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Introduction to Energy and Energy Saving Culture for ABA 25 Malang Kindergarten Students

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ABSTRACT

TK ABA 25 Malang is one of the early childhood education institutions strategically located in Malang City, East Java. The kindergarten is committed to holistic education and character building as well as environmental care and sustainability. The results of this community engagement activity showed a significant increase in students' awareness and understanding of various energy sources as well as the benefits of energy saving, as evidenced by the positive responses and simple behavioral changes that began to be demonstrated in daily activities at school. The conclusion of this service confirms that a fun and practical educational approach at an early age is very effective in instilling energy conservation values and building the foundation of environmental awareness for future generations.

TK ABA 25 Malang merupakan salah satu lembaga pendidikan anak usia dini yang berlokasi strategis di Kota Malang, Jawa Timur. TK ini memiliki komitmen terkait dengan pendidikan holistik dan pembentukan karakter anak maupun peduli lingkungan dan keberlanjutan. Hasil dari kegiatan pelibatan masyarakat ini menunjukkan peningkatan signifikan dalam kesadaran dan pemahaman siswa tentang berbagai sumber energi serta manfaat hemat energi, terbukti dari respons positif dan perubahan perilaku sederhana yang mulai ditunjukkan dalam aktivitas sehari-hari di sekolah. Kesimpulan dari pengabdian ini menegaskan bahwa pendekatan edukatif yang menyenangkan dan praktis pada usia dini sangat efektif dalam menanamkan nilai-nilai konservasi energi dan membangun fondasi kesadaran lingkungan bagi generasi mendatang.

A. INTRODUCTION

The target community of this service is the students of ABA 25 Kindergarten (TK) Malang, an early childhood education institution located in the middle of urban dynamics.

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The partner's situation analysis shows that, although the school environment has tried to create a conducive learning atmosphere, students understanding of the basic concepts of energy and the importance of energy-saving behavior is still very limited (Yasmin et al., 2023)(Aslan & Nurhayati, 2025). Initial observations and discussions with teachers showed that children often do not realize the impact of leaving lights on during the day or water taps open, which has implications for the waste of resources (Ilham et al., 2024). This condition reflects the lack of early education about energy conservation, which ideally should be instilled from preschool age, considering that they are the next generation who will face energy challenges in the future (Ardiansari & Dimyati, 2021)(Anisyah et al., 2023).

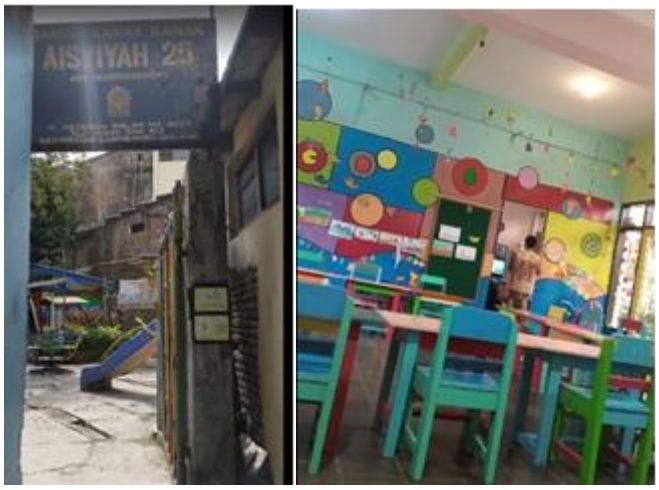

Figure 1. Partner condition of TK ABA 25 Malang

This gap in understanding is all the more crucial given that the issue of energy crisis and environmental sustainability continues to be a global concern. Various studies have shown that environmental education, including energy awareness, is effective starting at an early age. Children at kindergarten age have high adaptability and absorption of new information, especially if it is delivered through methods that are fun and relevant to their world (Anisyah et al., 2023)(Atin Sri Handayani et al., 2023). Previous studies have also highlighted that educational programs involving hands-on activities and visualizations can significantly increase children's understanding and positive behavioral changes related to environmental and energy issues (Eka Ariyanti et al., 2023)(Ilmiah & Madrasah, 2025). However, it is still rare to find a program specifically designed to introduce the concept of energy and energy saving in a comprehensive and sustainable manner at the kindergarten level, especially in the Malang area.

