ENERGY SAVING BEHAVIOR THROUGH PEDAGOGICAL STRATEGIES IN ARABIC LANGUAGE LEARNING AT ISLAMIC BOARDING SCHOOL

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ABSTRACT

This study was motivated by the importance of developing energy-saving behavior in Islamic boarding schools, where students live communally and use electricity, water, and shared facilities in their daily activities. This study aims to analyze the effect of pedagogical strategies in Arabic language learning on students' energy-saving behavior. A mixed-methods approach was employed using a sequential explanatory design and a quasi-experimental nonequivalent control group design. The participants were 40 students at Nadhrotul Ulum Islamic Boarding School, divided into experimental and control groups. Data were collected through pretest-posttest questionnaires, observations, interviews, and documentation. The results showed that the experimental group's score increased from 61.40 to 82.15, with a gain score of 20.75, while the control group's score increased from 60.85 to 67.30, with a gain score of 6.45. The independent sample t-test indicated a significant difference between the two groups, with $t = 8.947$ and $p = 0.000$. These findings imply that Arabic language learning can serve as a medium for value education and the formation of sustainable habits in Islamic boarding schools.

Keywords: Energy Saving Habits, Arabic language teaching, Islamic boarding school.

1. INTRODUCTION

The energy crisis and the increasing demand for environmental sustainability have made energy-saving behavior an important issue in education. The Indonesia Energy Transition Outlook 2024 reports that energy-sector emissions in Indonesia increased by 21% in 2022, reaching 715 $MtCO_2e$, while the renewable energy mix has not yet met national policy targets (Nasir and Bengi, 2024). These conditions show that energy problems cannot be addressed only through technological innovation or macro-level policy, but also require behavioral change at the institutional and individual levels. In this context, educational institutions have a strategic role in developing responsible energy-use habits through learning, daily routines, and social reinforcement.

Energy-saving behavior is particularly relevant in collective housing environments, including dormitories and boarding schools, where electricity, water, and shared facilities are heavily influenced by residents' habits. Previous studies have shown that energy-saving behavior among students is shaped by attitudes, subjective norms, moral norms, housing management, and environmental conditions (Chen and Gou, 2022; Hou and Law, 2024a; Anugwo et al., 2025). (Qin, Xie and Xu, 2024) also demonstrated that intervention-based strategies, such as goal setting, can reduce electricity consumption in dormitories. These findings indicate that energy efficiency is not merely an engineering or infrastructure issue, but is also closely related to resource management and sustainable behavior. Therefore, strengthening students' daily habits can contribute to more efficient and responsible use of institutional resources.

Islamic boarding schools, or pesantren, provide a strategic setting for promoting energy-saving behavior because the learning process is closely connected to students' daily lives in dormitories. Pesantren life is characterized by communal living, collective use of facilities, discipline, and intensive social interaction (Kasanah, As Sajjad and Rohmatullah, 2023). In such an environment, values introduced in the classroom can be reinforced through daily routines and peer interaction. This makes pesantren an important educational space for building sustainable habits, especially in relation to electricity use, water use, and responsibility for shared facilities.

Arabic language learning in pesantren also has strong potential to support this process. Previous studies show that the Arabic language environment in pesantren is formed through both formal classroom learning and informal out-of-class interaction (Muttaqin, Bakheit and Hasanah, 2024; Varras Amrulloh, Sunarko and Zuhdi, 2026). (Hamid et al., 2024; Sunarko, Solehudin and Sakinah, 2026) further emphasize that Arabic learning becomes more meaningful when classroom instruction is connected to authentic communicative practices. Recent studies on Arabic pedagogy in pesantren have also highlighted contextual learning, local cultural integration, and language environment management as important factors in strengthening students' participation and language skills (Idhan, Hasnah and Agustina, 2024; Khofifah Khofifah et al., 2025) . However, most of these studies still focus on language achievement and language environment development, rather than on the use of Arabic learning as a medium for shaping sustainable behavior.

