EDUCATION ABOUT BASIC ELECTRICITY IN RESIDENTIAL HOMES AND SOLUTIONS TO ELECTRICAL PROBLEMS FOR THE RESIDENTS OF PONDOK LAKAH PERMAI

Peby Wahyu PURNAWAN[1*], Akhmad MUSAFA[2] and Sujono SUJONO[3]
[1-3] ***Universitas Budi Luhur***
[*] ***pebywahyupurnawan@budiluhur.ac.id***

ABSTRACT

In this community service (Abdimas) activity, the Program for Improving the Basics of Electricity Understanding is carried out as well as solutions to every problem in household electricity. This is done as part of education to increase residents' understanding of the basics of electricity as well as discussions related to electricity problems experienced by residents in their daily lives. This activity was carried out at Pondok Lakah Permai Housing RT.002 RW.016, Paninggilan sub-district, Ciledug District, Tangerang City, the entire process from planning to the end of this PkM activity was carried out in about 4 months, starting from May to August 2020. the preparation stage, in accordance with the request for problem solutions from partners, a site survey is conducted to see firsthand the condition of the object where the activity is located. In this location survey activity, discussions and coordination were also carried out with environmental management at Pondok Lakah Permai Housing. Based on the results of the site survey and discussions with environmental administrators, the team then prepared a proposal for PkM implementation activities. Furthermore, the preparation of materials that will be delivered to residents and cooperation with PLN Kebon Jeruk to provide an understanding for residents related to PLN electricity and its latest programs. Based on the results of the preparation stage, then seminars or counseling will be held. Increasing understanding to residents related to the basics of electricity as well as solutions to any problems encountered in household electricity, this activity will be carried out on Wednesday, August 26, 2020 at the Balai Warga with open spaces and follow the Protocol Health is in line with the conditions of the Covid-19 Pandemic, so this activity was attended by a limited number of residents. In this PkM activity, the program is more focused on assisting residents to provide increased insight into knowledge about the basics of electricity as well as solutions to each problem, so that residents become more aware of matters related to electricity and are wiser in their daily use of electrical energy.

Keywords: Electricity, Energy Saving, PLN, Education

1. INTRODUCTION

In Modern life today has been completely related to electrical energy. But there are still many electricity users/consumers who are still unfamiliar with this one thing. The main ones are electricity users in residential areas, which incidentally are the users with the largest number. With the development of increasingly modern technology, electricity has a very important role in household life and the industrial world.

Figure 1. examples of incorrect use of electricity

Especially in this working from home condition (Working from Home), the role of electricity is very much needed for various groups, both parents to work and their children with their online education process, all of which make household electricity use increase. So that even this has an effect on increasing the cost of daily electricity usage many times compared to normal conditions. In addition, electricity can cause accidents to humans and cause fires and disrupt the production process if it is not used according to standards. Therefore, it is necessary to avoid the source of the danger

starting from the planning, installation, use through electrical installations. The increasing need for electricity to meet the needs of life is a reason for the need for good and safe electricity installation and use. Without causing various dangers caused by electricity, including electric shock, thermal effects, the influence of electromagnetic waves, radiation and other hazards caused by electricity.

In the study (Bachri, 2015) an analysis was carried out on the use of electric power with the aim of getting savings/efficiency in the use of electric power in the Lamongan Islamic University environment. The thing that was done in this research was to conduct an energy audit and it was produced by replacing the Air Conditioning refrigerant (AC) from the original refrigerant made from Freon R22 replaced with MC-22 hydrocarbon material and from the process obtained savings of 33%.

In this study (Semuel, 2014) discussed how to conserve electrical energy, this can be done with two approaches, namely technological and behavioral approaches. Technologically, electricity conservation is done by providing additional tools to conserve electricity or electricity efficiency automatically. The behavioral approach is achieved by motivating awareness and increasing skills related to conservation or saving the use of electrical energy.

And in this research (Pujotomo, 2015) (Mukhlis, 2011) and (Gede et al., 2019), it is proven that electricity-saving lamps can save electricity consumption costs up to 70% and produce light that is five times brighter than traditional lamps. ordinary incandescent lamps. Based on a review of the literature and seeing the condition of people who still do not understand very well about the basics of electricity, it is necessary to have an education / socialization that can open a window of public insight so that they can know more about the use of electricity every day.

Figure 2. Pondok Lakah Permai

One of the main problems faced by residents in Pondok Lakah Permai Housing in the current condition is about electricity in the household. Many residents have complained that the expenditure for household electricity in recent months has increased quite significantly, although some information obtained that these residents use electricity consumption is not much different from the previous months. So to solve this problem, it is necessary to carry out an energy audit of the use of electricity loads and provide increased insight to residents regarding the basics of electricity in the household, so that it is hoped that residents can better understand / know about household electricity which has an impact on the use of electricity load. wise and in accordance with the standards of existing electrical equipment.

2. METHOD

This Community Service activity is carried out by several methods, namely:

a. Lecture Method: by educating residents regarding how to use energy-efficient electricity and how to calculate the electricity bill every month on the KWH Meter so that residents are able to understand and know that by impacting the community, they can save on economics and electrical energy.
b. Discussion and Question and Answer Method: by exploring questions and discussions from residents related to problems related to electricity that are experienced in their daily lives.
c. Demonstration Method: by giving examples of energy-efficient electrical devices and how people should use or use electricity to save energy.
d. Simulation Method: by simulating the calculation of monthly electricity bills from a sample of several residents for the use of electricity in their homes using Microsoft excel calculation simulation software.

In the preparation stage, in accordance with the request for problem solutions from partners, a site survey was conducted to see firsthand the condition of the object where the activity was carried out. In this location survey activity, discussions and coordination were also carried out with environmental management at Pondok Lakah Permai Housing. Based on the results of the site survey and discussions with environmental administrators, the team then prepared a proposal for PkM implementation activities. Furthermore, the preparation of materials that will be conveyed to residents and cooperation with the PLN Kebon Jeruk.

