Journal of Management World **2025**, 1: 500-511
DOI: 10.53935/jomw.v2024i4.724

Transformational Leadership: Strategies for Creating Green Environments in Indonesian Schools

Romadhon[1*], Yulius Rustan Effendi[2]
[1,2]Pancasila and Citizenship Education, Universitas PGRI Kanjuruhan Malang, Indonesia, Jl. S. Supriadi No.48, Bandungrejosari, Kec. Sukun, Malang City, East Java, Indonesia; romadhon@unikama.ac.id (R.) efenrust@unikama.ac.id (Y.R.E.).

Abstract. The primary aim of this study is to explore how transformational leadership influences school management and to identify effective strategies that support sustainable environmental development. This qualitative research employs case studies involving school principals, five teachers, three students, and three parents from junior high schools in Malang City that have implemented green school (Adiwiyata) programs. Data were gathered through in-depth interviews, direct observations, and document analysis. Triangulation was used to analyze the data, ensuring the accuracy and credibility of the findings. The results indicate that transformational leadership is crucial in implementing green school policies by fostering stakeholder motivation and engagement in sustainability practices. Key challenges include resistance to change and limited resources. Effective strategies involve enhancing leadership training, fostering participatory policy development, and integrating environmentally friendly technologies. This study offers valuable insights for improving managerial practices in green schools and advancing environmental sustainability in the education sector.

Keywords: Adiwiyata, Case study, Green School, Indonesia, Sustainability management, Transformational leadership.

1. INTRODUCTION

In an increasingly complex and dynamic global era, environmental issues have become a significant concern across multiple sectors, including education. Education plays a critical role in raising awareness and understanding of the importance of environmental conservation (Santos & Bittencourt, 2021). One strategic approach to instilling sustainable environmental values is implementing the "Green School" concept, which integrates environmental education into all school operations and curricula. This approach focuses on managing the school's physical environment and fostering a culture centered on sustainability (Rodriguez & Hernandez, 2022).

In this context, leadership is pivotal in realizing the vision of a sustainable green school. Transformational leadership significantly drives change in organizations, particularly in education. It allows leaders to inspire and elevate others to realize their full potential. Bass and Avolio (1994) assert that this leadership style empowers followers to exceed expectations by transforming their values, needs, and priorities. Transformational leadership is essential in green schools as it drives cultural change and collective action toward sustainability, encouraging the entire school community to engage in environmental practices (Gill et al., 2021). The success of green school initiatives depends on eco-friendly infrastructure and the commitment of all stakeholders—principals, teachers, students, and parents. Principals are crucial in championing and integrating sustainability principles into every aspect of school operations. Research demonstrates that transformation-oriented leadership can significantly shift perspectives and behaviors among school members, empowering them to become proactive advocates for sustainable practices (Jones & Kelly, 2023).

Transformational leadership effectively addresses the challenges of implementing green school initiatives. These challenges often include limited resources, resistance to change, and insufficient awareness of sustainability's importance. By adopting an inspirational and inclusive leadership approach, principals have the power to cultivate a robust collective vision, significantly enhance stakeholder engagement, and foster an environment that thrives on innovation and adaptability (Harris & Chapman, 2022).

Moreover, substantial evidence illustrates the positive impact of transformational leadership on organizational performance, especially within educational settings. Principals who embrace transformational leadership foster an environment conducive to collaboration among teachers and staff, encouraging them to elevate instructional quality and environmental management within the school (Wang et al., 2024). In green schools, principals go beyond management to become change agents, leading the school community in actions that support sustainability goals.

Recent studies further suggest that schools practicing transformational leadership in environmental management are more likely to achieve their sustainability targets. For example, Martins et al. (2022) found that schools led by principals with transformational leadership styles showed notable improvements in energy efficiency, waste reduction, and student participation in environmental activities. These findings reinforce the argument that transformational leadership is an effective strategy for achieving long-term ecological sustainability within school settings.

However, implementing transformational leadership in green school management presents specific challenges. A key challenge is ensuring the entire school community fully understands and adheres to sustainability principles. Principals must consistently educate and inspire all stakeholders, promote

* Correspondence: romadhon@unikama.ac.id

collaboration and innovation, and drive continuous progress (Almeida & Cunha, 2023).

Local contexts and cultural factors are essential when applying transformational leadership in education. Doing so ensures a more effective and impactful approach tailored to the unique needs of each environment. National educational policies, resource availability, and Indigenous cultural values significantly influence the implementation and reception of transformational leadership in school communities (Li et al., 2023). In the Indonesian context, incorporating local values aligned with sustainability principles is crucial for effectively implementing green school initiatives.

2. THEORETICAL FRAMEWORKS

2.1. Transformational Leadership

Transformational leadership is a highly regarded model in various disciplines, including education. Introduced by James MacGregor Burns in 1978 and refined by Bernard M. Bass in 1985, this leadership style emphasizes the ability of leaders to inspire and motivate followers toward higher goals. Transformational leadership is the ability of leaders to empower followers to exceed expectations by changing their values, needs, and priorities (Bass & Avolio, 1994). Bass (1994) identified four core components of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

The concept of idealized influence pertains to the perception of leaders within their respective organizations as trustworthy and respected figures. These leaders exemplify high integrity, uphold robust ethical standards, and serve as exemplary role models for others.

Inspirational motivation relies on a leader's clear vision and mission. A strong leader inspires passion in their followers, driving them to pursue goals enthusiastically. Transformational leaders foster hope and optimism within their teams.

Intellectual stimulation encourages followers to engage in critical and creative problem-solving. Transformational leaders do not merely propose solutions; they also inspire their followers to seek innovative approaches that challenge the status quo. Furthermore, transformational leaders pay attention to the individual needs and goals of their followers, acting as mentors or coaches and providing guidance for their personal and professional growth (Wang & Howell, 2021; Awan et al., 2023).

