The Influence of Pro-Environmental School Culture on Green School Implementation with Students' Environmental Awareness as a Mediating Variable

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ABSTRACT: This study investigates the impact of Pro-Environmental School Culture (PESC) on Green School Implementation (GSI), with Students' Environmental Awareness (SEA) serving as a mediating variable. The primary objective is to understand how a supportive school culture influences student awareness and the effective implementation of green initiatives. Utilizing a quantitative research design, data were collected from 175 high school students through a structured questionnaire, and analyzed using Structural Equation Modeling (SEM). The findings reveal that PESC significantly influences GSI, highlighting that schools with a strong environmental culture are more successful in implementing sustainable practices. Additionally, PESC positively impacts SEA, indicating that a pro-environmental culture enhances students' awareness of environmental issues. The results further demonstrate that SEA mediates the relationship between PESC and GSI, confirming that increased environmental awareness among students is crucial for the success of green initiatives. This study contributes to the existing literature by providing empirical evidence from Indonesian schools, emphasizing the interconnectedness of school culture, student awareness, and environmental practices. The implications suggest that educational institutions should prioritize fostering a pro-environmental culture to enhance student engagement and promote sustainability. Moreover, policymakers are encouraged to support schools in integrating environmental education and initiatives, ultimately leading to a more sustainable future for Indonesia.

KEYWORDS: Green School Implementation, Pro-Environmental School Culture, Students' Environmental Awareness

1. INTRODUCTION

The implementation of environmentally friendly schools, commonly known as Green Schools, has become a significant issue in modern education (Gericke et al., 2020a). The Green School concept emphasizes not only physical aspects such as the use of renewable energy and green spaces but also the integration of sustainability values into the education system (Altassan, 2023). The aim of Green Schools is to create a learning environment that is not only comfortable and healthy but also educates students to become change agents in environmental conservation (Kamil et al., 2020). In this context, various internal and external factors play a crucial role in the successful implementation of Green Schools (Gericke et al., 2020b; Müller et al., 2020).

One of the key factors in implementing Green Schools is a school culture that promotes environmental sustainability (Demirtaş et al., 2024; Yli-Panula et al., 2022). School culture encompasses attitudes, behaviors, and policies that support environmentally friendly practices in daily activities. When a pro-environment culture is well internalized in schools, it creates a conducive environment for the implementation of Green School policies (Nurwidodo et al., 2019). Moreover, this culture influences the attitudes and behaviors of students, teachers, and staff to actively participate in environmental programs. Therefore, the role of school culture is critical in achieving sustainability goals (Agirreazkuenaga, 2022; Esteban Ibáñez et al., 2020; Major et al., 2017).

Students' environmental awareness is another aspect that potentially mediates the relationship between a pro-environment school culture and the implementation of Green Schools (Ma et al., 2023). This awareness reflects students' understanding and concern for environmental issues as well as their commitment to acting in ways that protect the environment. When students possess a high level of environmental awareness, they are more likely to engage in activities that support Green School initiatives, such as recycling, energy conservation, and tree planting (Boca & Saraçlı, 2019; Cheang et al., 2017; Tucker & Izadpanahi, 2017). In this regard, environmental awareness is not only influenced by school culture but also strengthens the implementation of environmentally friendly policies in schools (Almeida et al., 2018).

This study focuses on the influence of a pro-environment school culture on the implementation of Green Schools, with students' environmental awareness serving as a mediating variable. The research aims to explore the extent to which school culture influences Green School implementation, both directly and through the enhancement of students' environmental awareness. By employing this approach, the study is expected to provide a deeper understanding of the mechanisms underlying the relationship between school culture and Green School implementation.

Additionally, this research seeks to examine the role of students' environmental awareness as a mediating variable. In this regard, it is hypothesized that a pro-environment school culture will increase students' awareness of the importance of environmental conservation, which in turn will strengthen the implementation of Green Schools. By identifying these factors, the research can offer clearer insights into how school culture and students' awareness contribute to the success of environmentally friendly programs in schools.

More broadly, this study contributes to the literature that examines the role of education in promoting environmental sustainability. Previous research has shown that a positive school culture and student participation can be key drivers of environmentally friendly behavior change. However, further research is needed to understand how this relationship occurs and to what extent students' awareness mediates the influence of school culture on the implementation of Green School policies.

Thus, the primary objective of this research is to answer the question: To what extent does a pro-environment school culture influence the implementation of Green Schools, and how does students' environmental awareness mediate this relationship? The findings from this research are expected to provide valuable insights for schools, governments, and other stakeholders in designing more effective policies and strategies to achieve sustainable education.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT
2.1 The Relationship between Pro-Environmental School Culture on Green School Implementation

According to Jensen (2002), Pro-environmental school culture refers to the collective values, beliefs, and practices within a school that actively support sustainability and environmental stewardship. This culture is reflected in daily actions, such as energy conservation, waste reduction, and promoting eco-friendly behaviors among students, teachers, and staff. Schools with a strong pro-environmental culture integrate environmental education into the curriculum and create policies that encourage sustainable practices, fostering a sense of responsibility towards the environment among the school community (Goldman et al., 2018).

