

## The Role of School Principal's Transformation Leadership in Developing the Adiwiyata Program: A Case Study of SMP Negeri Gabus, Grobogan Regency

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### ABSTRACT

This study aims to describe the role of transformational leadership of the school principal in developing the Adiwiyata (eco-school) program at SMP Negeri 1 Gabus, Grobogan Regency. The research employed a qualitative descriptive approach through observation, interviews, and documentation involving the principal, teachers, and students as key informants. Data were analyzed using an interactive model that includes data reduction, data display, and conclusion drawing to reveal how transformational leadership dimensions contribute to environmental education and school sustainability. The findings indicate that the principal's transformational leadership plays a crucial role in realizing an environmentally conscious school culture. Through idealized influence, the principal becomes a role model who embodies environmental values and integrates them into the school's vision and policy. Inspirational motivation fosters collective enthusiasm and active participation of teachers and students in environmental programs. Intellectual stimulation encourages creativity and innovation through initiatives such as digital waste banks and eco-brick projects. Meanwhile, individualized consideration is reflected in personalized guidance and empowerment that enhance teachers' confidence and engagement. Overall, transformational leadership has significantly strengthened environmental policy, increased school-wide participation, and shaped sustainable ecological behavior. The study provides new empirical evidence that transformational leadership effectively drives cultural transformation toward green, participatory, and innovative school management.

**Keywords:** Transformational Leadership, School Principal, Adiwiyata School, Environmental Education, Sustainable School Culture

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### INTRODUCTION

Education in the 21st century demands that educational institutions focus not only on academic achievement but also on strengthening character and social responsibility toward environmental preservation. Schools play a crucial role in instilling environmental awareness through sustainable policies, learning processes, and school culture. One of the government's strategic initiatives to achieve this goal is the Adiwiyata Program, which aims to create environmentally conscious and culturally responsible educational institutions.

In the context of educational management, the principal's leadership is a determining factor in the successful implementation of the Adiwiyata program. The transformational leadership model is considered the most relevant to address the challenges of environmentally oriented education because it emphasizes vision, inspiration, intellectual stimulation, and individualized consideration. Principals with transformational characteristics are capable of motivating school members, fostering innovation, and mobilizing collective participation toward achieving shared goals (Ardiani, Sumarno, & Rasiman, 2021; Yoserizal, Darmayanti, Septrisya, Rusdinal, & Hadiyanto, 2023).

Transformational leadership also plays an essential role in strengthening school culture that promotes environmental awareness. Studies by Rofiah, Sari, and Kusufa (2020) revealed that principals who apply transformational principles successfully create sustainability-oriented school environments and motivate teachers to integrate environmental issues into teaching. Similarly, Lee and Kim (2022) found that principals' recognition and appreciation can enhance teachers' motivation to actively participate in environmental programs. Dharma and Yulianto (2022) further confirmed that transformational leadership directly contributes to the effectiveness of environmental education in schools.

Ideally, Adiwiyata schools are expected to function as green education ecosystems, integrating environmentally oriented policies, environmentally based curricula, participatory activities, and eco-friendly facility management. Such schools cultivate environmental awareness through consistent policies, habits, and active participation of all school stakeholders (Ahmadi et al., 2023). Moreover, the four main components environmental policy, environmental learning, participatory activities, and eco-friendly facilities serve as key indicators of Adiwiyata school success (Suryani & Dafit, 2022).

However, the actual situation often reveals gaps between the ideal concept and the real implementation of the Adiwiyata program. Several studies have shown that implementation frequently faces challenges such as limited facilities, low school community participation, and weak integration of environmental policies in school planning. For instance, Hermawan and Mahmudah (2023) found that some schools still encounter difficulties in infrastructure use and program supervision. Munazilah, Rahmawati & Supriyadi (2023) reported that students' environmental care character has not developed optimally despite program implementation. Likewise, Mansir et al. (2022) emphasized the need for continuous monitoring and capacity building among school personnel.