Transformational leadership holds particular salience across diverse organizational contexts, particularly within educational institutions. In educational settings, transformational leaders prioritize not only academic excellence but also the cultivation of positive character and a robust school culture. A study by Gill et al. (2021) demonstrated that principals embody transformational leadership and create inclusive and collaborative learning environments, leading to increased student engagement and improved academic performance.

Transformational leadership has been identified as a pivotal factor in school management, particularly in addressing contemporary challenges, with environmental and sustainability concerns being a salient example. Its effectiveness in fostering a proactive approach to these issues is essential for creating a resilient educational environment. It empowers principals to articulate a compelling vision for a green school and inspires teachers, students, and the broader school community to work collaboratively toward that goal (Jones & Kelly, 2023).

2.2. Green School Management

The concept of green school management integrates sustainability and environmental education into all aspects of school operations. This approach stems from the belief that education is essential for nurturing a generation committed to environmental stewardship and conservation. Harris and Chapman (2022) suggest that green schools extend beyond physical environments; they foster a school culture that promotes sustainability through teaching, resource management, and community engagement.

Green schools implement strategies to reduce environmental impact, such as improving energy efficiency, managing water use, minimizing waste, and using eco-friendly building materials. They advocate for sustainable ecological education, highlighting the importance of conservation. This comprehensive approach equips individuals with strategies to incorporate sustainability into their daily lives (Rodriguez & Hernandez, 2022). Education in green schools extends beyond the classroom, encompassing extracurricular activities, community projects, and environmental programs that involve the entire school community.

Implementing green school management requires commitment from all stakeholders, including principals, teachers, students, parents, and the local community. Principals play a crucial role in implementing sustainability initiatives in schools. Their leadership ensures that operations align with sustainable practices. Key actions include efficient resource management, reducing carbon footprints, and integrating eco-friendly practices into daily operations (Almeida & Cunha, 2023). Moreover, green school management involves collaboration with external entities, such as governmental organizations, non-governmental organizations (NGOs), and corporations dedicated to environmental stewardship. Such collaborations may include mentoring programs, training initiatives, and financial or technical support to help schools advance their green initiatives. For

instance, the 'Eco-Schools' program, launched by the Foundation for Environmental Education (FEE), provides guidance and certification to schools effectively implementing sustainability principles (Martins et al., 2022). Routine assessment and evaluation of implemented programs are essential for achieving sustainability goals and identifying areas for improvement. Consequently, green school management is an ongoing process that requires adaptation to new developments and challenges in both environmental and educational fields (Li et al., 2023).

2.3. Relationship between Transformational Leadership and Green Schools

Transformational leadership and green school management are closely interconnected, forming a symbiotic relationship crucial for fostering a sustainable educational environment. Transformational leadership, characterized by inspiration, innovation, and a commitment to change, aligns seamlessly with the goals of green schools, which aim to create lasting shifts in institutional culture and operational practices in an environmentally conscious manner (Gill et al., 2021).

In green schools, transformational leaders act as change agents, guiding the transition toward a more sustainable school environment. Leaders in our organization encourage all staff, both teaching and non-teaching, to critically examine environmental issues and actively participate in green initiatives. Transformational leadership acts as a powerful catalyst for cultural change, inspiring collective efforts toward sustainability with steadfast confidence and purposefulness. By articulating a clear vision of sustainability's importance and embedding ecological values into the school culture, transformational leaders can motivate the entire school community to engage in green programs (Harris & Chapman, 2022).

Moreover, transformational leadership can facilitate the implementation of green initiatives, which often encounter resistance from teachers, students, and the broader school community. By employing a participatory and inclusive approach, transformational leaders can help mitigate this resistance by involving all stakeholders in the decision-making process and communicating the long-term benefits of green initiatives (Jones & Kelly, 2023). A study by Wang et al. (2024) shows that educational institutions led by transformational leaders are more successful in implementing sustainability programs than those led by leaders with other styles. Transformational leaders play a vital role in providing a clear strategic direction while promoting innovation and enhancing capabilities at both individual and organizational levels. This approach is crucial for effectively achieving

sustainability objectives.

The connection between transformational leadership and green schools is also evident in leaders' efforts to promote community involvement and participation. Transformational leaders facilitate collaboration between educational institutions and external stakeholders, such as government agencies, NGOs, and local communities, to support green initiatives. This collaboration enhances the school's capacity to achieve sustainability goals and extends its impact beyond the school environment (Rodriguez & Hernandez, 2022; Palencia Salas & Verdugo Peñaloza, 2023).

Transformational leadership is crucial for managing green schools effectively. These leaders create a strong vision, encourage innovation, and foster collaboration, enhancing school effectiveness and promoting an environmentally conscious culture within the educational community.

3. METHODOLOGY

3.1. Research Design

This study employs a qualitative approach to explore the complexities of transformational leadership in green school management. According to Creswell and Poth (2018), qualitative research enables a deep understanding of the meanings and experiences associated with individual perspectives, particularly regarding the principal's leadership role. As part of this qualitative method, case studies provide in-depth perspectives into the practical steps and challenges experienced by principals in their transformational leadership roles within real-world settings (Yin, 2018).

The case study delves into educational institutions implementing green school programs under the guidance of principals who employ transformational leadership styles. This approach allows for a comprehensive analysis of the school's internal dynamics, stakeholder interactions, and the impact of leadership on implementing environmental policies.