Wee et al. (2018) assert that Green School implementation involves adopting environmentally sustainable practices in school operations and educational approaches. This includes efforts to reduce the school's ecological footprint, such as using renewable energy, managing waste effectively, and creating green spaces. Additionally, it emphasizes teaching students about environmental issues, cultivating their awareness, and encouraging active participation in protecting the environment. Green School initiatives aim to create a healthy, sustainable learning environment that promotes environmental consciousness and action (Gough, 2020).

A pro-environmental school culture plays a crucial role in supporting the successful implementation of Green School initiatives (Runhaar et al., 2019; Sieg & Dreesmann, 2021). When the values of environmental sustainability are deeply ingrained in the school's culture, it fosters an environment where sustainable practices become part of everyday life. This culture influences the attitudes and behaviors of students, teachers, and staff, making it easier to introduce and maintain Green School policies. Schools that actively promote pro-environmental behaviors create a foundation where initiatives such as energy conservation, waste management, and eco-friendly projects are more likely to succeed (Tariq et al., 2022).

Moreover, a school culture that emphasizes environmental awareness encourages the school community to engage more deeply with Green School programs (Alkaher & Avissar, 2018). Teachers and students become more willing to participate in environmental education and adopt sustainable practices, which enhances the overall effectiveness of the initiatives. In this way, the presence of a strong pro-environmental culture creates a positive feedback loop that reinforces the goals of Green School implementation, leading to lasting environmental benefits within the school and the broader community (Bergman, 2016).

H1: Pro-Environmental School Culture impact on Green School Implementation

2.2 The Relationship between Pro-Environmental School Culture on Students' Environmental Awareness

A pro-environmental school culture significantly influences the development of students' environmental awareness (Runhaar et al., 2019). When a school actively promotes sustainability through its values, practices, and policies, it creates an environment

where students are consistently exposed to eco-friendly behaviors and environmental education. This cultural influence shapes students' perceptions and attitudes toward environmental issues, making them more conscious of the importance of conservation, sustainability, and their role in protecting the environment. Through everyday interactions and participation in green initiatives, such as recycling programs, energy-saving campaigns, and eco-friendly school projects, students develop a deeper understanding and concern for environmental challenges (Altassan, 2023).

Furthermore, a school culture that prioritizes environmental responsibility reinforces pro-environmental behaviors by embedding these values in both academic and extracurricular activities (Gericke, 2022). As students experience environmental education not only in the classroom but also through practical, hands-on activities that reflect the school's commitment to sustainability, their environmental awareness grows. The repeated exposure to environmentally responsible practices in a supportive school environment helps cultivate a sense of environmental stewardship, encouraging students to adopt these values beyond the school setting and into their personal lives. Thus, the pro-environmental culture of a school plays a critical role in shaping students into environmentally conscious individuals (Song et al., 2022).

H2: Pro-Environmental School Culture impact on Students' Environmental Awareness

2.3 The Relationship between Students' Environmental Awareness on Green School Implementation

Fissi et al. (2021) assert that Students' environmental awareness plays a pivotal role in the successful implementation of Green School initiatives. When students possess a high level of awareness regarding environmental issues, they are more likely to engage actively in sustainable practices promoted by the school. Environmental awareness fosters a sense of responsibility among students, motivating them to participate in programs such as recycling, energy conservation, and waste reduction, all of which are core components of Green School implementation. This increased involvement ensures that the school's efforts to create a more sustainable environment are supported and maintained by the student body, making these initiatives more effective and impactful.

Moreover, von Braun (2017) state that students who are environmentally conscious often act as change agents within the school community. Their commitment to sustainability not only enhances their own participation but can also influence their peers, teachers, and even families to adopt eco-friendly behaviors. This creates a ripple effect that strengthens the overall implementation of Green School policies. By integrating environmental awareness into their daily habits, students contribute to fostering a culture of sustainability within the school, ensuring that Green School initiatives are not just top-down efforts but are deeply ingrained in the everyday life of the school community. Therefore, students' environmental awareness is crucial in driving the long-term success and sustainability of Green School programs (Alkaher & Gan, 2020; Almeida et al., 2018).

H3: Students' Environmental Awareness impact on Green School Implementation

2.4 Students' Environmental Awareness as Mediator

Cetin & Nisanci (2010) define that Students' environmental awareness refers to the understanding, knowledge, and concern that students possess regarding environmental issues and sustainability practices. It encompasses their ability to recognize the impact of their actions on the environment, as well as their commitment to engaging in behaviors that promote environmental conservation. This awareness is crucial in fostering a sense of responsibility among students, encouraging them to adopt eco-friendly practices and advocate for sustainable initiatives within their schools and communities. As such, students' environmental awareness serves as a key mediator that influences how effectively environmental policies and practices, such as those found in Green Schools, are implemented (Anwar et al., 2020).