In response to the problem and based on the literature review, the proposed idea/solution is the implementation of the program "Introduction to Energy and Energy Saving Culture through Educational Games". The program will use an innovative and interactive approach, including illustrated fairy tales, thematic songs, energy use simulation role plays, as well as simple practical activities such as turning off switches and closing water taps (Ilmiah & Madrasah, 2025). The main objectives of this community service activity are to: (1) introduce various types of energy and their sources to ABA 25 Malang kindergarten students, (2) instill awareness of the importance of energy saving as part of daily culture, and (3) encourage the formation of simple but sustainable energy conservation behavior in

students from an early age (Wisman & Santoso, 2024). Through this activity, we hope to make a real contribution in preparing young people who are more concerned and responsible for the environment and natural resources.

The programme seeks to foster a deeper understanding of energy conservation among young learners, forming the foundation for a more sustainable future.With a fun and relevant approach, the programme is believed to build children's awareness of the need for energy-saving behaviour in everyday life. As such, the programme will not only be about knowledge, but also the formation of a positive attitude towards energy conservation among children.

B. METHODS

Implementation Method and Approach

This service activity begins with an initial survey to partners, namely TK ABA 25 Malang, to understand the real needs and conditions in the field. The implementation of the service will integrate three main methods synergistically: lectures, demonstrations, and hands-on practice.

1. Activity Method

- Lecture:Aims to provide basic knowledge about energy and energy-saving culture. The material will be delivered in a language that is easy for kindergarten children to understand, supported by visual media such as pictures, videos, and posters to attract attention. Students will also be given the opportunity to ask questions and discuss, encouraging their active participatio n(Hamid et al., 2024).
- Demonstration: Aims to show concretely how to save energy in everyday life. Presenters will demonstrate energy-saving actions (e.g. turning off lights, unplugging electronics, saving water), and students will be directly involved in order to learn through visual and motor experiences.
- Direct Practice: Aims to give students the opportunity to directly implement an energy-saving culture. Students will be divided into small groups and given practical tasks, such as turning off lights in the classroom or saving water when washing hands, with assistance from the implementation team.

These three methods will be used in an integrated manner, with visual presentation and counseling as the core of communication. Discussion and Q&A will always be open to facilitate the delivery of material and motivate participants to adopt energy-saving habits.2. Keunggulan Metode Terintegrasi

The integrated use of lecture, demonstration and hands-on methods offers some significant advantages:

- Improves Student Understanding: Students can absorb material better because they learn from multiple sources and modalities (audio, visual, kinesthetic).
- Increase Interest and Motivation: The learning process becomes more interesting and fun, which directly increases students' interest and motivation to learn and participate.

- Developing Student Skills: This method helps develop essential skills such as critical thinking, problem solving, and communication through interaction and hands-on practice (Manurung et al., 2023).

It is hoped that, with the active role of teachers, students, and parents, this service activity will provide significant benefits and encourage positive behavioral changes in ABA 25 Malang kindergarten students in understanding and implementing an energy-saving culture.

3. Research Approach Method (Mix Method)

The approach to evaluating the success of this activity will use mixed methods (Suharyani et al., 2023). This approach was chosen because the problems to be answered cannot be fully measured only by qualitative or quantitative methods. Qualitative data obtained from observations of student participation and understanding will be converted into quantitative data through an interval-based scoring system. For example, students who successfully complete the stages of the game well will be given a score of 8-10 points, students who can work but are not finished will be given 4-7 points, and students who do not understand the instructions will be given 1-3 points. Thus, qualitative observation results can be nominalized and measured quantitatively, enabling the determination of the success rate of this service activity in a measurable and objective manner (Setiawan & Martin, 2024)(Kurniawan & Subhan, 2021).