This condition reveals a clear research gap. Studies on energy-saving behavior have generally focused on behavioral intention, social norms, dormitory management, and energy intervention strategies, while studies on Arabic language learning in pesantren have mostly examined language skills, cultural integration, and language environment management. Limited empirical research has examined how pedagogical strategies in Arabic language learning can be used to shape energy-saving behavior among pesantren students. The novelty of this study lies in integrating energy-saving values into Arabic language pedagogy and empirically testing its effect on students' sustainable behavior in a pesantren dormitory environment.

In this study, energy-saving values are not taught as separate moral advice, but are integrated into Arabic vocabulary, dialogues, sentence examples, exercises, and classroom routines related to students' daily lives. The learning materials are connected to practical activities such as turning off lights, using water efficiently, reducing unnecessary electricity use,

and taking care of shared facilities. This approach positions Arabic language learning not only as a tool for language acquisition but also as a pedagogical medium for internalizing values and shaping behavior through repetition, contextual experience, and social interaction.

Based on this explanation, the primary objective of this study is to analyze the impact of pedagogical strategies in Arabic language learning on the energy-saving behavior of students in pesantren. This study also aims to explore how the learning process contributes to the formation of energy-saving habits in students' daily lives. The contribution of this study is relevant to the scope of economic, business, and engineering studies because it addresses energy efficiency, resource management, and sustainable behavior in an educational institution. Theoretically, this study expands Arabic language learning research by connecting it with value education and ecological behavior. Practically, it provides a reference for teachers, pesantren administrators, and curriculum developers in designing contextual learning that supports responsible and efficient resource use in boarding school environments.

2. METHOD

This study employed a mixed-methods approach using a sequential explanatory design, in which quantitative data were collected and analyzed in the first phase, followed by qualitative data to explain and enrich the quantitative findings (Malhotra, 2022; Su et al., 2023). This design was selected to examine not only whether pedagogical strategies in Arabic language learning influenced students' energy-saving behavior, but also how that behavior was shaped in the daily life of the boarding school.

The quantitative phase used a quasi-experimental nonequivalent control group design (Denny, Denieffe and O'Sullivan, 2023). Two naturally existing groups were involved: the experimental group and the control group. The experimental group received Arabic instruction integrated with energy-saving pedagogical strategies, while the control group received regular Arabic instruction without explicit reinforcement of energy-saving values. Both groups completed a pretest and a posttest to assess changes in behavior.

The study was conducted at Nadhrotul Ulum Islamic Boarding School and involved 40 students drawn from two dormitories: Billah Dormitory (n = 20) as the experimental group and Fillah Dormitory (n = 20) as the control group. The groups were selected based on comparable dormitory conditions, student numbers, and activity patterns.

The intervention was conducted for four weeks through eight 60-minute Arabic learning meetings. In the experimental group, energy-saving values were integrated into mufradat, hiwar, sentence examples, exercises, and classroom routines related to dormitory life, such as turning off lights, saving water, reducing electricity use, and maintaining shared facilities. The control group received regular Arabic instruction without explicit energy-saving themes.

The independent variable was the pedagogical strategy in Arabic learning, while the dependent variable was students' energy-saving behavior. Quantitative data were collected using a 20-item pretest-posttest questionnaire covering four indicators: awareness of energy use, electricity-saving habits, water-saving habits, and responsibility for shared facilities. The instrument used a five-point Likert scale, was validated by two experts, and showed good reliability with Cronbach's alpha of 0.87.

Qualitative data were obtained through observation, semi-structured interviews, and documentation. Quantitative data were analyzed using descriptive statistics, normality and homogeneity tests, paired-sample t-tests, and independent-sample t-tests. Qualitative data were analyzed through coding, categorization, and conclusion drawing, then integrated with quantitative findings.

3. RESULTS AND DISCUSSION

Quantitative Finding

This study involved 40 students of Pondok Pesantren Nadhrotul Ulum, who were divided into two groups. The Billah dormitory was assigned as the experimental group, while the Fillah dormitory served as the control group. Each group consisted of 20 students. The experimental group received Arabic language instruction integrated with energy-saving pedagogical strategies, whereas the control

group followed conventional Arabic language learning without such integration.

