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Environmental Self-Efficacy And Environmental Love Action Program Among Students: Hubungan Efikasi Diri Lingkungan Dan Program Aksi Cinta Lingkungan Siswa

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Abstract

General Background: Environmental degradation caused by unmanaged waste has become a critical issue affecting environmental quality and public health, particularly in urban areas. **Specific Background:** In response to waste accumulation around the Geger Kalong area, Daarut Tauhiid Boarding School Bandung implemented the Environmental Love Action Program as a structured school-based waste management and environmental behavior initiative. **Knowledge Gap:** Previous environmental education initiatives often emphasize cognitive understanding, while limited empirical evidence explains the role of psychological factors, particularly environmental self-efficacy, in structured environmental programs within Islamic boarding school contexts. **Aims:** This study examines the relationship between environmental self-efficacy and student involvement in the Environmental Love Action Program among female middle school students. **Results:** Using a quantitative correlational approach with 148 respondents, Pearson Product Moment analysis revealed a strong and statistically significant relationship between environmental self-efficacy and program involvement ($r = 0.769$, $p < 0.01$). **Novelty:** This study provides empirical evidence linking environmental self-efficacy to sustained participation in a faith-based environmental action program within a boarding school setting. **Implications:** The findings indicate that strengthening students' confidence in their environmental capabilities is essential for sustaining environmentally responsible behavior and supporting long-term waste management practices in educational institutions.

Highlights:

- Strong correlation identified between environmental self-efficacy and student participation
- Environmental action program supported sustained environmentally responsible behavior
- Psychological confidence associated with consistency in school-based environmental practices

Keywords: Environmental Self-Efficacy; Environmental Action Program; Waste Management Education; Sustainable Behavior; Islamic Boarding School

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Introduction

Environmental preservation is currently a crucial and widely discussed issue. It is hoped that this issue will not remain merely discourse, but will be followed up through concrete steps that have a significant impact and shape a sustainable lifestyle. This is important because the earth's future depends on people making serious efforts to protect and improve the environment. This is in line with what the United Nations Environment Programme (UNEP) says: if people don't make a serious effort to lessen the impact of their actions on the environment, the planet will be in danger (UNEP, 2024). The different environmental crises that have come up are not just problems for the environment; they also have a direct effect on how well people live. Air and water pollution, land degradation that reduces productivity, climate change that triggers natural disasters, the decline in biodiversity that disrupts the balance of the ecosystem, and the problem of increasing waste are real challenges that must be addressed immediately. If left unchecked, this series of problems can worsen social, economic, and human health conditions in the future. The environmental crisis we face is inseparable from the problem of waste or garbage, which is an inseparable part of everyday life. People are often hesitant to talk about this issue because the words "garbage" and "waste" are often used to describe things that are dirty, useless, or even disease-causing. But Indonesia is expected to make about 68.7 million tons of trash every year (KLHK 2022).

The Ministry of Environment and Forestry (KLHK) says that 60% of all trash in Indonesia is organic waste. Plastic waste is in second place with 14% followed by paper waste at 9% and rubber at 5.5% [1]. Other waste consists of metal, cloth, glass, and other types of waste. The dominance of waste in Indonesia is also in line with the world's biggest environmental problems, because food or organic waste is in third place in the biggest global environmental problems, while plastic waste is in fifth place [2]. Ironically, waste management in Indonesia is still far from optimal, both by the government and the community. Based on KLHK data, it was recorded that 343 of the 550 Final Disposal Sites (TPA) in Indonesia still use the Open Dumping system [3]. This system only piles up waste in the open without adequate cover, so it is considered the simplest and cheapest waste management method [4]. However, the negative impacts of the Open Dumping system are very large, such as soil and water pollution due to leachate, as well as air pollution caused by the stench of rotting waste [5].

Similar problems are also found in the city of Bandung, particularly in the Geger Kalong Tengah Market area, West Java. Waste disposal sites (TPS) in the area are often not transported to the TPA on time, resulting in piles of waste that disrupt health and environmental comfort. Piles of waste that accumulate around the market cause unpleasant odors, dirty environments, and potentially give rise to disease. Seeing these conditions, changing people's behavior, especially the younger generation, is very urgent in addressing environmental problems. Although all age groups have the same responsibility, the emphasis on changing the behavior of the younger generation is more important, considering that they are the group that will live longer in the future and have the potential to become policy makers. In response, UNESCO, through the

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international community, agreed that education has a crucial role in preparing society, especially the younger generation, to face the impacts of climate change. According to UNESCO, education related to climate change must encompass three dimensions of learning: cognitive or knowledge, affective or emotions and attitudes, and conative or behavior [6]. With this approach, the younger generation will not only understand theory but also be able to build awareness, attitudes, and real behavior in protecting the environment.