C. RESULTS AND DISCUSSION

The community service activities carried out at TK ABA 25 Malang with the material "Introduction to Energy and Energy Saving Culture" ran smoothly and received high enthusiasm from students, teachers, and parents. Some of the results of the activities achieved are as follows:

1. Improved Student Understanding
   - Students are able to recognize various energy sources (sun, electricity, wind, water, etc.) through learning media in the form of pictures, songs, and interactive games.
   - Children understand examples of energy use in everyday life, such as lights, fans, televisions and refrigerators.
2. Introduction to Energy Saving Culture
   - Students are given a simple understanding of the importance of saving energy, such as turning off lights during the day, unplugging chargers after use, and turning off fans when not needed.
   - Practical activities such as simulating turning off lights, closing water taps, and saving the use of electrical appliances are done together to enhance hands-on understanding.
3. High Student Enthusiasm
   - The children showed great curiosity, actively asked questions, and enjoyed participating in educational games related to energy.
   - The storytelling activity with the theme "The Lamp and His Friends" succeeded in attracting students' attention to understand the importance of energy saving.

4. Increased Role of Teachers and Parents
    - Teachers at TK ABA 25 Malang gained new insights into thematic learning methods about energy for early childhood.
    - The parents present were also given a brief education on the role of the family in instilling energy-saving habits from an early age.
5. Activities Supporting the PAUD Curriculum
    - The material provided is in accordance with the theme of learning in PAUD, especially the introduction of the environment and the development of the character value of caring for the environment.

This service activity shows that the introduction of energy concepts and energy-saving culture can be done effectively in early childhood through an educational approach that is creative, interactive, and fun.(Gea et al., 2025). Children in kindergarten are very responsive to experiential learning methods, such as role-playing, singing, storytelling and simple simulations.

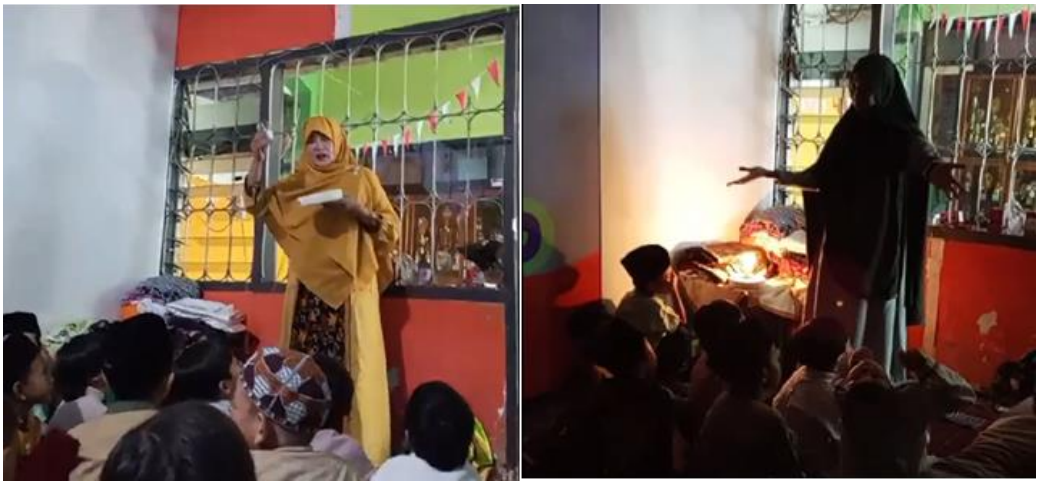

Figure 2. Submission of material by the team

In the context of character development, the introduction of an energy-saving culture from an early age is an important first step in fostering a sense of responsibility for the environment and natural resources. Simple habits, such as turning off lights and electrical appliances that are not in use, if taught consistently, will become part of a child's daily behavior until adulthood.

In addition, this activity also provides additional benefits for teachers and parents as the main companion of children. Collaboration between schools and families in implementing an energy-saving culture at home is necessary to create real and sustainable behavior change.

It is hoped that through this activity, ABA 25 Malang kindergarten students can become small agents of energy saving culture in the school environment, home, and surrounding community.

This service activity was attended by 20 students of TK ABA 25 Malang. The results show that 90% of students can understand the material provided. This can be seen from the test results given to students after the service activity.