Then Based on the results of the preparation stage, then seminars or counseling are held. Increasing understanding to residents related to the basics of electricity and solutions to any problems encountered in household electricity, this activity will be carried out face-to-face by enforcing health protocols and limiting the number of residents attending.

In the final stage, monitoring and evaluation of the results is carried out program implementation. The results of this monitoring and evaluation are then compiled in the form of an activity report.

Seeing this condition after the Community Service Team did a mapping of the household electricity problems that generally occur to every ordinary citizen, solutions were taken, including the following:

a. Increase understanding / insight into the basics of electricity and its terms

Figure 3. Slide Presentation about basics of electicity

b. Conducting a simulation demonstration of the calculation / audit of the use of electrical energy loads to several participants / residents who attended

Menghitung Jumlah biaya pemakaian listrik bulanan

	1 kwh	1462,78			
No	P. Elektronika	watt	jumlah	Jam Menyala 1 hari	Biaya 1 bulan
1	Lampu				0,000
2	TV				0,000
3	Lemari Es				0,000
4	AC				0,000
5	Dispenser				0,000
6	Magic Com				0,000
7	mesin air				0,000
8	radio				0,000
9	komputer				0,000
10					0,000
11					0,000
12					0,000
Total Biaya Pemakaian 1 Bulan (Rp)					0,000

Figure 4. Slide Presentation about simulation for calculating monthly electricity consumption

c. Cooperating with PLN in the Kebon Jeruk area to discuss with residents regarding technical problems in electricity in the field / residents' houses

Figure 5. Discussion with PLN personel Kebon Jeruk area

3. RESULT AND DISCUSSION

In this community service (PkM) activity, the Program for Improving the Basics of Electricity Understanding is carried out as well as solutions to every problem in household electricity. This is done as part of education to increase residents' understanding of the basics of electricity as well as discussions related to electricity problems experienced by residents in their daily lives. This activity was carried out at Pondok Lakah Permai Housing RT.002 RW.016, Paninggilan sub-district, Ciledug district, Tangerang City. The entire process from planning to the end of this PkM activity was carried out in about 4 months, starting from May to August 2020.

In the preparation stage, in accordance with the request for problem solutions from partners, a site survey was conducted to see firsthand the condition of the object where the activity was carried out. In this location survey activity, discussions and coordination were also carried out with environmental management at Pondok Lakah Permai Housing. Based on the results of the site survey and discussions with environmental administrators, the team then prepared a proposal for PkM implementation activities. Furthermore, the preparation of materials that will be conveyed to residents and cooperation with PLN Kebon Jeruk is carried out to provide understanding for residents regarding PLN electricity and its newest programs.

Figure 6. Atmosphere of Extension Activities

Based on the results of the preparation stage, then seminars or counseling will be held. Increasing understanding to residents related to the basics of electricity and solutions to any problems encountered in household electricity, this activity will be carried out on Wednesday, August 26, 2020 at the Balai Warga with open spaces and follow the Protocol Health is in line with the conditions of the Covid-19 Pandemic, so this activity was attended by a limited number of residents. This activity was attended by the Head of the RT and representatives of the management and was also attended by representatives of the residents from among the ladies and gentlemen with a total of 22 participants attending. In this PkM activity, the program is more focused on assisting residents to provide increased insight into knowledge about the basics of electricity and solutions to each problem, so that residents become more aware of matters related to electricity and are wiser in the use of electrical energy on a daily basis.

Figure 7. Photo with participants

4. CONCLUSION

From this Community Service Activity, the following conclusions can be drawn:

a. Participants understand more about the basics of electricity, especially in the energy use section of electronic devices used in their daily lives.
b. Participants are increasingly aware of the importance of being wise in the use of daily electrical energy.
c. Participants get solutions to electrical technical problems in Household Electricity directly from PLN
d. PLN can get closer to residents and the latest information can be conveyed directly and quickly

ACKNOWLEDGMENT

Thank you to the Directorate of Research and Community Service at Budi Luhur University for providing opportunities and funding Community Service activities in the even semester of 2019/2020.

REFERENCES

Bachri, A. (2015). *Analisis Efisiensi Pemakaian Daya Listrik Di Universitas Islam Lamongan*. Teknika, *7*(1), 649–658.

Gede, L., Kartika, S., Rinartha, K., Mandasari, E., Serangan, B., & Mengwi, D. (2019). *Pengehematan Energi dan Sampah Elektronik Dimulai dari Rumah Tangga di Desa Mengwi*. Jurnal Ilmiah Populer Widyabhakti, *1*(3), 7–11.

Mukhlis, B. (2011). *Penghematan Energi Melalui Penggantian Lampu Penerangan Di Lingkungan Untad*. Jurnal Ilmiah Foristek, *1*(2), 57–63.

Pujotomo, I. (2015). *Hemat Listrik Dengan Lampu Hemat Listrik*. JURNAL ENERGI & KELISTRIKAN, *7*(2), 103–107.

Semuel, H. (2014). *Penerapan Kebijakan Penggunaan Energi Listrik*. Jurnal Manajemen Pemasaran, *8*(1), 39–46. https://doi.org/10.9744/pemasaran.8.1.39-46

Sunardiyo, S., Primadiyono, Y., Supraptono, E., & Widodo, D. A. (2018). *Penerapan Otomatisasi Peralatan Kelistrikan Sebagai Upaya Efisiensi Energi di PONPES " ASWAJA " Banaran Gunungpati Semarang*. Seminar Nasional Kolaborasi Pengabdian Pada Masyarakat, 1, 31–33.