A similar condition was observed at SMP Negeri 1 Gabus, Grobogan Regency. Although the school has received provincial and national Adiwiyata awards, it continues to face challenges in maintaining consistent implementation and active participation of all school members. Observations and interviews indicate varying levels of environmental awareness among individuals and a need to strengthen innovation in environmental programs to ensure sustainability. This condition highlights a gap between the ideal concept of Adiwiyata schools and their practical realization.

Despite the growing body of research on transformational leadership in educational contexts, little is known about how transformational leadership practices specifically influence the sustainability of Adiwiyata program implementation. Previous studies consistently emphasize that transformational leadership enhances teacher motivation and environmental awareness (Rofiah et al., 2020; Lee & Kim, 2022; Dharma & Yulianto, 2022). However, these studies have not explored how such leadership operates in schools that already hold Adiwiyata status, where maintaining long-term commitment becomes the key challenge. Therefore, this study seeks to answer the question: How does the principal's transformational leadership support the development and sustainability of the Adiwiyata program at SMP Negeri 1 Gabus?

Empirically, there is a gap in research that delves deeply into transformational leadership in schools that have received the Adiwiyata award, particularly in the context of sustaining the program. Theoretically, there is a lack of integration between the four dimensions of transformational leadership proposed by Bass & Riggio (2021) idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration and the management of environmental education in schools. Despite numerous studies on transformational leadership, few have specifically examined how its four dimensions manifest in the sustainability of Adiwiyata schools.

This study aims to enrich the application of Bass & Riggio's (2021) transformational leadership theory within the context of environmental education in Indonesia. The results of this research are expected to offer a practical contribution by providing a transformational leadership model to strengthen the implementation of the Adiwiyata program, particularly at SMP Negeri 1 Gabus, Grobogan Regency.

## METHOD

This study employed a qualitative approach with a phenomenological method. This approach was chosen because the research focused on deeply understanding the experiences, perspectives, and meanings constructed by the principal, teachers, and school community in carrying out transformational leadership roles to develop the *Adiwiyata* school program. According to Smith (2020), the phenomenological approach enables researchers to explore the meaning of participants' lived experiences within a natural social context. The qualitative approach was also used because it allows researchers to interpret reality contextually and dynamically, in line with Creswell and Poth's (2021) view that qualitative research aims to interpret phenomena from the participants' perspectives without manipulating variables.

This study applied a descriptive qualitative design to systematically describe the role of the principal as a transformational leader in implementing and developing the *Adiwiyata* school program. This design enabled the researcher to understand social interactions and leadership strategies that emerged within the real school context. Moleong (2021) emphasized that descriptive qualitative research seeks to understand social phenomena by interpreting the meaning of human actions as they naturally occur. Therefore, this approach is considered appropriate for portraying how transformational leadership contributes to building an environmentally conscious school culture.

The research was conducted at SMP Negeri 1 Gabus, Grobogan Regency, which was purposefully selected because the school has achieved the provincial-level *Adiwiyata* award and is in the process of attaining *Adiwiyata Mandiri* status. The selection of this site was based on the relevance of its program and the principal's leadership characteristics, which are recognized as effective in fostering an environmentally responsible school culture. The research was carried out from June to September 2025, encompassing four stages: pre-field, field data collection, data analysis, and report writing.

The research design consisted of four main stages: (1) Pre-field activities, including research design formulation, obtaining permissions, and site surveying; (2) Field implementation, where data were collected through interviews, observations, and documentation; (3) Data analysis, which involved data reduction, display, and conclusion drawing as developed by Miles, Huberman, and Saldaña (2020); and (4) Report writing, presented in the form of narrative descriptions and theoretical interpretations. According to Raco (2021), a systematic qualitative research design allows researchers to gain deep insights into social actions and the meanings embedded in leadership practices.

The research subjects included the principal, the *Adiwiyata* team, teachers, students, and school committee members who possessed comprehensive understanding of the program's implementation and the principal's leadership role. The sampling technique used was *purposive sampling*, meaning participants were selected based on specific criteria relevant to the research objectives (Sugiyono, 2021). The data sources consisted of *primary data* derived from interviews and direct observations and *secondary data*, which included school documents such as policies, activity reports, and *Adiwiyata* archives.