Students also showed high enthusiasm in the demonstration and practical activities. They asked many questions and wanted to try making their own biogas reactors. This shows that students are interested in energy-saving culture and its utilization and want to learn more about it.

D. CONCLUSION

The following is a summary of the results of community service activities at TK ABA 25 Malang with the theme "Introduction to Energy and Energy Saving Culture":

1. Early childhood in kindergarten ABA 25 Malang can understand the basic principles related to energy, energy sources, and how important it is to save energy through innovative and fun learning approaches.

2. This service activity succeeded in increasing students' awareness and understanding of the importance of an energy-saving culture, which is believed to be a positive habit in daily life at school or at home.

3. Learning methods based on stories, songs, games, and hands-on simulations were successfully applied to deliver material to early childhood, and therefore can be chosen as an alternative to interesting learning methods for PAUD educators.

4. The assistance of teachers and parents in this activity creates significant reinforcement in the implementation of energy-saving values by children, both at school and their homes.

E.ACKNOWLEDGEMENTS

The successful implementation of the community service activity "Introduction to Energy and Energy Saving Culture for ABA 25 Malang Kindergarten Students" cannot be separated from the support and assistance of various parties. With all humility, we would like to express our sincere and deep gratitude.

First, we express our highest appreciation to the Directorate of Research and Community Service (DPPM) of Muhammadiyah University of Malang. The financial support provided by DPPM UMM is the backbone that allows each stage of this activity to be carried out optimally. The trust and facilities that have been provided are our main spirit to continue working and making a real contribution to society.

Secondly, we would also like to express our deepest appreciation to the entire extended family of TK ABA 25 Malang, from the Principal, teachers, to staff. The full support, comfortable facilities, and warm welcome given from the beginning of the survey to the entire series of activities, greatly helped the smooth running of this program. The close collaboration and openness of TK ABA 25 Malang is the key to our successful interaction with the children, making every educational moment more meaningful.

Hopefully the contributions and support that have been given by all parties will become amal jariyah that continues to flow goodness. We hope that the results of this service can provide sustainable benefits for the students of TK ABA 25 Malang, growing the buds of energy awareness that will become agents of change in the future.

F. AUTHOR CONTRIBUTIONS

The success of the community service activity "Introduction to Energy and Energy Saving Culture for ABA 25 Malang Kindergarten Students" and the writing of the scientific article is the result of hard work and solid collaboration from all team members. Each individual brings unique roles and expertise that complement each other.

Mohamad Irkham Mamungkas (Team Leader) As the captain of the team, Mr. Mohamad Irkham Mamungkas not only led and coordinated all stages of the activity, but also became the strategic thinker behind the program concept and design. He carefully formulates the objectives of the service, ensures the relevance of the material to the children's world, and keeps every activity running according to plan. In the process of writing the article, his analytical acumen and ability to organize ideas into a coherent academic narrative are the main foundations that make this report so comprehensive and easy to understand.

Nur Subeki (Member 1) Mr. Nur Subeki is a creative spirit and a reliable field implementer. He plays an active role in the development of innovative and interesting educational materials, such as fairy tales, songs, and simulation games that are the main attraction for kindergarten students. With his patience and expertise in interacting with children, he is able to create a cheerful and effective learning atmosphere. Her contributions to primary data collection in the field and documentation of activities are also vital, providing strong empirical evidence in the article.

Murjito (Member 2) Mr. Murjito is the technical support and data analysis pillar of the team. He was responsible for ensuring the smooth logistics and availability of the necessary infrastructure during the activities at TK ABA 25 Malang. Moreover, his expertise in processing and analyzing qualitative and quantitative data from observations and feedback was crucial in presenting valid findings. Her contribution to the preparation of the methodology section and the discussion of the results in the article was very helpful in providing an accurate picture of the achievements of the service.

Together, we form a team that supports each other, shares ideas, and overcomes challenges with a spirit of togetherness. It is this synergy that allows this service activity to be carried out successfully and produce article outputs that are expected to provide wider benefits to the early childhood education community.

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