{table}}$

9. If the F test significant then further tested each path coefficient to determine significance include the following steps:

- Determine test hypotheses suppose $H_0: \rho_{yx1} = 0$ versus $H_1: \rho_{yx1} \neq 0$
- Using the test statistic:

$$t = \frac{\rho_{y1}}{\sqrt{\frac{(1-R^2_{y(x1,x2,x)})C_{X1X2}}{(n-k-1)}}}$$

Remarks:

$i = 1, 2, \dots, k$

$k =$ cause variables in the substructures of t , with freedom distribution degrees t -student of $(n - k - 1)$

- Reject H_0 if $t_{\text{calculate}} > t_{\text{table}}$

If H_0 accepted means of these variables can we remove it from the equation. And analysis equation to recalculate a new path without variables non-significant. After obtaining a new equation that path again tested its significance until all variables that researchers have a significant cause of the causal variables. This will be a path analysis equation model.

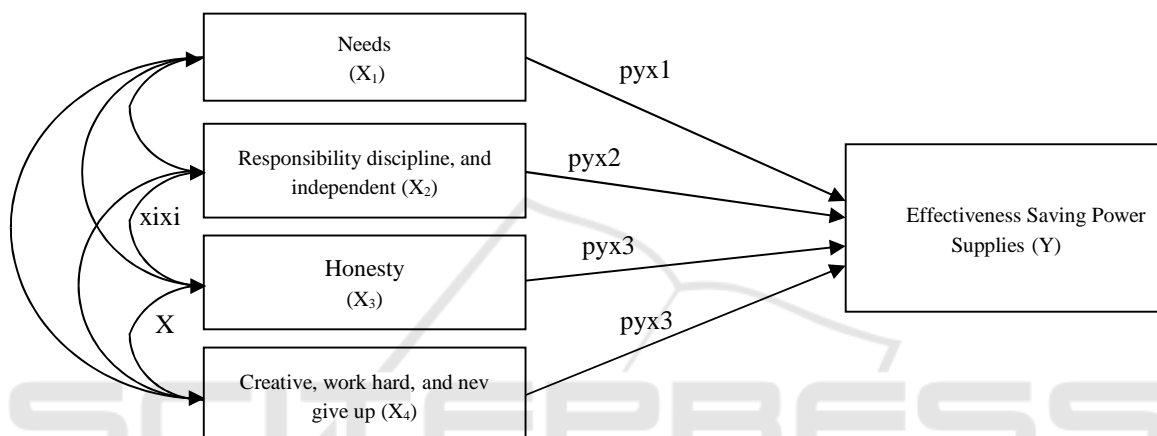


Figure 1: Line Model Analysis.

Figure 1 shows that the path diagram that there are 4 variables exogenous (variables that so influence or cause variable), namely Culture (X1), responsibility, discipline, and self-contained (X2), honest (X3), and Creative, hard work and unyielding (X4); an endogenous variables (variables that influenced or causal variables), namely Effectiveness Resource Saving Electricity (Y); as well as a residual variable e which is a combination of: (1) The other variables, beyond the exogenous variables that may affect the Y and have been identified by the theory, but not included in the model. (2) The other variables beyond the exogenous variables that might influence Y but not yet identified by theory. (3) Errors of measurements and (4) Components that are uncertain.

In the diagram also suggests that the relationship between X and Y is a causal relationship, whereby the direct influence of the example of X to Y is expressed by the value of the numerical coefficient γ_{yx} path, while the path coefficient γ describes the direct influence of the residual variable Y.

Figure 1 can be determined that γ_{yx} a path coefficient, and the form of the path equation is as follows:

$$Y = \gamma_{yx1} + \gamma_{yx2} + \gamma_{yx3} + \gamma_{yx4} +$$

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Figure 1 can be determined that r_{yx} a path coefficient, and the form of the path equation is as follows:

$$r_{yx} = \frac{\sum(XY) - (\sum X)(\sum Y)}{\sqrt{(\sum X^2 - (\sum X)^2)(\sum Y^2 - (\sum Y)^2)}}$$

3 RESULTS

The method used in this research is descriptive and verification. The object of research is the local wisdom and resource saving electricity in the District Neglasari Village community Cibeunying Kaler Bandung. The population in this study were all heads of families in the Village Neglasari Cibeunying Kaler Bandung District of the use of power resources by using the technique of random sampling, and sampling using a formula slovin at $\alpha = 10\%$, the overall sample size is as much as 84 head of household. The results of the study with a small sample (10%) in getting the data in Table 1 below:

Table 1: Results of the study with a small sample.

No.	Sample	X1	X2	X3	X4
1	Heni S.	12	11	9	10
2	Dian H	13	12	13	12
3	Intan	14	15	12	14
4	Sindy S H.	11	8	11	11
5	Faris	12	12	8	12
6	Djadja S	9	10	5	10
7	Dani P	8	5	8	9
8	Adam A	10	10	10	10

(CRemarks: Name suppressed)

The result of exogenous variables as shown in Table 2 below:

Table 2: Exogenous Variable.

No		Eksogenous Variable	Score
1	X1	Needs	89
2	X2	Responsibility, Discipline, Independent	83
3	X3	Honest	76
4	X4	Creative. Work hard, Never give up	88

The results of test calculations one sample Kolmogorov-Smirnov Test with SPSS 20 obtained value P-value (Sig.) = 0,981 for the independent value of the control group and the P-value (Sig.) = 0.937. To independently value the experimental group.

Because the P-value (Sig.) Value is greater than the value of $\alpha = 0.05$, so that H_0 is accepted, where there is no significant difference from the average value and pretest posttest control group and the experimental group. This statement can also be interpreted as that of the control group and the experimental group have different results on the value of posttest. This statement can be interpreted that the results posttest experimental group participants were given a learning model resource saving electricity better than the posttest control group that was not given teaching model saving power resources. This is understandable because the learning model saving power resources have provided the support to improving the understanding of power resources saving activities, one of which is the use of strategies, exposure, and the selection method that makes experimental group participants to better understand the material. Selection of thematic material in accordance with the experimental group encourages participants to understand also the meaning of saving knowledge the power resources

The results of calculations with a small sample get very encouraging results, which the Village community Neglasari Cibeunying Kaler Bandung District of majority of the people always use resources effectively and saving electricity, which is the local Indigenous culture. This means that the model of understanding learning resource saving electricity has a positive effect on the learning process and results, in order to reach the expected goals, namely in the form of an increase in the attitudes and views of participants about the importance of saving electricity resources. This is because the model of understanding learning resource saving electricity has several advantages as stated by the participants of the experimental group which is the subject of this research.

4 CONCLUSION

The results of research conducted can be concluded:

1. Local knowledge is formed as a process of interaction between humans and their environment in order to meet the various needs of life, that it contains norms, ethical and religious values.
2. In the electrical energy consumption, every human being / society in terms of local knowledge, instinctively must be willing to use electrical energy as efficient as possible, but in reality, it is not as easy as desired
3. The method used is descriptive method verification with the model explanatory survey, the method of research which has the objective to

test the hypothesis that a causal relationship between two or more variables, with a small bias and help to build confidence.

4. The results of the study with a small sample (10% of the normal sample) in get encouraging results, where the Village community Neglasari Cibeunying Kaler Bandung District of majority of the people always use resources effectively and saving electricity, which is the local Indigenous culture.

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