In the context of environmental education and sustainability, students' environmental awareness acts as a mediator between pro-environmental school culture and the successful implementation of Green School initiatives. When a school cultivates a culture that prioritizes environmental values, it not only promotes eco-friendly behaviors but also enhances students' understanding and concern for environmental issues. This increased awareness equips students with the knowledge and motivation necessary to actively participate in Green School initiatives. As they become more conscious of the environmental challenges facing their communities and the world, they are more likely to engage in sustainable practices and contribute to their school's efforts to reduce its ecological footprint (Collins et al., 2018).

Furthermore, students' environmental awareness can influence the effectiveness of Green School implementation by encouraging peer support and collaboration in eco-friendly projects. When students are aware of the importance of sustainability,

they are more likely to inspire their classmates to join in on environmental initiatives, creating a collective movement toward greener practices within the school. This social reinforcement can amplify the impact of Green School programs, leading to greater participation and more successful outcomes. In this way, students' environmental awareness not only facilitates the connection between school culture and the implementation of sustainable practices but also helps sustain and strengthen those initiatives over time (Yadav et al., 2022).

H4: Students' Environmental Awareness mediate the relationship between Pro-Environmental School Culture and Green School Implementation

Figure 1 illustrates the conceptual framework of this study, depicting the relationships among Pro-Environmental School Culture (PESC), Students' Environmental Awareness (SEA), and Green School Implementation (GSI). This framework serves as a visual representation of the hypothesized pathways through which a supportive school culture can influence both student awareness and the effectiveness of green initiatives within educational institutions. The diagram highlights the direct effects of PESC on both SEA and GSI, while also emphasizing the mediating role of SEA in enhancing the impact of PESC on GSI. This model provides a comprehensive understanding of how educational environments can foster sustainable practices and promote environmental stewardship among students. By clarifying these relationships, Figure 1 sets the foundation for the empirical analyses conducted in this study, supporting the investigation of the interconnectedness between school culture, student awareness, and green practices in schools.
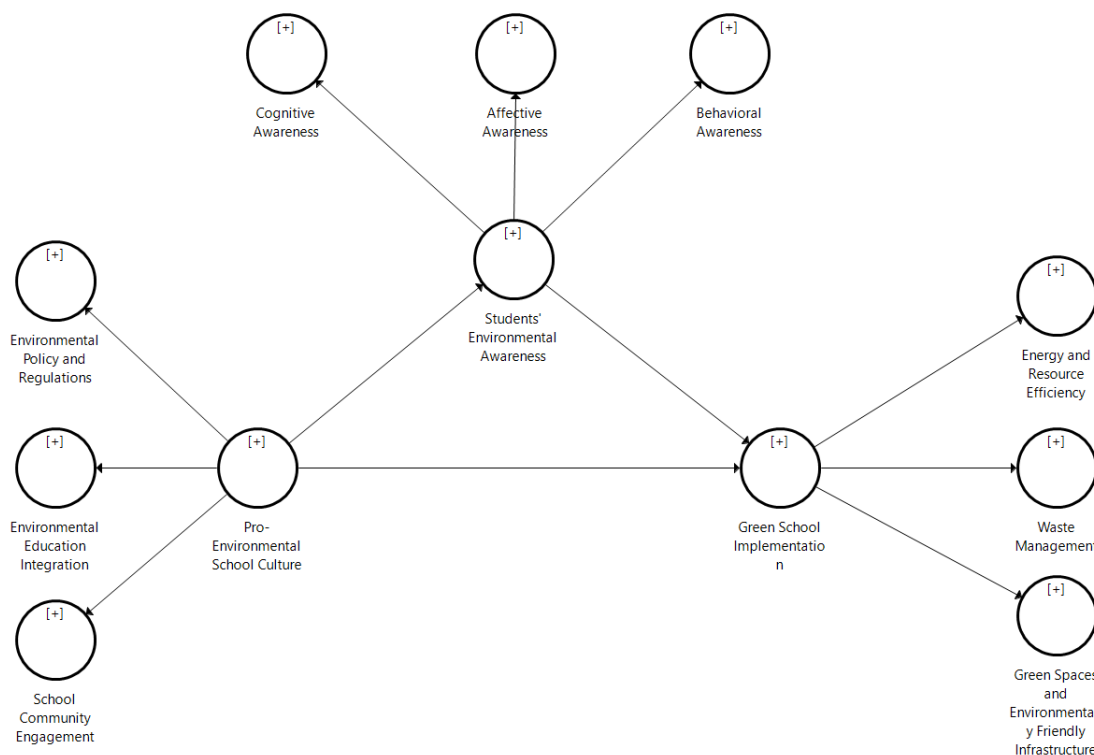

Figure 1. Research Model

3. METHODOLOGY

This study employed a quantitative approach with an explanatory survey design to analyze the relationships between Pro-Environmental School Culture, Students' Environmental Awareness, and Green School Implementation. This design was chosen because it can explain cause-and-effect relationships between variables through systematic measurement. Data were collected using a structured questionnaire distributed to the selected respondents. The analysis techniques used were Second-Order Confirmatory Factor Analysis (CFA) to ensure construct validity, and Structural Equation Modeling (SEM) to test the relationships between variables and measure the mediating role of students' environmental awareness.