1. Pretest and Posttest Results

The initial measurement showed that the level of energy-saving behavior in both groups was relatively similar. The mean pretest score of the experimental group was 61.40, while the control group obtained a mean score of 60.85. This indicates that, before the treatment was implemented, both groups were in a comparable condition in terms of energy-saving behavior.

After the treatment, both groups showed improvement. However, the increase in the experimental group was much more noticeable. The mean posttest score of the experimental group rose to 82.15, while the control group reached only 67.30. These results suggest that Arabic language learning integrated with energy-saving pedagogical strategies had a stronger effect on improving students' energy-saving behavior.

Table 1. Comparison of Pretest and Posttest Scores

Group	N	Mean Pretest	Mean Posttest	Gain Score
Billah (Experimental)	20	61.40	82.15	20.75
Fillah (Control)	20	60.85	67.30	6.45

As shown in Table 1, the experimental group increased by 20.75 points, while the control group improved by only 6.45 points. This considerable difference in gain scores indicates that the energy-saving pedagogical strategy was more effective in shaping students' energy-saving behavior.

2. Prerequisite Test Results

Before testing the hypothesis, the data were first examined through tests of normality and homogeneity. These tests were conducted to ensure that the data met the assumptions required for parametric analysis.

The normality test results showed that all pretest and posttest data in both the experimental and control groups had significance values greater than 0.05. This means that the data were normally distributed. Furthermore, the homogeneity test also produced significance values above 0.05, indicating that the variances of the two groups were homogeneous.

Table 2. Results of Normality and Homogeneity Tests

Type of Test	Group	Sig.	Description
Pretest Normality	Experimental	0.200	Normal
Pretest Normality	Control	0.187	Normal
Posttest Normality	Experimental	0.162	Normal
Posttest Normality	Control	0.174	Normal
Pretest Homogeneity	Experimental-Control	0.742	Homogeneous
Posttest Homogeneity	Experimental-Control	0.618	Homogeneous

These findings confirm that the data fulfilled the requirements for further analysis using parametric statistical tests.

3. Hypothesis Testing Results

Hypothesis testing was carried out in two stages. First, a paired sample t-test was used to determine whether there were differences between the pretest and posttest scores within each group. Second, an independent sample t-test was applied to compare the posttest results of the experimental and control groups.

Table 3. Results of the Paired Sample t-Test

Group	t-value	Sig. (2-tailed)	Description
Billah (Experimental)	-13.284	0.000	Significant
Fillah (Control)	-4.112	0.001	Significant

Based on Table 3, the experimental group obtained a significance value of 0.000, which is lower than 0.05. This result indicates a statistically significant difference between the pretest and posttest scores in the experimental group. In other words, the treatment had a meaningful effect on improving students' energy-saving behavior.

The control group also showed a significant result, with a significance value of 0.001. This suggests that some improvement also occurred in the control group. However, when compared to the experimental group, the magnitude of the increase was considerably smaller.

Table 4. Results of the Independent Sample t-Test on Posttest Scores

Variable	t-value	Sig. (2-tailed)	Description
Experimental-Control Posttest	8.947	0.000	Significant

As presented in Table 4, the significance value was 0.000, which is lower than 0.05. This means that there was a statistically significant difference between the posttest scores of the experimental group and those of the control group. Therefore, it can be concluded that the energy-saving pedagogical strategy in Arabic language learning had a significant effect on students' energy-saving behavior at Pondok Pesantren Nadhrotul Ulum.

4. Results Based on Energy-Saving Behavior Indicators

The improvement in energy-saving behavior in the experimental group was reflected not only in the overall score but also across all measured indicators. Every indicator showed progress from pretest to posttest, which suggests that the treatment contributed to a broad and consistent improvement in students' behavior.