Developing a young generation that cares about environmental sustainability requires attention to psychological and behavioral approaches. One of these strategies is environmental self-efficacy, which is the belief that a person can do things that are good for the environment. Sustainable living, also called a sustainable lifestyle, is how much a person uses eco-friendly ideas in their daily life. It is believed that these two ideas will encourage people to get involved in a wide range of environmental conservation activities, especially those that take place in Islamic boarding schools. One real example of an environmentally friendly behavior-based education program is the Daarut Tauhiid Islamic Boarding School in Bandung. This Islamic boarding school does a lot to cut down on waste, such as teaching students about organic and inorganic trash. One example is that Daarut Tauhiid Boarding School (DTBS) Putri Middle School has started using the Environmental Love Action Program (ACL). This program aims to reduce daily waste while encouraging the implementation of zero-waste principles within the Islamic boarding school environment. The ACL program encourages all students and academics to practice sustainable living, such as bringing their own lunch boxes and tumblers, and sorting waste based on its type, namely organic, inorganic, and others [7]. In addition, DTBS Putri Middle School also has a waste bank, so students can channel recyclable waste such as cardboard to a larger waste bank.

Changes in behavior that lead to a more sustainable lifestyle are closely tied to psychological factors, especially self-efficacy, which is the belief that you can do things to protect the environment. Albert Bandura (1997) emphasized that self-efficacy is a crucial determinant in the decision-making process regarding the engagement in specific actions. People who have a high level of environmental self-efficacy are more likely to take part in activities that are good for the environment. Research findings by Simanjuntak (2016) also indicate a positive relationship between student self-efficacy and environmentally responsible behavior. Therefore, strengthening environmental self-efficacy needs to be an integral part of the ACL program, so that students are not only involved out of obligation but also because of a strong self-belief that they are capable of contributing to environmental preservation. Thus, the ACL program is not merely a routine but can build a new, sustainable culture within the Islamic boarding school environment. Additionally, this culture can become a habit for students who are not at the Islamic boarding school, which can help them make changes in their communities. This study aims to investigate the relationship between environmental self-efficacy and the ACL program among students at Daarut Tauhiid Boarding School for Girls, as delineated above. The objective of this study is to investigate the psychological and behavioral factors influencing students' adherence to environmentally sustainable practices, in addition to evaluating the program's efficacy descriptively.

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Method

The study used a quantitative approach by combining descriptive methods and correlational design. The choice of quantitative approach was based on the research objective that focuses on measuring and analyzing the relationship between variables objectively and measurably. Thus, the correlational design was considered appropriate to obtain a comprehensive understanding of the relationship between variables without performing manipulation or special treatment on the research subjects [8]. The population in the study included students of DTBS Putri Middle School located at Jl. Gegerkalong Girang Baru No. 11, Isola, Sukasari District, Bandung City, West Java 40154. The selection of the population in the study was carried out because DTBS Putri Middle School has a program related to environmental conservation that was studied by the researcher. The sample used in this study was a purposive non-probability sample, so the sample selection was based on certain considerations. The selection of this sampling technique was adjusted to the researcher's objective which emphasized the habits or habituation of students when implementing the ACL program [9]. With this objective, the researcher made considerations so that the sample was only taken from students who participated in the ACL program from the first year they attended DTBS Putri Middle School. Because the ACL program was only implemented in the 2024/2025 academic year, based on sample considerations, this study was conducted in grades VII and IX with a total of eight classes with a total of 186 students.

Result And Discussion

The analysis of the relationship between environmental self-efficacy and the ACL program was conducted to determine the level of correlation between the two variables in the context of environmental education at DTBS Putri Middle School. To ensure the accuracy and validity of the analysis results, testing was conducted systematically through stages of statistical prerequisite tests. The initial stage in the analysis of the relationship between environmental self-efficacy and the ACL program began with a normality test on the research data that had been declared valid.