The population of this study consisted of high school students attending schools that had implemented the Green School concept in the Jakarta area. The sample was determined using a purposive sampling technique, where students with direct experience in pro-environmental activities were selected as respondents. A total of 175 students were sampled, considered representative for testing the proposed model. Additionally, the inclusion criteria required that students had actively participated in the school's environmental programs for at least one year.

The research instrument used was a questionnaire with a 5-point Likert scale, measuring the dimensions of each variable, including Students' Environmental Awareness, Pro-Environmental School Culture, and Green School Implementation (see Table 1). The questionnaire was validated through validity and reliability tests using Cronbach's Alpha to ensure each indicator had good internal consistency. After data collection, data analysis was performed using SmartPLS to test the structural model and identify both the direct relationships and the mediating role of students' environmental awareness in influencing Green School implementation. The results showed that all variables demonstrated sufficient reliability and validity, with significant relationships between pro-environmental school culture and Green School implementation through the mediating effect of students' environmental awareness.

Table 1. Research Instrument

Variable	Dimension	Items and Indicator	Source
Pro-Environmental School Culture	Environmental Policy and Regulations	• PESC1= School policies that support effective waste management. • PESC2= School regulations related to energy conservation and resource usage. • PESC3= School policies that encourage the use of eco-friendly materials.	(Nurwidodo et al., 2019; Sieg & Dreesmann, 2021)
	Environmental Education Integration	• PESC4= Integration of environmental issues into the school curriculum. • PESC5= Teaching and learning activities focused on sustainability. • PESC6= Extracurricular activities that support the enhancement of students' environmental awareness.	
	School Community Engagement	• PESC7= Participation of the entire school community (teachers, students, and staff) in environmental activities. • PESC8= School support for environmental activities involving parents and the surrounding community. • PESC9= Collective commitment of the entire school community to environmental preservation.	
Students' Environmental Awareness	Cognitive Awareness	• SEA1= Students' knowledge of environmental issues (e.g., climate change, pollution, biodiversity). • SEA2= Students' understanding of the impact of human activities on the environment. • SEA3= Awareness of the limited nature of natural resources and the importance of sustainability.	(Cetin & Nisanci, 2010; Ma et al., 2023)

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	Affective Awareness	• SEA4= Students' concern for environmental conservation. • SEA5= Students' interest in participating in environmental preservation activities. • SEA6= Students' sense of responsibility to protect the environment.	
	Behavioral Awareness	• SEA7= Students' involvement in eco-friendly activities (e.g., recycling, energy conservation). • SEA8= Students' habits in minimizing their negative impact on the environment (e.g., reducing plastic use). • SEA9= Students' participation in environmental campaigns or activities within the school and community.	
Green School Implementation	Energy and Resource Efficiency	• GSI1= Use of renewable energy in the school (e.g., solar panels). • GSI2= Energy and water conservation programs in the school. • GSI3= Use of recycled and eco-friendly materials in school operations.	(Demirtaş et al., 2024)
	Waste Management	• GSI4= Effective waste management in the school (e.g., sorting of organic and non-organic waste). • GSI5= Availability of recycling facilities at the school. • GSI6= Involvement of students and staff in waste reduction programs.	
	Green Spaces and Environmentally Friendly Infrastructure	• GSI7= Presence of green spaces such as gardens or parks in the school environment. • GSI8= Environmentally friendly school building design (e.g., natural ventilation, natural lighting). • GSI9= Use of green technology in school infrastructure (e.g., wastewater treatment systems).	

4. RESULTS AND DISCUSSION

4.1 Validity and Reliability

The Second-Order Confirmatory Factor Analysis (CFA) results in Table 2 show that the constructs of Green School Implementation, Pro-Environmental School Culture, and Students' Environmental Awareness demonstrate strong internal consistency and validity overall. The Green School Implementation construct has high outer loadings across most indicators, especially for Waste Management (GSI5 = 0.961 and GSI6 = 0.965) and Green Spaces and Environmentally Friendly Infrastructure (all above 0.9), while GSI4 has a lower loading (0.629). Pro-Environmental School Culture shows solid reliability, with indicators like PESC1 (0.954) and PESC7 (0.943) displaying strong relationships, though PESC6 has a relatively lower loading (0.781). For Students' Environmental Awareness, the dimensions exhibit consistently high loadings, particularly SEA1 (0.929) and SEA7 (0.926), though SEA6 is lower at 0.745. High Cronbach's Alpha values (all above 0.9), Composite Reliability (CR) values, and

mostly acceptable Average Variance Extracted (AVE) values confirm the constructs' robustness, though slight improvements could be made to further strengthen a few weaker loadings.