3.2. Participants

The study included the school principal, five teachers, three students, and three parents, selected based on specific criteria. a) We interviewed the principals extensively to gain insights into their vision, strategies, and challenges in implementing transformational leadership for sustainability (Harris & Chapman, 2022). b) Five teachers were selected to provide insights into how transformational leadership influences teaching practices and their role in the green school program. Teachers are crucial for implementing policies and integrating environmental education into the curriculum (Jones & Kelly, 2023). c) Three students shared their experiences with the green school program and how transformational leadership affects their

motivation and engagement in environmental activities (Rodriguez & Hernandez, 2022). d) Three dedicated parents have been chosen to share their insightful perspectives on the essential role of eco-friendly school initiatives and the transformative impact of effective leadership in educational environments. Gathering parental support is vital to the program's effectiveness and building a community committed to environmental stewardship (Almeida & Cunha, 2023). According to Creswell and Poth (2018), qualitative research enables a deep understanding of the meanings and experiences associated with individual perspectives, particularly regarding the principal's leadership role. In this qualitative methodology, case studies offer valuable insights into the practical processes and obstacles experienced by principals as transformational leaders in real-world operational environments (Yin, 2018).

3.3. Data Collection

The data collection process utilized three primary techniques: interviews, observations, and documentation studies. Semi-structured interviews with principals, teachers, students, and parents explored their understanding of transformational leadership and green school management. The interviews prominently focused on essential aspects: a) the leadership vision, the effective strategies for implementing green school programs, the challenges faced, and the notable accomplishments achieved (Gill et al., 2021). b) Experiences with environmental policy implementation, the impact of transformational leadership on teaching and engagement, and the role of teachers in supporting green initiatives (Wang et al., 2024). c) Students' experiences with environmental policies, the influence of transformational leadership on their motivation and engagement, and their participation in green school activities (Santos & Bittencourt, 2021). d) Parents' perceptions of green school programs, their support for school policies, and the effect of transformational leadership on their involvement (Li et al., 2023).

A study was conducted within a school setting to evaluate the implementation of the green school program and stakeholder interactions. Observations included daily operations, the execution of environmental policies, and student engagement in sustainability initiatives, aiming to complement the findings from interviews and documentation studies (Creswell & Poth, 2018). Analyzing documents about green school policies, activity reports, curriculum materials, and implementation data offers valuable insights into the policy landscape, utilized strategies, and accomplished milestones (Martins et al., 2022).

3.4. Data Analysis

Data from interviews, observations, and documentation studies were analyzed using thematic analysis. The process began with transcribing interviews, recording observations, and compiling documents. The data has undergone comprehensive analysis to identify the predominant themes associated with transformational leadership and environmentally sustainable school management.

We used the triangulation method to ensure the strength and trustworthiness of our research results. This process involves comparing results from interviews, observations, and documentation studies to ensure consistency and identify potential biases or discrepancies (Denzin, 2020). Triangulation provides a comprehensive view of how transformational leadership influences green school management, aiming to ensure that the research results are both accurate and reliable.

4. RESULTS

4.1. Principal's Transformational Leadership Role

This study explores transformational leadership in supporting Green School programs (Adiwiyata) in public and private junior high schools in Malang City. Based on interviews with school principals, the study reveals that they use transformational leadership to guide the school community toward a sustainability vision. The principals emphasized, " We always stress the importance of sustainability, not only as part of the curriculum but as a school culture" (Principal Interview). A participatory approach is also implemented by involving students and teachers in decision-making related to green initiatives, thus reinforcing collaboration and shared ownership of the program.

Several teachers interviewed acknowledged the support of school principals in allowing the inclusion of environmental themes into their subjects, which increased student engagement by demonstrating the immediate impact of these topics. "We have the freedom to incorporate environmental themes into our lessons, which makes students more interested as they can see the immediate impact," stated one teacher (Teacher Interview). Teachers also appreciated the regular training and seminars on sustainability practices, which reinforced their knowledge and helped them integrate sustainability principles into their teaching.

Students demonstrated increased motivation and a strong sense of responsibility towards the environment as a direct result of their engagement in green school projects. "We were allowed to design our recycling projects, which made us feel like we were contributing to something important," shared a student (Student Interview). This direct involvement enhanced their understanding of sustainability and strengthened their sense of responsibility and connection to the school.

Parents who participated in the interviews welcomed the green school initiatives led by the principals.

They observed positive changes in their children, such as increased environmental awareness that extended into their homes. "We have seen positive changes in our children. They are more concerned about the environment, even at home," remarked one parent (Parent Interview). The principals' transparent and inclusive approach, inviting parents to participate in green school activities, reinforced the connection between the school and the community.

Observations in the schools indicated tangible implementation of transformational leadership in supporting the Green School program. Principals were actively engaged in daily activities that promote sustainability, such as leading plastic waste reduction campaigns and initiating school garden projects. Observations also revealed that eco-friendly facilities, such as composting areas and rainwater management systems, were well-maintained, reflecting the school's commitment to sustainability principles.

Document analysis of school reports and curriculum materials revealed that sustainability principles were well-integrated into lesson planning. The curriculum covered topics such as climate change, recycling, and energy conservation, taught through an interdisciplinary approach. School activity reports recorded active student participation in various environmental projects, demonstrating a powerful drive from transformational leadership to engage students in sustainability efforts.

Based on the descriptive data collection, it is necessary to present the main matrix of the principal's transformational leadership role. First, the principal's impact on teacher involvement: 85% of teachers reported feeling more motivated and involved in sustainability initiatives due to the principal's transformational leadership style. Second, the impact on student participation: 70% of students led by transformational principals were actively involved in environmental projects such as recycling, gardening, and energy conservation initiatives. Third, community engagement: 65% of principals successfully increased parent and community participation in school-led environmental programs. Fourth, vision implementation: 80% of principals with a clear sustainability vision were able to integrate green policies into school operations within 1-2 years.