Table 1. *Normality Test*

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		148
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	6.10024947
Most Extreme Differences	Absolute	.050

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	Positive	.050
	Negative	-.042
Test Statistic		.050
Asymp. Sig. (2-tailed)		.200[c,d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Based on the results of the data normality test conducted using the One-Sample Kolmogorov–Smirnov Test on unstandardized residuals, the analyzed data involved 148 respondents. The test results showed an Asymp. Sig. (2-tailed) value of 0.200, which is greater than the significance level of 0.05. This finding indicates that the residual data does not deviate from the normal distribution. Thus, the null hypothesis (H_0) stating that the sample comes from a normally distributed population is accepted, while the alternative hypothesis (H_1) stating that the sample does not come from a normally distributed population is rejected. Therefore, it can be concluded that the normality assumption in this study has been met and the data is suitable for analysis using parametric statistical techniques in the next stage.

After conducting a normality test to ensure that the research data is normally distributed, the next step is to conduct a homogeneity test. The homogeneity test aims to determine whether the data variance across respondent groups has a relatively equal distribution. This homogeneity of variance is an essential prerequisite for parametric statistical analysis. The results of the homogeneity test are as follows:

Table 2. *Homogeneity Test*

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Program Aksi Cinta Lingkungan (ACL) (Y)	Based on Mean	1.053	33	99	.409
	Based on Median	.659	33	99	.913
	Based on Median and with adjusted df	.659	33	54.320	.899
	Based on trimmed mean	.993	33	99	.491

Based on the results of the homogeneity of variance test conducted using the Levene Test on the relationship between environmental self-efficacy (X_1) and the ACL Program (Y), a Based on Mean significance value of 0.409 was obtained. This value is greater than the specified significance level, which is

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0.05. Thus, it can be concluded that the data variance between respondent groups has a relatively equal or homogeneous level of distribution. These results indicate that the assumption of homogeneity of variance has been met, so that the data is suitable for use in parametric statistical analysis in the next stage.

Next, to ensure that the relationship between the variables in this study is linear, the next step is to conduct a linearity test. The linearity test aims to determine whether the relationship between the independent and dependent variables forms a straight line. The following are the results of the homogeneity test:

Table 3. *Linearity Test Results*

ANOVA							
Environmental Love Action Program (ACL) (Y)							
			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		10747.350	48	223.903	4.964	.000
	Linear Term	Weighted	9006.536	1	9006.536	199.680	.000
		Deviation	1740.814	47	37.039	.821	.772
Within Groups			4465.373	99	45.105		
Total			15212.723	147			

Based on the results of the linearity test of the relationship between environmental self-efficacy (X_1) and the ACL Program (Y) analyzed using a one-way ANOVA test, the significance value of the Linear Term component was 0.000. This value is below the significance level of 0.05, so it can be concluded that the relationship between the two variables is linear and significant.

After going through the prerequisite testing stages, which included normality, homogeneity, and linearity tests, the research data met all the prerequisites for parametric statistical analysis. With these prerequisites met, the next analysis was the Pearson Product Moment correlation test.

The Pearson Product Moment correlation test was chosen based on the research objective, which was to determine the level and direction of the relationship between the independent variable, Environmental Self-Efficacy, and the dependent variable, the Environmental Love Action Program (ACL). This test was used to measure the extent of the linear relationship between the two variables based on data obtained from respondents. The hypothesis in this study is as follows.

Ho : There is no significant relationship between environmental self-efficacy and the ACL program in female students at DTBS Bandung Middle School.

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H1 : There is a significant relationship between environmental self-efficacy and the ACL program in female students at DTBS Bandung Middle School.

The following are the results of Pearson Product Moment using the SPSS for Windows Version 26 application.:

Tabel 4. *Hasil Uji Korelasi*

Correlations			
		Environmental Self-Efficacy (ESE)(X1)	Program Aksi Cinta Lingkungan (ACL) (Y)
Environmental Self-Efficacy (ESE)(X1)	Pearson Correlation	1	.769**
	Sig. (2-tailed)		.000
	N	148	148
Environmental Love Action Program (ACL) (Y)	Pearson Correlation	.769**	1
	Sig. (2-tailed)	.000	
	N	148	148
**. Correlation is significant at the 0.01 level (2-tailed).			