Table 2. Second order confirmatory factor analysis

Construct*)	Dimension	Indicators	Outer Loading	Cronbach's Alpha	rho_A	CR	AVE
Green School Implementation	Energy and Resource Efficiency	GSI1	0.848	0.938	0.95	0.949	0.681
		GSI2	0.855				
		GSI3	0.830				
	Waste Management	GSI4	0.629				
		GSI5	0.961				
		GSI6	0.965				
	Green Spaces and Environmentally Friendly Infrastructure	GSI7	0.908				
		GSI8	0.923				
		GSI9	0.912				
Pro-Environmental School Culture	Environmental Policy and Regulations	PESC1	0.954	0.907	0.915	0.924	0.576
		PESC2	0.962				
		PESC3	0.920				
	Environmental Education Integration	PESC4	0.886				
		PESC5	0.882				
		PESC6	0.781				
	School Community Engagement	PESC7	0.943				
		PESC8	0.903				
		PESC9	0.965				
Students' Environmental Awareness	Cognitive Awareness	SEA1	0.929	0.911	0.917	0.927	0.589
		SEA2	0.943				
		SEA3	0.907				
	Affective Awareness	SEA4	0.892				
		SEA5	0.917				
		SEA6	0.745				
	Behavioral Awareness	SEA7	0.926				
		SEA8	0.869				
		SEA9	0.906				

4.2 Path Analysis and Mediation Result

The results from the Second Order Path Analysis in Table 3 and Figure 2 provide strong support for the hypothesized relationships between the constructs of Pro-Environmental School Culture (PESC), Students' Environmental Awareness (SEA), and Green School Implementation (GSI).

For Hypothesis 1 (H1), the direct relationship between PESC and GSI is confirmed with a path coefficient of 0.078, a significant T-statistic of 3.556, and a P-value of 0.000, indicating that Pro-Environmental School Culture significantly influences Green School Implementation. The sub-dimensions of PESC—Environmental Policy and Regulations, Environmental Education Integration, and School Community Engagement—all show strong and significant contributions to PESC, with high path coefficients (e.g., 0.972 for Environmental Education Integration) and exceptionally high T-statistics (e.g., 161.135 for Environmental Education Integration).

Hypothesis 2 (H2), which posits that PESC significantly influences SEA, is also supported with a path coefficient of 0.569 and a T-statistic of 5.508. Furthermore, the dimensions of SEA—Cognitive Awareness, Affective Awareness, and Behavioral Awareness—all show strong path coefficients (e.g., 0.946 for Affective Awareness) and high significance, confirming the robust internal structure of Students' Environmental Awareness.

For Hypothesis 3 (H3), the relationship between SEA and GSI is highly significant, with a path coefficient of 1.022 and a T-statistic of 58.915, showing a substantial impact of students' environmental awareness on Green School Implementation. The dimensions of GSI—Energy and Resource Efficiency, Waste Management, and Green Spaces and Environmentally Friendly Infrastructure—all exhibit very high path coefficients and strong statistical support, indicating that these are critical components of Green School Implementation.

Lastly, Hypothesis 4 (H4), which suggests that SEA mediates the relationship between PESC and GSI, is supported with a path coefficient of 0.582 and a T-statistic of 5.197, demonstrating that students' environmental awareness plays a crucial mediating role in the impact of pro-environmental school culture on green school implementation. Overall, all hypotheses are approved with high significance levels (P-values = 0.000), confirming the robustness of the proposed model.

Table 3. Second Order Path Analysis

Hypothesis	Construct*)	Original Sample	STDEV	T Statistics	P Values	Result
H1	PESC -> GSI	0.078	0.022	3.556	0.000	Approved
	PESC -> Environmental Policy and Regulations	0.880	0.02	43.741	0.000	Approved
	PESC -> Environmental Education Integration	0.972	0.006	161.135	0.000	Approved
	PESC -> School Community Engagement	0.710	0.092	7.725	0.000	Approved
H2	PSEC -> SEA	0.569	0.103	5.508	0.000	Approved
	SEA -> Cognitive Awareness	0.868	0.023	38.45	0.000	Approved
	SEA -> Affective Awareness	0.946	0.01	90.57	0.000	Approved
	SEA -> Behavioral Awareness	0.797	0.06	13.206	0.000	Approved
H3	SEA -> GSI	1.022	0.017	58.915	0.000	Approved
	GSI -> Energy and Resource Efficiency	0.931	0.011	84.075	0.000	Approved
	GSI -> Waste Management	0.982	0.004	268.318	0.000	Approved
	GSI -> Green Spaces and Environmentally Friendly Infrastructure	0.929	0.012	78.826	0.000	Approved
H4	PESC -> SEA -> GSI	0.582	0.112	5.197	0.000	Approved