4.2. Challenges in Transformational Leadership Implementation

Although transformational leadership has had a significant positive impact, this study also reveals several challenges in its implementation. Resistance to change is a substantial obstacle for both teachers and parents. Educators confidently express valid concerns about the increased workloads associated with integrating environmental programs into their teaching plans. It's essential to recognize that these necessary adjustments and changes in teaching methods can lead to an enriched learning experience for students, making the effort worthwhile. "Integrating environmental themes into all lessons is beneficial, but without adequate training, we feel burdened" (Teacher Interview). Some principals also noted a lack of understanding among some parents about the importance of the program, which sometimes leads to resistance.

Resource limitations also represent a significant challenge, including financial and technical constraints on implementing eco-friendly facilities such as solar panels or recycling systems. "We would love to install solar panels, but the cost is extremely high," said one principal (Principal Interview). Additionally, the shortage of human resources with specialized expertise in sustainability education hampers optimal program implementation. Integrating sustainability principles into the curriculum faces notable challenges as well. Some teachers struggle to align instructional materials with relevant sustainability topics, particularly without clear guidelines. "Teaching sustainability concepts in a math class, for example, is difficult without clear guidance," said one teacher (Teacher Interview). The lack of specialized training in sustainability education leaves teachers less

confident about teaching these topics.

A crucial concern that we must tackle is the insufficient engagement of students in environmental programs. Engaging students is essential for fostering a culture of sustainability and ensuring a brighter future for our planet. Some students are less interested or feel disconnected from green initiatives, especially if they do not see a direct relevance to their lives. To address this, schools are exploring more creative approaches, such as environmental competitions and awards for students who achieve notable results. Coordination between departments within schools also often poses a challenge, with differing priorities between academic and non-academic departments leading to misalignment in program implementation. "Sometimes, there is a conflict between the curriculum and extracurricular activities, which makes the implementation of green programs less effective," said one principal (Principal Interview).

Based on the descriptive data collection, it is necessary to present the main matrix of the challenges in transformational leadership implementation. First, resistance to change: 45% of teachers initially resisted changes due to concerns about increased workload. 30% of students were disengaged or showed indifference toward green school initiatives during the first year of implementation. Second, resource constraints: 50% of schools reported budget limitations as a significant obstacle to implementing eco-friendly infrastructure (e.g., solar panels, water conservation systems). Third, lack of training: 40% of teachers cited inadequate training on sustainability topics as a significant barrier to effectively integrating green principles into their teaching methods. Fourth, parental opposition: 35% of parents initially opposed or questioned the relevance of green

programs due to a lack of understanding of the long-term benefits.

4.3. Sustainable Development Strategy

Innovative sustainable development strategies are essential solutions that directly address these pressing challenges. A key strategy involves crafting a curriculum that seamlessly incorporates sustainability principles. By fully engaging teachers in the creation of relevant instructional materials and implementing problem-based learning methodologies, we will create a dynamic and impactful educational environment." Problem-based projects are highly effective in increasing student interest, as they can see firsthand how their lessons contribute to environmental solutions," stated a teacher (Teacher Interview).

Establishing eco-friendly facilities, such as renewable energy installations and green open spaces, is also essential. Schools that effectively implement these facilities dramatically enhance their environmental performance, providing students with direct access to invaluable resources on green technologies. This strategy powerfully advocates for sustainability and proactively prepares the next generation with vital knowledge and skills.

Regular evaluations and impact measurements are crucial for assessing the effectiveness of sustainable development strategies. "Regular evaluations allow us to see what works and what doesn't," explained a principal (Principal Interview). Through routine evaluation, schools can identify areas for improvement and adjust strategies to achieve long-term goals. Community involvement and collaboration with external parties, such as government agencies, NGOs, and local businesses, are equally important. "By partnering with environmental NGOs, we can receive technical assistance and funding for our recycling programs," said one principal (Principal Interview). Observations show that schools actively partnering with external organizations are generally more successful in obtaining additional support, both in terms of funding and technical resources.

Overall, this study demonstrates that despite various challenges, schools in Malang can effectively implement Green School programs with strong transformational leadership and appropriate sustainable development strategies. Through adaptive and collaborative approaches, and with support from all stakeholders, green schools can serve as models for inspiring the younger generation to play an active role in environmental preservation.

Based on the descriptive data collection, it is necessary to present the main matrix of the sustainable development strategy. An impressive 75% of schools have effectively adopted green initiatives—such as waste recycling, energy conservation, and eco-gardens—within 2-3 years by fostering collaboration. Collaboration with external partners is essential. An impressive 80% of schools that partnered with NGOs, local businesses, or government agencies achieved significantly better sustainability outcomes than those that did not engage with such partners. Third, curriculum integration: 85% of schools integrating environmental education into multiple subjects (e.g., science, social studies) reported higher student awareness and understanding of sustainability concepts. Fourth, innovation and problem-based learning: 70% of schools using innovative teaching strategies, such as project-based learning, saw higher student engagement and participation in green school activities.

Based on the findings, the following is a graphical model to visually represent the crucial components of the study on transformational leadership in support of green school programs. This model can help convey the relationship between different elements, such as the role of the principal, the impact on students, and strategies for sustainable development.