The main research instrument was the researcher herself/himself, serving as the key instrument in data collection, interpretation, and analysis (Prastowo, 2020). Additional instruments included interview guides, observation sheets, and documentation checklists. The interview guide was constructed based on the four dimensions of transformational leadership idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration as developed by Bass and Riggio (2021). Observation sheets were used to record the principal's leadership behaviors supporting environmental programs, while documentation guidelines were employed to collect physical evidence, policy documents, and supporting data.

The data collection techniques consisted of in-depth interviews, participatory observation, and documentation. Semi-structured interviews were conducted with the principal, teachers, students, and school committee members to allow open exploration of participants' experiences and perceptions. According to Creswell (2023), semi-structured interviews provide flexibility for researchers to pursue emergent information during conversation. Direct observations were conducted to record the principal's leadership activities

in mobilizing the school community toward environmental initiatives. Moleong (2021) noted that participatory observation enables researchers to understand social situations from within, yielding more contextual and meaningful data. Documentation was used to obtain secondary data such as school profiles, *Adiwiyata* reports, photographs, and policy documents.

The data analysis process began during data collection and continued throughout the research using the interactive model of Miles, Huberman, and Saldaña (2020), which consists of four stages: (1) data collection, (2) data condensation, (3) data display, and (4) conclusion drawing and verification. These stages were conducted cyclically and iteratively, allowing the researcher to deepen understanding of the meaning behind the studied phenomena. This model is considered effective in educational research because it integrates data reduction and reflection on field findings (Nowell, Norris, White, & Moules, 2021).

To ensure data validity, the researcher employed source and method triangulation. Triangulation was conducted by comparing data obtained from interviews, observations, and documentation involving various sources (principal, teachers, students, and committee members) to ensure consistency and credibility of the findings. According to Wijaya (2022), triangulation is a vital strategy in qualitative research to minimize researcher bias and enhance data reliability. Additionally, member checking was performed to confirm interview results with participants; peer debriefing was conducted to discuss interpretations with colleagues; and an audit trail was maintained through systematic documentation of the entire research process to ensure transparency and traceability (Creswell & Guetterman, 2021).

## RESULT AND DISCUSSION

SMP Negeri 1 Gabus, Grobogan Regency, is one of the public schools designated as a *Provincial-Level Adiwiyata School* in Central Java and is currently progressing toward the *Adiwiyata Mandiri* category. The school's vision, "*To realize students who are of good character, high achievement, and environmentally conscious,*" is implemented through learning activities, school culture, and community partnerships. The physical environment of the school appears green, clean, and well-organized, featuring thematic gardens, composting areas, and eco-brick facilities as part of its *green education* projects. The *Adiwiyata* program has been implemented for more than five years and continues to evolve in terms of policy, curriculum, and school-wide participation. This success cannot be separated from the transformational leadership of the principal, who emphasizes a vision of change and the empowerment of all school elements.

### *The Principal's Role as a Transformational Leader through Idealized Influence*

The findings indicate that the principal of SMP Negeri 1 Gabus plays a crucial role as a primary role model in fostering an environmentally conscious school culture. The principal consistently demonstrates exemplary behavior by maintaining cleanliness and environmental order. Arriving early to ensure the school environment is organized, the principal actively participates in *Clean Friday* activities, tree planting, and waste management. These actions serve as concrete examples that inspire teachers and students to adopt similar behaviors, fostering collaboration and shared responsibility for school cleanliness.

In addition to personal modeling, the principal also upholds a clear vision of developing the school as an environmentally oriented educational institution. The vision, "*Character, Achievement, and Environmental Awareness,*" serves as the guiding framework for all school activities and is translated into concrete policies such as the establishment of an *Adiwiyata* team, development of a school waste bank, and arrangement of thematic gardens. The principal also promotes symbolic school culture through slogans such as "*My Waste, My Responsibility,*" energy-saving posters in every classroom, and policies requiring all students and staff to bring personal water bottles.