*) PESC=Pro-Environmental School Culture; SEA=Students' Environmental Awareness; GSI=Green School Implementation
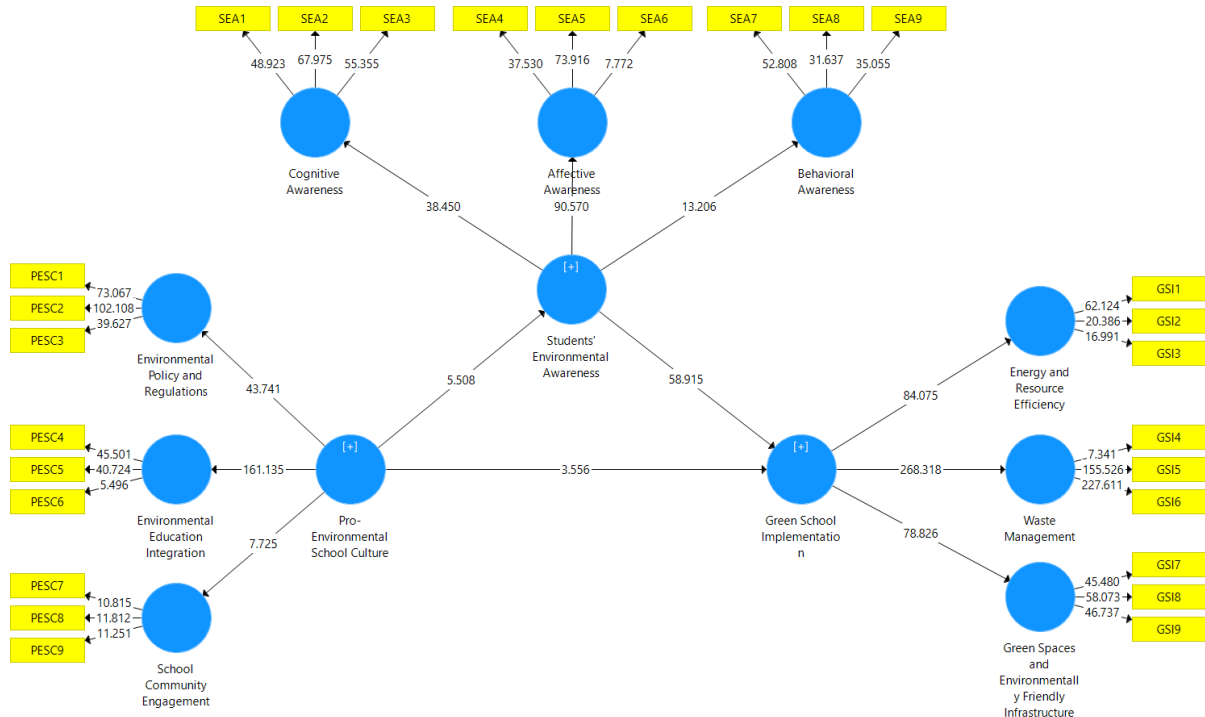
Figure 2. Bootstrapping result

4.3 Discussion

The findings from the Second Order Path Analysis indicate that all hypotheses (H1 to H4) are supported, demonstrating a robust framework connecting Pro-Environmental School Culture (PESC), Students' Environmental Awareness (SEA), and Green School Implementation (GSI). Specifically, H1 confirms that a pro-environmental culture within schools significantly influences the successful implementation of green initiatives. This aligns with previous research, such as that by Hollingworth et al. (2018) and Nurwidodo et al. (2019), which emphasized the importance of a supportive school culture in fostering environmental initiatives. In the context of Indonesia, empirical evidence supports this assertion, as schools that prioritize environmental values in their curricula have successfully implemented various green practices, contributing to a more sustainable school environment.

H2 indicates that PESC has a significant positive effect on SEA, affirming that when schools cultivate an environment focused on pro-environmental values, students are more likely to develop heightened environmental awareness. This finding resonates with studies conducted in Indonesia, where schools adopting green policies reported increased student participation in environmental programs. Research by Ardoin et al. (2020) and Demirtaş et al. (2024) corroborates this relationship, demonstrating that schools emphasizing environmental education can effectively enhance students' cognitive and emotional connections to environmental issues, thereby increasing their overall awareness and engagement.

H3 shows a strong link between SEA and GSI, highlighting that students with higher environmental awareness are more likely to engage in and support the implementation of green initiatives within their schools. This relationship is supported by empirical studies in Indonesia, such as those by Kamil et al. (2020), which revealed that students' environmental awareness directly correlates with their involvement in sustainability projects. When students are knowledgeable about environmental issues and motivated to make a difference, their participation in green school practices increases, showcasing a clear pathway from awareness to action.

Lastly, H4 reveals that SEA mediates the relationship between PESC and GSI, indicating that the positive influence of a pro-environmental school culture on green initiatives is significantly enhanced through the cultivation of students' environmental awareness. This mediation effect underscores the importance of fostering awareness as a strategic approach to maximizing the effectiveness of school-based environmental initiatives. Research in Indonesia, such as the findings from Rahayu and Setiawan

(2022), supports this notion, suggesting that schools can achieve more substantial green outcomes by integrating environmental awareness into their cultural frameworks. Together, these findings emphasize the interconnectedness of school culture, student awareness, and green practices, reinforcing the need for educational institutions in Indonesia to prioritize environmental values to drive effective green school implementations.

5. CONCLUSION AND IMPLICATIONS

This study successfully establishes a comprehensive framework that elucidates the relationships between Pro-Environmental School Culture (PESC), Students' Environmental Awareness (SEA), and Green School Implementation (GSI), with all four hypotheses being supported. The results indicate that a robust pro-environmental culture within schools significantly enhances both student awareness and the effective implementation of green initiatives. Additionally, the findings demonstrate that students' environmental awareness serves as a vital mediator, amplifying the positive effects of school culture on green practices. These insights contribute to the growing body of literature emphasizing the critical role of educational environments in fostering sustainable behaviors among students.