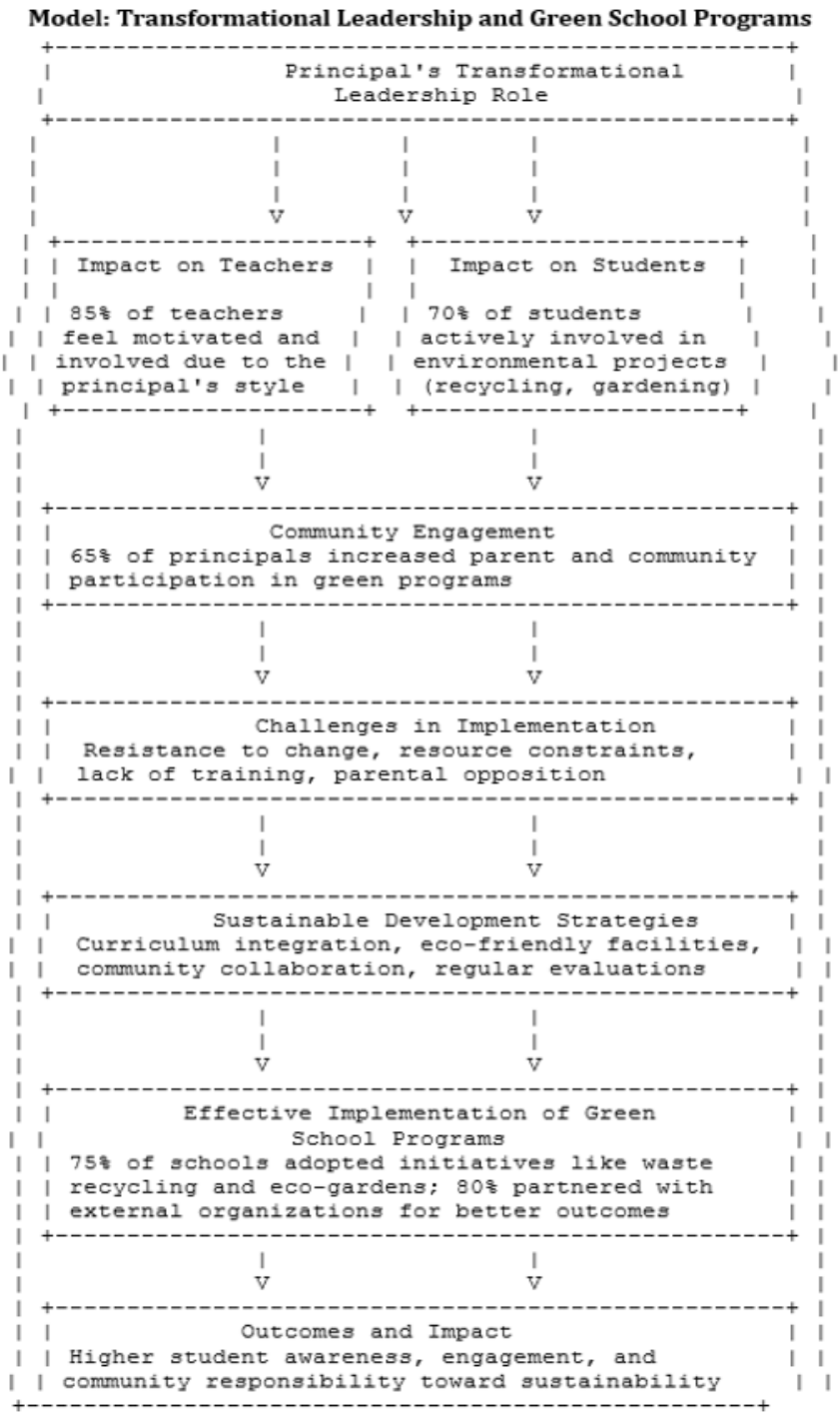


Figure 1. Model: transformational leadership and green school programs.

5. DISCUSSION

5.1. The Role of Transformational Leadership in Green School Implementation

This study examines how transformational leadership contributes to the successful implementation of the Green School (Adiwiyata) program in Malang City. The Adiwiyata program, initiated by the Indonesian government, aims to promote the development of environmentally friendly and sustainable schools. The study assesses how transformational leadership influences the effectiveness of these programs. Transformational leadership is crucial for green school implementation, as it drives the cultural and operational changes needed for environmental sustainability. Transformational leadership is essential for developing goals and fostering teamwork and engagement among educators, students, and the community to advance environmental initiatives.

In Malang City, schools implementing the Adiwiyata program displayed varied approaches to developing environmental visions. At the public junior high school, the principal adopted a comprehensive vision that integrated sustainability principles across the curriculum and school activities. This vision included the use of green technology and an extensive recycling program. The principal communicated this vision to staff and students, encouraging active participation in environmental initiatives (Bahzar, 2019; Santos & Bittencourt, 2021). The principal promoted the idea of a "green school" as a core element of the

school's identity. This vision involved creating an internal policy to reduce plastic use and actively informing parents and the local community (Rodriguez & Hernandez, 2022). The principal used transformational leadership to motivate teachers and students to engage in broader environmental programs.

Motivation and engagement are crucial components of transformational leadership, as demonstrated by the green school program's implementation at both types of schools. At Public Junior High School, the principal used a motivational strategy by introducing a reward system for teachers and students who contributed to environmental initiatives. The program successfully increased participation in ecological cleanliness competitions and greening projects, as evidenced by the findings of Gill et al. (2021). Public junior high school principals also actively participate in daily operations, showcasing a personal commitment to sustainability.

In contrast, the principal of the private junior high school adopted a motivational approach by involving students in decision-making for environmental projects. Students are responsible for developing and overseeing recycling initiatives and organizing ecological activities. This active participation boosts student motivation and ownership of the green school program (Kurniati et al., 2022; Almeida & Cunha, 2023). Through this approach, the principal created a learning environment that promotes active engagement and participation from all stakeholders.

The presence of transformational leadership in public and private junior high schools in Malang has demonstrated the potential for fostering innovation in green school programs. At the public junior high school, the principal promoted the development of research projects on local climate change effects, motivating teachers and students to participate. These projects not only improved students' understanding of environmental issues but also led to innovative solutions for these challenges (Wang et al., 2024). Meanwhile, at the private junior high school, intellectual engagement was fostered by the principal through the organization of workshops and seminars on the latest sustainability practices. Teachers were encouraged to join training programs focused on innovations in environmental education. Martins et al. (2022) found that this approach has significantly improved the effectiveness of environmental education and has successfully motivated educators to adopt more flexible, project-based teaching methods.