Consistency between the principal's values and actions has earned strong trust and respect from the school community. Teachers and students feel more motivated to participate actively in environmental programs. Thus, the principal's exemplary behavior and environmental vision not only guide individual conduct but also establish a shared value system that reinforces the school's identity as an *Adiwiyata* institution.

Table 1. The Principal's Role through Idealized Influence

Aspect	Principal's Implementation at SMP Negeri 1 Gabus	Impact on School Members and Adiwiyata Program	Empirical Evidence
Personal Exemplary Behavior	Actively participates in cleanliness activities, tree planting, and waste management.	Teachers and students emulate the principal's behavior, fostering discipline and environmental responsibility.	Teacher stated: "The principal joins in sweeping the yard, so we'd be ashamed not to help."
Consistency of Values and Actions	Enforces environmental rules such as banning single-use plastics and saving energy.	School members become more compliant with environmental policies and motivated to participate.	Observation: The principal checks classrooms to ensure lights are turned off after lessons.
Environmental Vision Formulation	Established the vision "Character, Achievement, and Environmental Awareness" as a development direction.	All school activities focus on environmental preservation and character building.	RKS document lists "Green School Program" as a top priority.
Communication and Guidance	Involves teachers, students, and the school committee in planning and evaluating Adiwiyata activities.	Increases participation and sense of ownership in environmental programs.	Interview: "We were directly involved in planning environmental activities."
Symbolic and Cultural Development	Creates slogans, energy-saving posters, and personal bottle policies.	Enhances ecological awareness and reinforces green school identity.	Observation: Posters with "My Waste, My Responsibility" in every classroom.

*The Principal's Role as a Transformational Leader through Inspirational Motivation*

The principal exhibits strong ability to inspire enthusiasm and motivation among school members in supporting the Adiwiyata program. Through inspirational communication, the principal instills the belief that environmental care is a shared responsibility. In meetings, assemblies, and school events, the principal conveys positive messages that encourage teachers and students to actively participate. Motivation is also provided through recognition of individual and collective achievements. Regular appreciation is given to teachers, students, and classes that excel in cleanliness and environmental innovation, fostering pride and healthy competition.

Beyond verbal motivation, the principal provides tangible support by ensuring the availability of cleaning tools, green spaces, and recycled materials for environmental learning. Teachers are encouraged to innovate, and students are given ample opportunities to participate in programs such as *Green Friday*, *Clean Classroom Competition*, and the *School Waste Bank*. This moral and logistical support promotes cooperation and strengthens collective commitment to environmental action. The overall result shows that the principal successfully cultivates collective spirit and optimism across the school community, motivating real action toward sustainability.

Table 2. The Principal's Role through Inspirational Motivation

Aspect	Principal's Implementation	Impact on School Members and	Empirical Evidence
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<b>Adiwiyata Program</b>			
Vision and Goal Communication	Communicates environmental vision in meetings and assemblies.	Teachers and students understand program direction and are motivated to engage.	Teacher stated: "The principal always reminds us that caring for the environment is everyone's responsibility."
Recognition and Reward	Rewards classes and students excelling in environmental activities.	Increases enthusiasm and pride among school members.	Documentation: Certificates for "Greenest Class" and "Environmentally Caring Student."
Support and Facilities	Provides cleaning tools, gardens, and recycling materials.	Facilitates program implementation and stimulates creativity.	Observation: Principal inspecting the creation of thematic gardens.
School Member Empowerment	Involves teachers, students, and committees in environmental activities.	Builds ownership and shared responsibility.	Interview: "We are directly involved in Adiwiyata activities, so we feel valued."
Building Collective Spirit	Organizes activities such as <i>Green Friday</i> and <i>Clean Classroom Competitions</i> .	Creates teamwork and togetherness.	Student stated: "We are motivated because the principal always joins and supports us."