The implications of these findings are multifaceted for educators, policymakers, and school administrators. Firstly, there is a pressing need for educational institutions to embed pro-environmental values into their core curricula and daily practices. By fostering a culture that prioritizes environmental issues, schools can effectively raise awareness among students, encouraging them to actively participate in sustainability initiatives. This could involve integrating environmental education into various subjects, promoting student-led green projects, and establishing partnerships with local environmental organizations to create experiential learning opportunities.

Moreover, the study highlights the importance of student engagement in shaping a school's environmental culture. Schools should consider implementing participatory strategies that empower students to take ownership of environmental initiatives, such as establishing eco-clubs or organizing community clean-up events. Such involvement not only enhances students' awareness but also cultivates a sense of responsibility and agency regarding environmental stewardship, which can extend beyond the school setting into their homes and communities.

Finally, the findings serve as a call to action for policymakers to support schools in adopting green practices through funding, resources, and training. Policies that incentivize environmental initiatives and recognize schools' efforts in implementing green programs can further motivate educators and students alike. In the Indonesian context, these steps are particularly crucial as the nation seeks to enhance its commitment to sustainability and environmental conservation. By prioritizing a pro-environmental school culture, raising students' environmental awareness, and fostering effective green school implementations, Indonesia can work towards a more sustainable future for its generations to come.

REFERENCES

1. Agirreazkuenaga, L. (2022). Environmental and sustainability education: A critical analysis of evaluation instruments through a research–practice partnership. *Environmental Education Research*, *28*(5), 695–714. https://doi.org/10.1080/13504622.2022.2031898
2. Alkaher, I., & Avissar, I. (2018). Assessing the impact of a program designed to develop sustainability leadership amongst staff members in higher education institutes: A case study from a community of practice perspective. *Environmental Education Research*, *24*(4), 492–520.
3. Alkaher, I., & Gan, D. (2020). The role of school partnerships in promoting education for sustainability and social capital. *The Journal of Environmental Education*, *51*(6), 416–433.
4. Almeida, S. C., Moore, D., & Barnes, M. (2018). Teacher identities as key to environmental education for sustainability implementation: A study from Australia. *Australian Journal of Environmental Education*, *34*(3), 228–243.
5. Altassan, A. (2023). Sustainable integration of solar energy, behavior change, and recycling practices in educational institutions: a holistic framework for environmental conservation and quality education. *Sustainability*, *15*(20), 15157.
6. Anwar, N., Nik Mahmood, N. H., Yusliza, M. Y., Ramayah, T., Noor Faezah, J., & Khalid, W. (2020). Green Human Resource Management for organisational citizenship behaviour towards the environment and environmental performance on a university campus. *Journal of Cleaner Production*, *256*, 120401. https://doi.org/https://doi.org/10.1016/j.jclepro.2020.120401

7. Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, *241*, 108224. https://doi.org/https://doi.org/10.1016/j.biocon.2019.108224

8. Bergman, B. G. (2016). Assessing impacts of locally designed environmental education projects on students' environmental attitudes, awareness, and intention to act. *Environmental Education Research*, *22*(4), 480–503.

9. Boca, G. D., & Saraçlı, S. (2019). Environmental Education and Student's Perception, for Sustainability. In *Sustainability* (Vol. 11, Issue 6). https://doi.org/10.3390/su11061553

10. Cetin, G., & Nisanci, S. H. (2010). Enhancing students' environmental awareness. *Procedia-Social and Behavioral Sciences*, *2*(2), 1830–1834.

11. Cheang, C. C., So, W.-M. W., Zhan, Y., & Tsoi, K. H. (2017). Education for sustainability using a campus eco-garden as a learning environment. *International Journal of Sustainability in Higher Education*, *18*(2), 242–262.

12. Collins, A., Galli, A., Patrizi, N., & Pulselli, F. M. (2018). Learning and teaching sustainability: The contribution of Ecological Footprint calculators. *Journal of Cleaner Production*, *174*, 1000–1010.

13. Demirtaş, Ş., Karasu, N., Afacan, K., Aykut, Ç., Karahan, M. B., & Sert, C. (2024). Integrating pro-environmental behaviors into school-wide positive behavioral interventions and supports for creating green schools. *Improving Schools*, 13654802241281184. https://doi.org/10.1177/13654802241281185

14. Esteban Ibáñez, M., Musitu Ferrer, D., Amador Muñoz, L. V, Claros, F. M., & Olmedo Ruiz, F. J. (2020). University as Change Manager of Attitudes towards Environment (The Importance of Environmental Education). In *Sustainability* (Vol. 12, Issue 11). https://doi.org/10.3390/su12114568

15. Fissi, S., Romolini, A., Gori, E., & Contri, M. (2021). The path toward a sustainable green university: The case of the University of Florence. *Journal of Cleaner Production*, *279*, 123655.