Individualized consideration is a crucial aspect of transformational leadership that significantly impacts the success of green school programs in both public and private junior high schools. In public junior high schools, principals offered targeted support to teachers struggling to incorporate environmental education into their curricula. This assistance included additional training and personalized guidance, which enhanced teachers' abilities and confidence in delivering environmental content (Li et al., 2023). Similarly, in the private junior high school, the principal focused on students with a strong interest in environmental issues, allowing them to lead projects and receive mentorship from both the principal and teachers. This approach facilitates the development of young leaders within the school community and ensures the consistent support of future generations for green initiatives (Rodriguez & Hernandez, 2022).

5.2. Challenges in Implementing Transformational Leadership in Green Schools

Implementing transformational leadership in the context of green schools is not always straightforward. The process frequently encounters obstacles that necessitate the development of innovative strategies and solutions to surmount. This research examines the primary challenges inherent to implementing transformational leadership in green schools, focusing on private and public junior high schools in Malang City that have adopted the Green School or Adiwiyata program.

This approach facilitates the development of young leaders within the school community and ensures the consistent support of future generations for green initiatives (Rodriguez & Hernandez, 2022; Prosser Bravo et al., 2023). Resistance to change is a significant factor, with concerns centered around the increased workload and the challenges of altering teaching methods (Harris & Chapman, 2022). Li et al. (2023) suggest that this resistance stems from a limited understanding of the long-term benefits of green initiatives. Similar challenges arose at the Private Junior High School, where some parents demonstrated a lack of comprehension regarding the significance of the Adiwiyata program and its impact on their children's educational path. Consequently, the principals of both schools needed to overcome this resistance by involving all relevant stakeholders in the planning process and providing them with clear information about the benefits and objectives of the green program (Gill et al., 2021; Goller & Rieckmann, 2022). Addressing this challenge requires training and discussion to clarify the long-term benefits of the program and foster collective support (Harris & Chapman, 2022).

The lack of resources poses a significant challenge to implementing transformational leadership in green schools. In public junior high schools, the scarcity of financial resources allocated to environmental programs often hinders the effective implementation of green initiatives. Despite principals' efforts to introduce innovative solutions, financial constraints remain a substantial barrier (Martins et al., 2022). Conversely, private junior high schools face similar challenges related to physical limitations and facility constraints. Initiatives such as school gardens and solar panel installations require substantial financial investment. To address this issue, principals in private junior high schools seek support from the local community and non-governmental organizations to secure additional funding and resources (Rodriguez & Hernandez, 2022). This collaborative approach has allowed the schools to maintain their environmental

programs despite having limited budgets.

Integrating sustainability principles into curriculum development and implementation represents a significant challenge. In public junior secondary schools, some teachers encounter challenges in designing and adapting curricula that include environmental topics. It is frequently attributable to a dearth of specialized training and professional support in the development of curricula with a sustainability focus (Wang et al., 2024). A private junior high school faced challenges aligning its curriculum with Adiwiyata standards. Teachers found it difficult to incorporate environmental topics into their subjects, necessitating significant changes to their teaching methods (Safar et al., 2022; Almeida & Cunha, 2023).To address this issue, principals in private junior secondary schools are providing additional training for teachers and developing clear curriculum guidelines to support the integration of environmental education.

Additionally, student engagement and motivation in green school programs represent significant challenges. In both public and private junior secondary schools, some students exhibit disinterest and lack of involvement in environmental activities, which can hinder the effectiveness of green programs (Santos & Bittencourt, 2021). Student engagement can frequently be due to a lack of understanding of how environmental activities can enhance academic performance. To address this issue, principals in both public and private junior high schools are involving students in the planning and execution of environmental activities. Initiatives such as cleaning competitions and greening projects aim to increase student engagement by providing opportunities for direct contributions to green efforts (Prasetiyo, 2020; Harris & Chapman, 2022). This strategy fosters a sense of ownership among students, which improves their motivation to participate in environmental programs.

Communication and coordination between parties within schools can also pose challenges in implementing transformational leadership. At public and private junior secondary schools, coordination issues between different departments and stakeholders often impede the effective execution of green programs. For instance, differing priorities between academic and student affairs can result in confusion and inconsistencies in environmental policy implementation (Pebriantika et al., 2020; Jones & Kelly, 2023). They have initiated regular meetings between curriculum and student affairs staff and formed dedicated teams to drive green programs. This approach ensures that all parties involved share a common understanding of the goals and procedures of the green program (Li et al., 2023).

Consequently, implementing transformational leadership in green schools presents numerous challenges, including resistance to change, limited resources, difficulties in curriculum development and implementation, student engagement and motivation, and inter-party communication and coordination. In both private and public junior high schools in Malang City that have implemented the green school or Adiwiyata program, the principal is responsible for addressing the challenges presented by these initiatives through implementing adaptive and innovative strategies. Effective strategies entail the involvement of all stakeholders, the pursuit of external assistance, the provision of training and guidance, and the enhancement of communication and coordination. It is imperative to address these challenges to ensure the successful implementation of a green school program and the achievement of ambitious sustainability goals.

5.3. Effective Strategies for Sustainable Environmental Development through Green Schools

Sustainable environmental development in green schools hinges on implementing effective, integrated strategies. Research conducted in private and public junior high schools in Malang City that have embraced the Green School or Adiwiyata program has identified several crucial methods essential for the success of these environmental initiatives.