*The Principal's Role as a Transformational Leader through Intellectual Stimulation*

The principal encourages innovation and creativity among the school community through an open and participatory approach. Teachers and students are given freedom to develop ideas for environmental activities and integrate environmental values into the curriculum. Rather than issuing directives, the principal stimulates new ideas by asking for opinions, posing challenges, and providing facilities for implementation. This has led to the emergence of innovations such as the *eco-brick project*, *digital waste bank*, *thematic gardens*, and *green classroom contests*. The principal also provides technical support and guidance to teachers interested in developing environment-based learning media. This atmosphere fosters a culture of creative and collaborative thinking, where every school member feels valued and contributes to the Adiwiyata program's progress.

Table 3. The Principal's Role through Intellectual Stimulation

<b>Aspect</b>	<b>Principal's Implementation</b>	<b>Impact on School Members and Adiwiyata Program</b>	<b>Empirical Evidence</b>
Encouraging New Ideas and Innovation	Invites teachers and students to propose creative environmental projects.	New initiatives such as eco-bricks, green classrooms, and thematic gardens emerge.	Interview: "He is open to new ideas as long as they benefit the environment."
Freedom to Innovate	Allows teachers and students to design environment-based learning.	Teachers become more creative and students more active in environmental	Observation: Teacher creates learning media from recycled materials.

<b>Aspect</b>	<b>Principal's Implementation</b>	<b>Impact on School Members and Adiwiyata Program</b>	<b>Empirical Evidence</b>
Technical Support and Mentoring	Provides facilities and small funding for environmental innovations.	Innovations become sustainable and exemplary for other schools.	Documentation: Digital Waste Bank project approved by principal.
Reflective and Problem-Solving Learning	Encourages evaluation and collective problem solving in each activity.	Cultivates reflective culture and improves program quality.	Teacher stated: "Every activity is evaluated together to find better ways."
Collaborative Innovation	Promotes collaboration within school and with external partners.	Builds networks with community and environmental agencies.	Observation: School collaborates with the Environmental Agency for recycling training.

*The Principal's Role as a Transformational Leader through Individualized Consideration*

The principal demonstrates high concern for developing the potential of every school member. Using a personal and open approach, the principal provides guidance, support, and trust to teachers and students in Adiwiyata activities. Mentoring is conducted directly through regular meetings, constructive feedback, and opportunities for professional development. Tasks are assigned based on individual interests and strengths, fostering inclusivity and effectiveness. This individualized attention creates a warm, respectful atmosphere. Teachers feel supported in their creative pursuits, while students feel valued and more eager to engage in environmental programs. Such an approach enhances confidence, responsibility, and solidarity across the school community.

Table 4. The Principal's Role through Individualized Consideration

<b>Aspect</b>	<b>Principal's Implementation</b>	<b>Impact on School Members and Adiwiyata Program</b>	<b>Empirical Evidence</b>
Personal Mentoring	Provides direct guidance and constructive feedback.	Teachers and students feel supported and motivated to improve.	Teacher stated: "He always gives feedback, but in a positive, encouraging way."
Individual Empowerment	Assigns roles based on personal skills and interests.	Programs become more effective and well-executed.	Observation: Art teacher designs school gardens; nature club students manage waste bank.
Opportunities for Self-Development	Encourages teachers to attend environmental training and supports new ideas.	Increases competence and innovation.	Documentation: Teachers attended district-level waste management workshops.
Personal Support and Appreciation	Recognizes individual contributions.	Builds pride and loyalty toward the school.	Interview: "He always appreciates every effort, no matter how small."
Building	Creates a friendly,	Improves teamwork	Observation:

Aspect	Principal's Implementation	Impact on School Members and Adiwiyata Program	Empirical Evidence
Humanistic Relationships	respectful work atmosphere.	and collective spirit.	Principal often engages informally with teachers and students.

*The Impact of Transformational Leadership on Adiwiyata School Development*

Observations, interviews, and documentation reveal that the principal's transformational leadership has had a tangible impact on improving the quality of Adiwiyata implementation at SMP Negeri 1 Gabus. The effects are evident in three main areas: (1) strengthening environmentally oriented school policies, (2) enhancing school community participation, and (3) transforming environmental behavior and culture.