Table 5. Mean Scores of Energy-Saving Behavior Indicators in the Experimental Group

Indicator	Pretest	Posttest	Difference
Awareness of energy use	62.10	81.20	19.10
Habit of saving electricity	60.45	83.10	22.65
Habit of saving water	63.00	80.75	17.75
Responsibility for shared facilities	60.05	83.55	23.50

As shown in Table 5, the largest increase was observed for the indicator of responsibility for shared facilities, with a difference of 23.50 points. This was followed by the indicator of the habit of saving electricity, which increased by 22.65 points. Meanwhile, awareness of energy use rose by 19.10 points, and the habit of saving water increased by 17.75 points.

These findings show that Arabic language learning incorporating messages, examples, and habitual practices related to energy saving was able to strengthen both students' awareness and their daily actions. The students not only understood the importance of energy conservation at a conceptual level, but also began to demonstrate more responsible behavior in using electricity, water, and shared facilities in the boarding school environment.

Qualitative Findings

The interview and observation data indicate that the implementation of pedagogical strategies in Arabic language instruction contributed to the development of students' energy-saving behavior, particularly in the experimental group at Billah Dormitory. This finding was reflected not only in the quantitative improvement but also in changes in students' understanding, attitudes, and daily habits within the dormitory environment.

Based on the interview results, students in the experimental group reported that Arabic learning materials were easier to understand and remember when they were closely connected to dormitory life. The use of mufradat (vocabulary), hiwar (dialogue), and sentence examples related to lights, water, electricity, rooms, and shared facilities made the lessons more relevant to their everyday experience. As a result, students not only learned linguistic elements but also absorbed the practical messages embedded in the learning process. In this sense, Arabic instruction functioned not only as an academic subject but also as a medium for cultivating energy-saving awareness in daily life.

Several students explained that they had previously viewed Arabic as a subject focused mainly on vocabulary memorization and sentence structure. However, when the material was linked to everyday practices in the boarding school, they began to see language learning as something directly related to their own behavior. They found it easier to remember expressions and sentence patterns because these were immediately connected to concrete actions, such as turning off the lights after use, closing water taps properly, and using electricity only when needed. This suggests that contextual instruction helped bridge the gap between conceptual understanding and actual practice.

Interviews with the Arabic teacher further supported these findings. The teacher noted that students in the experimental group responded more actively when the lessons were related to

real situations in the dormitory. They were more willing to answer questions, more confident in constructing their own examples, and quicker to understand the content of dialogues because the topics were familiar to them. The teacher also observed behavioral changes beyond the classroom. Some students began reminding one another when lights were left on during the day, when taps were not fully closed, or when electrical appliances were used unnecessarily. This indicates that the values introduced during instruction gradually became part of students' social behavior.

The observation data were consistent with the interview findings. At the beginning of the observation period, some students were still found leaving their rooms with the lights on or using water excessively. Over time, however, such behavior became less frequent in the experimental group. The researcher observed a growing sense of responsibility toward the use of shared facilities. The most visible changes appeared in the habit of turning off lights, reducing water waste, and taking the initiative to remind peers without waiting for instructions from teachers or dormitory supervisors. These patterns suggest that the pedagogical strategy influenced not only the cognitive dimension of learning but also students' affective and behavioral development.

In contrast, behavioral changes were also identified in the control group at Fillah Dormitory, but the intensity was lower. According to the interview data, students in this group tended to understand energy-saving behavior primarily as part of the general rules of the boarding school rather than as a value reinforced through classroom instruction. Observational findings also showed that compliance in the control group was more likely to occur in response to supervision. Spontaneous awareness and peer reminders were not as evident as those found in the experimental group. Overall, the interview and observation findings confirm that the integration of pedagogical strategies into Arabic language instruction played a meaningful role in strengthening students' energy-saving behavior in a more sustained and observable way.

Discussion

The findings of this study indicate that energy-saving behavior is more likely to develop when instructional content is directly connected to students' everyday experiences. In the experimental group, Arabic was taught not merely as a linguistic subject but as a contextual learning medium related to dormitory life, including the use of lights, water, electricity, rooms, and shared facilities. This approach helped students understand energy-saving values through familiar language practices and repeated classroom routines. As a result, the intervention not only improved students' cognitive awareness but also encouraged observable behavioral changes in their daily activities.