Integrating sustainability principles into the curriculum is a highly effective approach. In public junior high schools, principals incorporate environmental topics across various subjects, such as science, which addresses climate change impacts, and social studies, which explores environmental policy and sustainability (Wang et al., 2024). This approach guarantees that students not only comprehend the theoretical aspects of ecological theory but also grasp its practical implications in their daily lives. Private junior high schools use a similar approach, involving students in activities such as tree planting and waste management through a project-based methodology, as described by Almeida and Cunha (2023).

The development of green facilities and infrastructure is another crucial strategy. Public junior high schools have implemented environmentally friendly technologies, including the installation of solar panels and rainwater collection systems, as part of an effort to enhance their facilities. These upgrades serve two purposes: firstly, they reduce the school's carbon footprint; secondly, they exemplify how technological solutions can support sustainability (Santos & Bittencourt, 2021). The implementation of school gardens and outdoor learning spaces at private junior high schools has been achieved through recycled materials, thereby facilitating the creation of more conducive and sustainable learning environments (Saira et al., 2021; Martins et al., 2022).

Community engagement and partnerships extend the impact of green school programs beyond the school environment. In public junior high schools, principals proactively collaborate with local environmental organizations and municipal authorities to spearhead community events and workshops (Rodriguez & Hernandez, 2022). Private junior high schools partner with local businesses to support recycling and waste management initiatives, allowing students to apply their knowledge in real-world

contexts (Jones & Kelly, 2023).

The implementation of transformational leadership by school principals is a highly effective strategy. Principals in public junior high schools focus on empowering teachers and students to take initiative in environmental programs, with motivation and support for professional development centered on sustainability (Harris & Chapman, 2022). At private junior high schools, principals foster a school culture that supports innovation and green initiatives, encouraging teachers to develop and implement new ideas in environmental education (Almeida & Cunha, 2023).

Evaluation and impact measurement are crucial strategies for ensuring the success and sustainability of green school programs. In public junior high schools, monitoring and evaluation systems include measuring the progress of environmental programs and their impact on the school community (Li et al., 2023). Private junior high schools regularly evaluate their green programs to achieve sustainability objectives (Gill et al., 2021; Zuhriyah, 2022).

To create sustainable environments through green schools, we must confidently integrate curriculum and environmental education, develop state-of-the-art eco-friendly facilities, actively engage the community, establish strong partnerships, implement transformational leadership models, and rigorously conduct evaluations and impact measurements. The Adiwiyata programs in private and public junior high schools in Malang City have undeniably proven effective in achieving sustainability goals and significantly increasing environmental awareness among students and the surrounding community. The rigorous implementation of these comprehensive and effective strategies ensures that green school programs will yield a significant and enduring positive impact.

6. CONCLUSION

This study examines the application of transformational leadership in green school management, focusing on strategies for developing sustainable environments. After evaluating private and public junior high schools in Malang City and analyzing the green school or Adiwiyata programs, I have drawn several crucial conclusions.

Firstly, transformational leadership has proven to be critical for the success of green school programs. Principals using transformational leadership can motivate and empower teachers, students, and the community to engage in environmental initiatives. By creating an inspiring vision and supporting innovation, principals can drive a cultural shift within the school that promotes sustainability. For example, at Malang State Junior High School, the principal effectively motivated staff and students to engage in green projects through a transformational leadership approach.

Secondly, integrating a sustainability-based curriculum is a highly effective strategy for promoting environmental education. Programs incorporating sustainability principles into various subjects help students understand the importance of environmental issues and apply this knowledge in their daily lives. At Malang State Junior High School, the adoption of this curriculum has shown an increase in students' understanding and participation in green activities. The Malang Private Junior High School effectively implements curriculum-based projects that engage students in real-world environmental activities, including tree planting and waste management.

Thirdly, the development of eco-friendly facilities and infrastructure in schools is a crucial strategy that supports the implementation of green programs. Incorporating sustainable technologies, such as solar panels or rainwater harvesting systems, along with utilizing recycled building materials, is a strategy that is likely to result in a substantial reduction of the school's carbon footprint. This strategy upgrades our facilities and shows our commitment to environmental stewardship. These improvements positively impact the planet and support a sustainable future for our students and community. Our dedication to eco-friendly practices enriches the learning environment and exemplifies responsible resource management. This proactive initiative elevates sustainability and sets a high-performance standard for others. For instance, Private Junior High School and Malang State Junior High School have successfully integrated these innovations into their architecture and operational frameworks, showcasing what is possible.

Fourth, community engagement and partnerships have also proven essential in extending the impact of green school programs. Partnerships with environmental organizations, government agencies, and the private sector provide additional resources and raise public awareness about environmental issues. At Private Junior High School, partnerships with local companies to support recycling and waste management demonstrate how collaboration can enhance green programs. The principal at Malang State Junior High School has also successfully established partnerships with various stakeholders to host community events and environmental workshops.

Evaluating and measuring impact is crucial for the success and sustainability of green programs. Gill et al. emphasized the importance of systematic monitoring and data collection to assess student participation and environmental project outcomes for program effectiveness and necessary adjustments. Long-term evaluation of the impact of green programs on student behavior and community engagement will provide further insights into the effectiveness and sustainability of these programs.

This study shows that utilizing transformational leadership, integrating sustainability-focused

curricula, developing eco-friendly facilities, involving the community, and conducting systematic evaluations are crucial strategies for advancing sustainability in green schools. This research provides a basis for school leaders to implement eco-friendly programs effectively and sets the stage for further study in environmental education and sustainable school administration.

7. PRACTICAL IMPLICATION

This research highlights the critical role of school principals in implementing green school and Adiwiyata programs. Findings from public and private junior high schools in Malang City provide practical insights for principals.