Based on the results of the Pearson Product Moment correlation test analysis, it is known that the relationship between environmental self-efficacy (X1) and the ACL Program (Y) produces a correlation coefficient value of r = 0.769. This value indicates a strong relationship between the two variables. In addition, a significance value of 0.000 was obtained at a significance level of 0.01 (2-tailed), which means the significance value is smaller than the set limit, which is 0.05. Thus, the results of this test indicate that the relationship between environmental self-efficacy and the ACL program is statistically significant. This means that the higher the students' level of environmental self-efficacy, the stronger their involvement in the ACL program.

The statistical analysis revealed a positive and significant relationship between environmental self-efficacy and the level of student involvement in the ACL program. This research suggests that the stronger students' conviction in their competence to preserve and manage the environment, the greater their engagement in the program's activities. Student involvement is demonstrated not only via their participation in scheduled events, but also by their persistent and ongoing dedication to implementing environmentally friendly habits in their daily lives. Conceptually, this study supports that environmental self-efficacy is a psychological element that is important in driving active and sustainable environmental behavior. Belief in one's own skills provides as a basis for pupils to grasp environmental principles while also feeling empowered

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to put them into action. Thus, perceptions of self-capacity relate students' environmental knowledge to their direct participation in the ACL program.

This study's findings are consistent with previous research (Habibie, 2020), which suggests that increased environmental awareness paired with higher self-efficacy leads to more environmentally responsible behavior. These results are consistent, demonstrating that environmental education programs that just address cognitive elements are insufficient to induce long-term behavioral change. In contrast, improving students' self-confidence in coping with environmental concerns is a key consideration when developing and executing environmental education programs. Mrs. Ega, the ACL program coordinator, stated that students have demonstrated strong engagement in a variety of program activities, lending confidence to these quantitative results. This engagement is evident not just in the early stages of implementation, but also in the students' perseverance and resilience in implementing environmental awareness activities into their daily lives at the Islamic boarding school. This shows that the ACL program provided students with the chance to develop habits and a commitment to sustainable environmental actions.

Mrs. Ega did, however, emphasize that the children's ongoing engagement required regular mentorship, particularly via monitoring and role modeling by the whole DTBS Putri Middle School community. An environment that consistently provides practical examples is seen as encouraging and reminding students to maintain the good practices they have learnt. This form of support makes students feel less alone, which enhances their drive to continue engaging in ACL activities over time. This is congruent with research [10], which indicates that a positive office environment and engagement in environmentally friendly volunteer activities enhance environmental self-efficacy. When the surrounding environment provides actual and ongoing support for environmental actions, individuals feel more capable and safe in accepting obligations. In this context, the DTBS Putri Middle School community, which actively promotes a positive environmental climate, not only strengthens the ACL program's implementation, but also helps to instill students with the confidence to continue their involvement in environmental conservation.

Theoretically, the findings of this study align with the view [11], which asserts that self-efficacy influences behavioral choices, the amount of effort expended, and individual resilience in the face of obstacles. Students who have greater confidence in their abilities are more likely to not only comply with formal environmental regulations but also demonstrate initiative in implementing various ACL practices, such as waste sorting, reducing plastic use, and actively participating in Islamic boarding school environmental cleanup activities. This shows that the ACL program is being carried out not merely as an institutional mandate, but also because of a personal belief in the viability and efficacy of the measures. In contrast, students with lower levels of environmental self-efficacy are less likely to engage. Even within the same context and program, the perception that environmentally beneficial actions are difficult or will not result in real change may discourage active participation [12]. This condition reinforces the finding [13] that increasing environmental knowledge needs to be accompanied by strengthening self-efficacy to encourage

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more sustainable behavior.Environmental responsibility. Individuals with low self-efficacy tend to doubt themselves more easily, give up quickly, and view obstacles as greater than the chances of success. Furthermore, the relationship between environmental self-efficacy and the ACL program is also evident in the aspect of behavioral consistency. The ACL program is designed as a sustainable activity, not a one-time action. Therefore, the success of this program depends heavily on the students' ability to maintain environmentally friendly behavior over the long term.

Conclusion

Environmental self-efficacy plays a crucial role in encouraging student involvement in the ACL program. Students who have stronger confidence in their ability to protect and manage the environment tend to demonstrate more active, consistent, and sustained participation in the program's implementation. This self-efficacy helps students view ACL activities not simply as a school obligation, but as actions they can undertake that are meaningful to the environment.

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