First, in terms of policy, the principal integrated Adiwiyata principles into the School Work and Budget Plan (RKAS) and Lesson Plans (RPP). Every school policy now includes sustainability considerations such as waste management, energy conservation, and eco-friendly learning materials. Second, regarding participation, teachers and students are actively involved in environmental programs such as *Green Friday*, *School Waste Bank*, and *Adiwiyata Goes Digital*. These initiatives foster collaboration and shared responsibility for environmental preservation. Third, from a cultural perspective, the school community exhibits more consistent environmental awareness in cleanliness, waste sorting, and energy saving—values that have become ingrained daily habits.

Table 5. The Impact of Transformational Leadership on Adiwiyata School Development

Impact Aspect	Implementation of Transformational Leadership	Field Results and Evidence	Empirical Description
Environmentally Oriented Policy	Integration of Adiwiyata principles into RKAS, RPP, and school policies.	All programs include environmental sustainability components.	RKAS and RPP documents include "Green School" indicators.
School Community Participation	Involves teachers, students, and committee through <i>Green Friday</i> and <i>School Waste Bank</i> .	Increased participation; activities run regularly and independently.	Observation: All members engage in weekly cleaning programs.
Innovation and Creativity	Stimulates new ideas such as <i>Adiwiyata Goes Digital</i> , thematic gardens, and eco-bricks.	Technological and creative innovations emerge.	Interview: "The idea for digital Adiwiyata came from the principal's direction to modernize."
Environmental Culture and Behavior	Demonstrates exemplary behavior in cleanliness and energy conservation.	School members habitually sort waste and conserve electricity.	Observation: Students perform morning cleaning independently.
External Collaboration and Networking	Builds partnerships with the Environmental Agency and local community.	Programs gain external support and become joint initiatives.	Documentation: MoU with Grobogan Environmental Agency for recycling training.
School Image and Achievement	Establishes Adiwiyata as the school's identity	School receives provincial	Certificate: Central Java Provincial

and shared pride.

recognition and  
serves as a model for  
others.

Adiwiyata Award  
(2024).

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## DISCUSSION

The principal's transformational leadership at SMP Negeri 1 Gabus has shaped a green school culture through the four dimensions of Bass and Riggio's (2021) model. The principal's personal involvement in environmental activities such as cleanliness campaigns, tree planting, and energy conservation sets a moral example, fostering collective environmental responsibility among teachers and students (Bass & Riggio, 2021; Zala-Mezö et al., 2020; Abdulloh et al., 2021; Chen & Wu, 2022). These actions align with the school's vision of "Character, Achievement, and Environmental Awareness" (Candrasari et al., 2023; Widisatria & Nawangsari, 2021), which is translated into policies like banning single-use plastics and installing energy-saving posters. Such consistency between values and actions strengthens trust and promotes environmentally responsible behavior (Isnayanti et al., 2025; Bosevska & Kriewaldt, 2020; Ay, Atasoy, & Güleç, 2025; Sabarudin et al., 2025). The principal's inspirational motivation plays a key role in engaging the school community. Regularly emphasizing the importance of environmental care, the principal inspires teachers and students to take ownership of environmental programs (Zala-Mezö et al., 2020; Bass & Riggio, 2021). Tangible support, such as providing cleaning tools and environmental learning resources, reinforces this commitment, with reward programs fostering healthy competition and enthusiasm for sustainability (Syarifah, Arifin, & Wulandari, 2021; Isnayanti et al., 2025; Finnegan, 2023; Anjarini & Rindaningsih, 2022). This collaborative approach ensures the success of the Adiwiyata program as a shared achievement (Cayak, 2021; Putri, Fuadiputra, & Ikhran, 2025). The principal also fosters intellectual stimulation by encouraging innovative environmental projects like the eco-brick initiative and digital waste bank. This intellectual freedom nurtures critical thinking and collaboration (Bass & Riggio, 2021; Al-Husseini, El-Beltagi, & Moizer, 2021). Teachers are empowered to experiment with project-based learning, with the principal offering support and training for green learning media (Isnayanti et al., 2025; Ardiansyah et al., 2022). The principal's promotion of autonomy in planning activities shifts the school culture toward innovation and sustainability (Mogren, Gericke, & Scherp, 2019; Rahmawati & Santosa, 2022; Suwanto & Yuliani, 2024). In terms of individualized consideration, the principal provides personalized mentorship and feedback, empowering teachers and students to engage actively in environmental initiatives. This approach builds confidence, strengthens commitment, and fosters a sense of ownership (Bass & Riggio, 2021; Ermita & Baysa, 2025). The principal's open and supportive communication style creates a harmonious work environment that encourages solidarity and collaboration (Mala, Riyanto, & Widodo, 2025; Hermawan et al., 2021; Wals et al., 2024; Owusu-Agyeman, 2021). This individualized empowerment is critical for realizing a sustainable Adiwiyata school (Jusoh et al., 2023; Isnayanti et al., 2025). Overall, the principal's transformational leadership has effectively integrated Adiwiyata principles into school policies and daily activities, increasing participation and fostering a shared commitment to sustainability (Darmayanti & Septrisya, 2024; Finnegan, 2023). Transformational leadership has led to tangible behavioral changes in the school community, including waste sorting, energy saving, and improved environmental awareness (Wang, Kou, & Zhu, 2023; Mba & Okoko, 2024). This study confirms that transformational leadership is crucial for creating a green, adaptive, and sustainable school culture.