The significant increase in the experimental group supports previous studies stating that pro-environmental behavior is more effective when educational messages are connected to social context and repeated practice (Josephine Chelelwa Zulu, Chrispine Mulenga Mwambazi, and Moose John, 2025; Santos, 2025). Studies on student housing have shown that energy-saving behavior is influenced by attitudes (Hou and Law, 2024b), subjective norms, moral responsibility (Kwakwa *et al.*, 2024), and environmental support (Heib, Kortsch and Hildebrand, 2024). The present study extends these findings by showing that behavior change can also be encouraged through language learning, particularly when energy-saving values are embedded in vocabulary, dialogue, sentence examples, and classroom interaction. Therefore, Arabic language learning in pesantren can function not only as a tool for language acquisition, but also as a medium for value internalization and sustainable behavior formation.

Compared with previous intervention studies that often emphasize technical strategies (Al-Ghaili *et al.*, 2021), goal setting (Chen and Lotti, 2025), or energy management systems (Wang, Li and Mao, 2025), this study offers a more pedagogical and cultural approach. The intervention did not rely on direct regulation or punishment, but on the integration of energy-saving messages into daily learning activities. This finding suggests that behavioral change in educational institutions can be developed through simple and low-cost pedagogical strategies, especially in environments where classroom learning and daily life are closely connected. In the pesantren context, this

connection becomes important because students live, study, and interact within the same institutional environment.

The findings also show that the control group experienced improvement, although the increase was much smaller than that of the experimental group. This improvement may be explained by several factors. First, students in both groups lived in the same broader pesantren environment, where general rules and daily routines may have encouraged energy-saving behavior. Second, the pretest itself may have increased students' awareness of energy-saving practices, even without direct intervention. Third, informal communication among students could have influenced behavior across dormitories. However, the lower gain score in the control group indicates that ordinary routines alone were not as strong as structured pedagogical integration in shaping consistent energy-saving behavior.

The qualitative findings further clarify why the experimental group showed greater improvement. Students became more familiar with energy-saving messages because these values appeared repeatedly in Arabic vocabulary, dialogues, exercises, and classroom examples. The teacher also reinforced the messages through questions and reminders related to dormitory life. This repeated exposure helped students connect language learning with real actions, such as turning off lights, closing water taps, reducing unnecessary electricity use, and reminding peers. Thus, the intervention worked not only through individual understanding but also through social reinforcement among students.

However, this study has several limitations. First, the research involved only 40 students from one Islamic boarding school, so the findings cannot be generalized to all pesantren contexts. Second, the intervention was conducted for four weeks, which means the study measured short-term behavioral change rather than long-term habit formation. Third, the measurement of energy-saving behavior relied partly on questionnaire responses, which may be influenced by students' self-perception. Fourth, the study did not directly measure actual reductions in electricity or water consumption. Future studies should involve more pesantren, apply a longer intervention period, and include objective energy-use data to strengthen the evidence of behavioral and resource-efficiency impacts.

Overall, this study shows that Arabic language learning can serve a broader educational function beyond improving language competence. When learning materials are intentionally connected to students' lived experiences, they can become an effective medium for developing sustainable behavior. In the context of pesantren, the integration of energy-saving values into Arabic learning provides a practical contribution to value-based education, resource management, and energy efficiency in educational institutions.

The findings of this study indicate that energy-saving behavior is more likely to develop when instructional content is closely connected to students' everyday experiences. In the experimental group, Arabic was taught not as an isolated subject, but as a learning medium embedded in the students' daily dormitory life, including the use of lights, water, electricity, rooms, and shared facilities. This contextual approach appears to have enabled energy-saving messages to move beyond cognitive understanding and become part of students' actual practices. In this sense, the learning process did not merely transfer knowledge but also created opportunities for the internalization of behavioral values.