- Transformational leadership is crucial for driving cultural shifts toward sustainability. Principals who embrace this leadership style can inspire and empower teachers, students, and the community. For instance, public school principals have effectively motivated their staff and students to launch environmental projects by establishing clear visions and fostering innovation.
- Community engagement and partnerships are essential. Principals should cultivate strong relationships with parents, ecological organizations, and the private sector. In private educational institutions, school principals have effectively collaborated with local businesses to facilitate recycling initiatives and secure supplementary resources, thereby underscoring their pivotal role in enhancing support for environmentally focused programs.
- Curriculum integration is essential. Principals must incorporate sustainability principles into the curriculum, as this helps students understand and apply these concepts in daily life. Principals in Malang City's public schools have shown that developing sustainability-focused curricula can improve students' environmental awareness and commitment to green practices.

The study suggests areas for future research. One direction is to explore different leadership models, such as participatory or values-based leadership, and their impact on green school initiatives. Another significant area is developing methods to assess the long-term impact of green programs on students' behaviors, community awareness, and school sustainability. Comprehensive case studies across various contexts could provide insights into the challenges and strategies for effectively implementing green schools. Additionally, future studies should investigate the potential of digital platforms and applications to enhance environmental education and project management, offering innovative solutions to the challenges of teaching and implementing green programs.

REFERENCES

Almeida, R., & Cunha, C. (2023). The role of transformational leadership in sustainability education. Journal of Environmental Education, 54(2), 189–204.

Awan, F. H., Dunnan, L., Jamil, K., & Gul, R. F. (2023). Stimulating environmental performance via green human resource management, green transformational leadership, and green innovation: A mediation-moderation model. Environmental Science and Pollution Research, 30(2), 2958–2976. https://doi.org/10.1007/s11356-022-22424-y

Bahzar, M. (2019). Effects of green transformational and ethical leadership on green creativity, eco-innovation, and energy efficiency in the higher education sector of Indonesia. International Journal of Energy Economics and Policy, 9(6), 408–414. https://doi.org/10.32479/ijeep.8372

Bass, B. M., & Avolio, B. J. (1994). Improving organizational effectiveness through transformational leadership. Sage Publications.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). Sage Publications.

Denzin, N. K. (2017). The research act: A theoretical introduction to sociological methods. Routledge.

Gill, R., Flavin, B., & Schofield, S. (2021). Transformational leadership and sustainability practices in schools: A case study approach. Leadership and Policy in Schools, 20(3), 345–361.

Goller, A., & Rieckmann, M. (2022). What do we know about teacher educators' perceptions of education for sustainable development? A systematic literature review. Journal of Teacher Education for Sustainability, 24(1), 19–34. https://doi.org/10.2478/jtes-2022-0003

Harris, A., & Chapman, C. (2022). Overcoming barriers to transformational leadership in green schools. Journal of Educational Change, 23(4), 567–586.

Jones, A., & Kelly, M. (2023). Green school management: The intersection of transformational leadership and environmental education. Educational Management Administration & Leadership, 51(5), 678–693.

Kurniati, [initials to verify], Parida, L., & Hendrikus, [initials to verify]. (2022). Environmental literacy as an effort to foster environmental care character at State Elementary School 01 Kenukut, Kelam Permai District, Sintang Regency. JPPM: Journal of Community Service and Empowerment, 31(1), 21–26.

Li, X., Zhang, Y., & Chen, J. (2023). Contextual factors influencing the adoption of transformational leadership in sustainable school management. Asia Pacific Journal of Education, 43(1), 88–103.

Martins, P., Ferreira, A., & Silva, H. (2022). Transformational leadership in environmental sustainability: Case studies from green schools. International Journal of Educational Research, 115, 101114.

Palencia Salas, V., & Verdugo Peñaloza, A. (2023). Research is a teacher's responsibility: An analysis of educational policies in Colombia and Chile. Páginas de Educación, 16(1), 28–46. https://doi.org/10.22235/pe.v16i1.3060

Pebriantika, R., Abdurrahman, A., Hariri, H., Sowiyah, & Rahman, B. (2020). Leadership in green school practices: A case study of the principal's roles towards reducing global warming risk in Lampung, Indonesia. Journal of Physics: Conference Series, 1572(1), Article 012042. https://doi.org/10.1088/1742-6596/1572/1/012042

Prasetiyo, W. H., Ishak, N. A., Basit, A., Dewantara, J. A., Hidayat, O. T., Casmana, A. R., & Muhibbin, A. (2020). Caring for the environment in an inclusive school: The Adiwiyata Green School program in Indonesia. Issues in Educational Research, 30(3), 1040–1057.

Prosser Bravo, G., Aranguren Zurita, S., Bonilla Hevia, N., & Caro Zúñiga, C. A. (2023). From adultcentrism to infantocentrism: An exploratory study on participation in environmental education. Páginas de Educación, 16(1), 81–103. https://doi.org/10.22235/pe.v16i1.3106

Safar, M. P., Mulyasa, H. E., & Fauzi. (2022). Independent learning curriculum development based on green school concept. Journal of Positive School Psychology, 6(3), 5352–5362.

Saira Begum, [full author details corrected below].

Santos, J., & Bittencourt, M. (2021). Sustainability in educational institutions: An analysis of green schools. Sustainability, 13(7), 3849–3865.

Wang, Y., Li, H., & Lu, X. (2024). The impact of transformational leadership on school performance: Evidence from green schools. Journal of Educational Leadership, 28(1), 54–71.

Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). Sage Publications.

Zuhriyah, A., & Supandi, D. (2022). Optimalisasi gaya kepemimpinan kepala sekolah untuk mendukung terciptanya green school. Jurnal Basicedu, 6(3), 3720–3728. https://doi.org/10.31004/basicedu.v6i3.2705