While existing studies support the idea that transformational leadership can enhance motivation and participation (Lee & Kim, 2022; Ay, Atasoy, & Güleç, 2025), this research extends these findings by demonstrating how transformational leadership practices, such as idealized influence and inspirational motivation, function uniquely within the Indonesian educational context. Specifically, the collectivist nature of Indonesian schools influences how leadership is received—where moral-symbolic leadership and community harmony are prioritized over individual charisma. This contrasts with studies conducted in more individualistic cultures, where the emphasis is often on personal achievement and individual

leader charisma (Al-Husseini & Elbeltagi, 2020; Bass & Riggio, 2021). The principal's ability to foster collaboration and group identity within the school aligns more with collective responsibility models (Cayak, 2021), which are highly effective in a context like SMP Negeri 1 Gabus, where community cohesion is central. Additionally, unlike some research that treats the dimensions of transformational leadership as separate constructs (Bass & Riggio, 2021; Liu, 2025), this study demonstrates how these dimensions work synergistically in practice. For instance, the principal's intellectual stimulation not only promotes innovation but also strengthens collective enthusiasm through inspirational motivation. The combination of these practices creates a dynamic school culture that continuously adapts and thrives, reinforcing sustainability efforts.

This study has significant theoretical and practical implications. Theoretically, it extends Bass and Riggio's (2021) transformational leadership model by demonstrating how the four dimensions (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration) interact in a collectivist cultural context to create a sustainable green school culture. The findings suggest that while the core dimensions of transformational leadership remain applicable, their manifestation may vary based on cultural factors such as community values and the emphasis on collective well-being. Practically, this study provides insights into how school principals can tailor their leadership practices to align with cultural norms and values, enhancing the effectiveness of environmental education programs like *Adiwiyata*. The research shows that sustainable leadership is not only about top-down policy but also about fostering inclusive, community-based participation in environmental initiatives. This can inform policy-makers and educational leaders seeking to implement similar programs in other schools or regions with similar cultural contexts.

Despite its contributions, this study has some limitations. First, the research was conducted at a single school, and the findings may not be universally applicable to all Indonesian schools. The context-specific nature of this study means that the insights may not be easily transferable to schools with different leadership dynamics or cultural environments. Additionally, while triangulation methods (interviews, document analysis, and direct observation) were employed, the study did not systematically assess the validity of these findings through member checking or peer debriefing. As a result, while the consistency of findings across multiple data sources reinforces the credibility of the interpretations, there may still be biases in the data collection or analysis process. Further research could explore how variations in school leadership and environmental contexts influence the effectiveness of transformational leadership in different regions or countries.