16. Gericke, N. (2022). Implementation of Education for Sustainable Development through a whole school approach. In *Education for Sustainable Development in Primary and Secondary Schools: Pedagogical and Practical Approaches for Teachers* (pp. 153–166). Springer.

17. Gericke, N., Manni, A., & Stagell, U. (2020a). The green school movement in Sweden–Past, present and future. *Green Schools Globally: Stories of Impact on Education for Sustainable Development*, 309–332.

18. Gericke, N., Manni, A., & Stagell, U. (2020b). *The Green School Movement in Sweden – Past, Present and Future BT - Green Schools Globally: Stories of Impact on Education for Sustainable Development* (A. Gough, J. C.-K. Lee, & E. P. K. Tsang (eds.); pp. 309–332). Springer International Publishing. https://doi.org/10.1007/978-3-030-46820-0_17

19. Goldman, D., Ayalon, O., Baum, D., & Weiss, B. (2018). Influence of 'green school certification'on students'' environmental literacy and adoption of sustainable practice by schools.' *Journal of Cleaner Production*, *183*, 1300–1313.

20. Gough, A. (2020). Seeking a green future through education. *Green Schools Globally: Stories of Impact on Education for Sustainable Development*, 13–29.

21. Hollingworth, L., Olsen, D., Asikin-Garmager, A., & Winn, K. M. (2018). Initiating conversations and opening doors: How principals establish a positive building culture to sustain school improvement efforts. *Educational Management Administration & Leadership*, *46*(6), 1014–1034.

22. Jensen, B. B. (2002). Knowledge, action and pro-environmental behaviour. *Environmental Education Research*, *8*(3), 325–334.

23. Kamil, P. A., Putri, E., Ridha, S., Utaya, S., & Utomo, D. H. (2020). Promoting environmental literacy through a green project: a case study at adiwiyata school in Banda Aceh City. *IOP Conference Series: Earth and Environmental Science*, *485*(1), 12035.

24. Ma, L., Shahbaz, P., Haq, S. U., & Boz, I. (2023). Exploring the Moderating Role of Environmental Education in Promoting a Clean Environment. In *Sustainability* (Vol. 15, Issue 10). https://doi.org/10.3390/su15108127

25. Major, L., Namestovski, Ž., Horák, R., Bagány, Á., & Krekić, V. P. (2017). Teach it to sustain it! Environmental attitudes of Hungarian teacher training students in Serbia. *Journal of Cleaner Production*, *154*, 255–268. https://doi.org/https://doi.org/10.1016/j.jclepro.2017.03.163

26. Müller, U., Lude, A., & Hancock, D. R. (2020). Leading Schools towards Sustainability. Fields of Action and Management Strategies for Principals. In *Sustainability* (Vol. 12, Issue 7). https://doi.org/10.3390/su12073031

27. Nurwidodo, Muhdhar, M. H. I., Rohman, F., Iriani, D., Herlina, & Fausan, M. M. (2019). Building pro-environmental behavior among school community of Adiwiyatagreen school. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, *5*(1), 23–32.

28. Runhaar, P., Wagenaar, K., Wesselink, R., & Runhaar, H. (2019). Encouraging students' pro-environmental behaviour: examining the interplay between student characteristics and the situational strength of schools. *Journal of Education for Sustainable Development*, *13*(1), 45–66.

29. Sieg, A.-K., & Dreesmann, D. (2021). Promoting Pro-Environmental BEEhavior in School. Factors Leading to Eco-Friendly Student Action. *Sustainability*, *13*(12), 6598.

30. Song, Y., Bao, H., & Shen, S. (2022). Understanding the influence of initial values of college students in shaping pro-environmental behavioral intention. *International Journal of Environmental Research and Public Health*, *19*(15), 9730.

31. Tariq, S., Yunis, M. S., Shoaib, S., Abdullah, F., & Khan, S. W. (2022). Perceived corporate social responsibility and pro-environmental behaviour: Insights from business schools of Peshawar, Pakistan. *Frontiers in Psychology*, *13*, 948059.

32. Tucker, R., & Izadpanahi, P. (2017). Live green, think green: Sustainable school architecture and children's environmental attitudes and behaviors. *Journal of Environmental Psychology*, *51*, 209–216.

33. von Braun, J. (2017). Children as agents of change for sustainable development. *Children and Sustainable Development: Ecological Education in a Globalized World*, 17–30.

34. Wee, B., Mason, H., Abdilla, J., & Lupardus, R. (2018). Nationwide perceptions of US green school practices: implications for reform and research. *International Research in Geographical and Environmental Education*, *27*(4), 283–294.

35. Yadav, S. K., Banerjee, A., Jhariya, M. K., Meena, R. S., Raj, A., Khan, N., Kumar, S., & Sheoran, S. (2022). Environmental education for sustainable development. In *Natural Resources Conservation and Advances for Sustainability* (pp. 415–431). Elsevier.

36. Yli-Panula, E., Jeronen, E., & Mäki, S. (2022). School Culture Promoting Sustainability in Student Teachers' Views. In *Sustainability* (Vol. 14, Issue 12). https://doi.org/10.3390/su14127440