4. CONCLUSION

4.1. Conclusion

This study demonstrates that integrating energy-saving values into Arabic language learning can effectively shape students' energy-saving behavior in Islamic boarding schools. The main scientific contribution of this study lies in positioning Arabic language learning not only as a medium for linguistic competence, but also as a contextual pedagogical space for value internalization, sustainable behavior formation, and resource efficiency in educational institutions. Through energy-related vocabulary, dialogues, sentence examples, and classroom routines, students were encouraged to connect language learning with daily practices such as saving electricity, conserving water, and maintaining shared facilities. However, this study is limited by its small sample, single pesantren context, short intervention period, and

the absence of direct measurement of actual electricity or water consumption. Future studies should involve broader pesantren settings, longer interventions, and objective energy-use data to strengthen the evidence of behavioral and resource-efficiency impacts.

4.2. Suggestion

Future studies are recommended to examine the long-term impact of energy-saving pedagogical strategies in broader Islamic boarding school contexts. The integration of sustainability values can also be expanded to other subjects to determine whether similar approaches are effective beyond Arabic language learning. In addition, future research should include objective measurements of electricity and water consumption to assess the practical impact of the intervention on resource efficiency. Involving boarding schools from different regions would also help test the consistency of the findings across diverse social and cultural contexts.

5. REFERENCES

Al-Ghaili, A.M. et al. (2021) "Energy Management Systems and Strategies in Buildings Sector: A Scoping Review," IEEE Access, 9, pp. 63790–63813. Available at: https://doi.org/10.1109/ACCESS.2021.3075485.

Anugwo, I.C. et al. (2025) "Critical drivers of changes in energy-saving behaviours in student housing in Northern Ghana," Journal of Engineering, Design and Technology, 23(6), pp. 2023–2041. Available at: https://doi.org/10.1108/JEDT-04-2024-0213.

Chen, X. and Gou, Z. (2022) "Bridging the knowledge gap between energy-saving intentions and behaviours of young people in residential buildings," Journal of Building Engineering, 57, p. 104932. Available at: https://doi.org/10.1016/j.jobe.2022.104932.

Chen, Y. and Lotti, L. (2025) "Evaluating the effectiveness of behavioural nudges in reducing energy consumption in student accommodation: a quasi-experimental approach," UCL Open Environment, 7(1). Available at: https://doi.org/10.14324/111.444/ucloe.3412.

Denny, M., Denieffe, S. and O'Sullivan, K. (2023) "Non-equivalent Control Group Pretest–Posttest Design in Social and Behavioral Research," in A.L. Nichols and J. Edlund (eds.) The Cambridge Handbook of Research Methods and Statistics for the Social and Behavioral Sciences. 1st ed. Cambridge University Press, pp. 314–332. Available at: https://doi.org/10.1017/9781009010054.016.

Hamid, M. et al. (2024) "Language Environment and Acquisition Dynamics of Arabic in Pesantren: Perspectives on Islamic Education and Learning Tradition," International Journal of Islamic Thought and Humanities, 3(2), pp. 387–400. Available at: https://doi.org/10.54298/ijith.v3i2.608.

Heib, S., Kortsch, T. and Hildebrand, J. (2024) "A question of norms and control—factors shaping sustainable energy behavior: a study among various university stakeholders," Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO), 55(2), pp. 141–156. Available at: https://doi.org/10.1007/s11612-024-00744-6.

Hou, H.C. and Law, K.K. (2024a) "Examining the relationship between student residents' self-reported energy consumption behavior and their energy-saving intention," Journal of Building Engineering, 98, p. 111490. Available at: https://doi.org/10.1016/j.jobe.2024.111490.

Hou, H.C. and Law, K.K. (2024b) "Examining the relationship between student residents' self-reported energy consumption behavior and their energy-saving intention," Journal of Building Engineering, 98, p. 111490. Available at: https://doi.org/10.1016/j.jobe.2024.111490.

Idhan, M., Hasnah, S. and Agustina, P.A.D. (2024) "Arabic Learning Strategy in a Pesantren: Local Cultural Integration Perspective," Al-Hayat: Journal of Islamic

Education, 8(4), pp. 1274–1287. Available at: https://doi.org/10.35723/ajie.v8i4.695.