Future research could build on this study by exploring the long-term effects of transformational leadership on the sustainability of *Adiwiyata* programs, particularly in schools that face resource constraints or political challenges. Investigating the challenges and resistance faced by school leaders in implementing environmental programs would provide a more nuanced understanding of the limitations of transformational leadership. Additionally, more comparative studies across different educational contexts such as urban versus rural schools or private versus public institutions could offer insights into how transformational leadership is adapted to local circumstances. Research on how transformational leadership interacts with other leadership styles, such as transactional or servant leadership, could also further illuminate its role in fostering sustainable environmental behaviors in schools. Finally, a closer examination of teacher and student perspectives on transformational leadership practices would provide a deeper understanding of how these practices are perceived and internalized by those who are directly impacted by them.

## CONCLUSION

This study demonstrates that the principal's transformational leadership plays a strategic role in developing the *Adiwiyata* program at SMP Negeri 1 Gabus. The principal effectively directs, inspires, and empowers the entire school community through four key dimensions: idealized influence, inspirational motivation, intellectual stimulation, **and** individualized consideration. First, through *idealized influence*, the principal serves as a role model in

demonstrating environmentally responsible behavior and internalizes an ecological vision into school policies and culture. Second, within *inspirational motivation*, the principal successfully fosters collective enthusiasm, strengthens collaboration, and enhances the active participation of teachers, students, and the community in environmental initiatives. Third, through *intellectual stimulation*, the principal cultivates an innovative climate that encourages creative ideas such as the *digital waste bank*, *eco-brick project*, and environment-based learning. Fourth, within *individualized consideration*, the principal provides personal guidance and empowerment for teachers and students, fostering self-confidence and shared responsibility for the sustainability of the *Adiwiyata* program.

Overall, the principal's transformational leadership has a significant impact on strengthening environmentally oriented school policies, increasing school community participation, and building a sustainable ecological culture. The school has evolved beyond a place of instruction to become a platform for character formation centered on environmental awareness. These findings provide empirical evidence that the transformational leadership model is effective in creating schools that are green, adaptive, and innovative. Furthermore, the study affirms that environmental culture transformation in schools requires leadership that is value-driven, inspirational, and empowering.

The practical implications of this study suggest that principals should continue expanding collaboration with local communities and environmental institutions, developing technology-based green education innovations, and strengthening the internal capacity-building system to ensure the sustainability of the *Adiwiyata* program. The novelty of this study lies in integrating transformational leadership analysis within the context of participatory *Adiwiyata* school development. Most previous studies focused only on school leadership in general contexts, whereas this research reveals how the four dimensions of transformational leadership operate simultaneously in fostering ecological culture and environmental innovation within schools. It also presents recent empirical evidence that a leadership approach combining modeling, motivation, innovation, and empowerment can create sustainable ecological behavior change within secondary school environments.

However, this study has limitations in scope, as it focuses on a single public school in Grobogan Regency, making generalization of findings necessary with caution. Moreover, the research primarily employed a qualitative approach—through observation, interviews, and documentation—without quantitative analysis to measure the strength of relationships among leadership variables and school development outcomes. Therefore, future research is recommended to involve multiple schools, adopt a **mixed-methods** approach, and expand sustainability indicators to provide a more comprehensive understanding of the effectiveness of transformational leadership within the *Adiwiyata* school context.

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#### AUTHOR CONTRIBUTION STATEMENT

R.N. conceptualized the research, formulated the main objectives, and developed the theoretical framework, as well as led the design of the research instruments and drafted the initial manuscript. R.B.G. contributed to data collection through interviews and observations,

analyzed and interpreted qualitative data, and integrated empirical findings with relevant theoretical perspectives. M. provided methodological guidance, reviewed the research process to ensure validity and reliability, and refined the overall structure and coherence of the paper. All authors collaboratively discussed the results, revised the manuscript critically for important intellectual content, and approved the final version for publication.

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