Josephine Chelelwa Zulu, Chrispine Mulenga Mwambazi, and Moose John (2025) "Explore How Social and Institutional Support Systems Influence Educators' Well-Being: Emphasis on Relationships with Colleagues, Administrators, And the Broader Community," International Journal of Latest Technology in Engineering Management & Applied Science, 14(7), pp. 375–383. Available at: https://doi.org/10.51583/IJLTEMAS.2025.1407000041.

Kasanah, N., As Sajjad, M.H. and Rohmatullah, D.M. (2023) "Responsive Islamic Boarding School Management to Environmental Sustainability Through Green Pesantren Program," Muslim Heritage, 8(2), pp. 267–278. Available at: https://doi.org/10.21154/muslimheritage.v8i2.5017.

Khofifah Khofifah et al. (2025) "Behaviorism Theory in a Language Environment: A Case Study of Arabic Language Proficiency at Pesantren Al-Bukhari, Southeast Sulawesi: Teori Behaviorisme dalam Lingkungan Berbahasa: Studi Kasus Penguasaan Bahasa Arab di Pesantren Al-Bukhari Sulawesi Tenggara," Edulab : Majalah Ilmiah Laboratorium Pendidikan, 10(1), pp. 102–118. Available at: https://doi.org/10.14421/edulab.2025.101.07.

Kwakwa, P.A. et al. (2024) "Electricity conservation intention among university students in northern Ghana: An assessment of the drivers for some electrical appliances," Cleaner and Responsible Consumption, 12, p. 100171. Available at: https://doi.org/10.1016/j.clrc.2024.100171.

Malhotra, A. (2022) "Trade-offs and synergies in power sector policy mixes: The case of Uttar Pradesh, India," Energy Policy, 164, p. 112936. Available at: https://doi.org/10.1016/j.enpol.2022.112936.

Muttaqin, I., Bakheit, B.M. and Hasanah, M. (2024) "Arabic Language Environment for Islamic Boarding School Student Language Acquisition: Capturing Language Input, Interaction, and Output," Al-Hayat: Journal of Islamic Education, 8(3), pp. 891–907. Available at: https://doi.org/10.35723/ajie.v8i3.624.

Nasir, M.N. and Bengi, K.S. (2024) "The energy mix dilemma in Indonesia in achieving net zero emissions by 2060," ASEAN Natural Disaster Mitigation and Education Journal, 2(1). Available at: https://doi.org/10.61511/andmej.v2i1.2024.951.

Qin, B., Xie, S. and Xu, C. (2024) "Social recognition, goal setting, and energy conservation: Evidence from a field experiment in student dormitories," Energy Policy, 195, p. 114370. Available at: https://doi.org/10.1016/j.enpol.2024.114370.

Santos, P.R.B.D. (2025) "Estratégias de Reforço Positivo em ambientes escolares: Impactos no comportamento dos alunos," Research, Society and Development, 14(3), p. e7014348476. Available at: https://doi.org/10.33448/rsd-v14i3.48476.

Su, J. et al. (2023) "A Bibliometric Review of Nature-Based Solutions on Urban Stormwater Management," Sustainability, 15(9), p. 7281. Available at: https://doi.org/10.3390/su15097281.

Sunarko, A., Solehudin, M. and Sakinah, N. (2026) "Elevenlabs Text-To-Speech and Arabic Listening Achievement in Pesantren," An Nabighoh, 28(1), pp. 1–20. Available at: https://doi.org/10.32332/an-nabighoh.v28i1.1-20.

Varras Amrulloh, A., Sunarko, A. and Zuhdi, A. (2026) "Reducing Speaking Anxiety Through Community Language Learning (Cll): A Qualitative Inquiry Into Arabic Speaking Self-Efficacy at Mak al-Hikmah 2 Benda, Brebes," Al-Fakkaar: Jurnal Ilmiah Pendidikan Bahasa Arab, 7(1), pp. 49–62.

Wang, H., Li, J. and Mao, P. (2025) "Identifying factors influencing energy saving cognition-behavior gaps in shared residential spaces using interpretable machine learning: A dormitory case study," Journal of Building Engineering, 100, p. 111809. Available at: https://doi.org/10.1016/j.jobe.2025.111809