Evaluation Study of the Green School Program in Islamic Schools

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Abstract	This research aims to evaluate the effectiveness of the Green School Program in enhancing student character education at Adzkia Islamic School Boarding School in South Tangerang City. Employing a qualitative approach with a case study design, the study adopts the Context, Input, Process, Product (CIPP) evaluation model. The research involved 10 informants, including the principal, teachers, dormitory caretakers, and high school students. Data were collected through structured interviews, observations, and documentation, and analysed using Miles and Huberman's interactive model. The findings indicate that while the Green School and character education programs are being effectively implemented, several areas require improvement, such as the availability of environmental infrastructure, curriculum integration, individual-level evaluations, and reporting mechanisms. Theoretically, this study supports the role of environmentally-based education in shaping student character. Practically, it provides insights for school administrators and policymakers to enhance sustainable character education through comprehensive planning and infrastructure. Future research is recommended to develop assessment instruments and explore program impacts quantitatively across different school levels.
Keywords	Character Education; CIPP Evaluation; Curriculum; Green School Program

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1. INTRODUCTION

Based on the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, the development of students' noble character is one of the core goals of education. This is further emphasized in the Regulation of the Minister of Education and Culture Number 20 of 2018, which mandates the implementation of Strengthening Character Education (through curriculum integration and habituation activities. However, the challenge of instilling character values among students remains significant, especially in the face of environmental issues, technological influences, and the weakening of moral behaviour in daily school life. In response, the Green School Program emerges as a strategic initiative to internalize environmental and moral awareness in education. Despite its growing adoption, empirical evaluations of its effectiveness in shaping student character, particularly in Islamic boarding schools, are still limited. Therefore, this study is urgently needed to systematically assess how the Green School Program contributes to character development in a structured and sustainable manner, using the Adzkia Islamic School in South Tangerang as a case study.

Character education is a deliberate and organized program used in schools to foster the traits and values of character expected in individuals. These traits include honesty, integrity, empathy, resilience, and a sense of responsibility towards oneself and others. Other important elements in character education are problem solving, decision making, and self-discipline. Character education equips students with the skills to demonstrate exemplary behavior and moral values in every aspect of their lives. Character education fosters a constructive educational environment and maintains a harmonious society. In addition, character education seeks to foster the integration of natural values in students, as evidenced by observable changes in student behavior toward a more positive trajectory rooted in self-awareness rather than external pressures. Green school curriculum, as described by, involves environmental education, which has positively influenced character development. The program fosters integrity, self-confidence, and a deep sense of responsibility for the environment.

Green schools are educational institutions that prioritize environmental sustainability and integrate environmentally friendly activities into their curriculum. Green schools prioritize the realization of a healthy and sustainable educational environment through the implementation of steps such as ensuring clean air, utilizing natural light, regulating temperature, and minimizing pollution and waste (Meitiyani et al., 2022). Green schools include the environment as a learning tool, motivating students to actively contribute to improving environmental management and quality inside and outside the school environment (Trihantoyo & Rahma, 2018). Green schools are built using several strategies and approaches, such as incorporating environmental elements into the curriculum, enforcing environmentally friendly regulations, engaging in participatory environmental activities, and managing ecologically sustainable supporting infrastructure (Hidayat et al., 2023). The main goal of green schools is to foster students' awareness and responsibility for the environment, fostering attitudes such as environmental management, accountability, self-control, and ingenuity (Kristiawan et al., 2019). In addition, Herlina, Hidayat, & Rahman (2022) Herlina, Hidayat, & Rahman (2022) Emphasized that the green school-based inquiry learning paradigm can potentially improve students' scientific literacy skills.

Some problems in the green school and character education program include the absence of benchmarks for the success of character education, the lack of training for teachers in implementing character education, and the non-implementation and differences in character education between institutions. Internal factors such as instinct, habits, desires, and external factors such as free association and the influence of gadgets also hinder the development of character education. The problem in implementing green schools is the lack of knowledge and financing opportunities, thus limiting the integration of greening in public facilities such as schools. A study in Indonesia found that green school students had higher pro-environmental behavior, which was not based on knowledge or concern for the environment. Still, it was the result of social conditioning and modeling. In addition, research in rural areas of West Java identified that limited learning resources, a lack of teacher approaches in introducing environmental education, and low student awareness of the environment cause low environmental literacy among students.

Adzkia Islamic School is one of the Islamic boarding schools designated as a city-level Adiwiyata school in South Tangerang City. However, several things need to be considered with this predicate, such as: lack of consistency in maintaining environmental cleanliness and tidiness, the spread of skin diseases in several periods, lack of consistency in water and energy saving culture, lack of structured environmental literacy for students, water pollution in the school lake is still occurring, there is no consistent waste sorting, and there is still waste burning in its management. To determine the feasibility, relevance, efficiency, effectiveness, impact, and sustainability of the green school program in improving character education, a comprehensive and systematic evaluation of the implementation of the green school program in improving character education is needed.

School program evaluation is a systematic process used to assess the effectiveness and impact of educational initiatives, encompassing the learning process and broader institutional components to

inform stakeholders in decision-making. Several evaluation models have been developed for this purpose, including the Context, Input, Process, Product (CIPP) model, Outcome (CIPPO), Provus, Countenance (Stake), and the Kirkpatrick model (Suklani, 2023). Prior studies, such as Lelono (2023), have applied the CIPP model to evaluate character education programs in Islamic junior high schools, revealing that while programs are generally effective, issues related to infrastructure and student discipline persist. Similarly, research by Kristiawan et al. (2019) and Ilmiyah (2022) highlights that many green school initiatives focus predominantly on environmental practices, with limited integration into character education frameworks (Ilmiyah, 2022; Kristiawan & others, 2019). However, most of these studies do not comprehensively evaluate the green school program through a structured evaluation model, nor do they assess its impact in boarding school environments. This study addresses that gap by using the CIPP model to evaluate the implementation of the Green School Program in an Islamic boarding school setting, Adzkia Islamic School. It examines how the program contributes to holistic character education. The novelty of this research lies in combining environmental education and character development in a boarding school context, which remains underexplored in existing literature.

2. METHODS

This study employed a qualitative research design with a case study approach, allowing researchers to explore a real-life case in depth using multiple sources of evidence, such as observations, interviews, documents, and audiovisual materials (Creswell & Poth, 2018, p. 96). The evaluation was conducted using the Context, Input, Process, Product (CIPP) model developed by Stufflebeam & Zhang (2017, p. 23), Which consists of four components: (1) Context evaluation to assess needs, problems, assets, and relevant environmental dynamics; (2) Input evaluation to assess program strategies, resources, and feasibility; (3) Process evaluation to monitor and document implementation; and (4) Product evaluation to examine short-term and long-term outcomes.

The study was conducted at Adzkia Islamic School Islamic Boarding School in South Tangerang City. A total of 10 informants were involved, selected through purposive sampling based on their direct involvement in the green school and character education programs. The informants comprised one principal, three teachers, two dormitory caretakers, and four senior high school students. Data were collected through structured interviews, direct observation of learning and habituation activities (e.g., daily cleaning routines, waste management, use of tumblers and lunch boxes), and document review, including school policy documents, Standard Operating Procedures (SOPs), monthly program reports, and student performance records. Data analysis followed Miles, Huberman, and Saldaña (2014) interactive model, which involves data condensation, display, drawing, and verifying conclusions. Source triangulation ensured validity by comparing information from different informants and data collection techniques. Data analysis followed the interactive model of (Miles et al., 2014, pp. 8-10), which involves data condensation, display, drawing, and verifying conclusions. Source triangulation ensured validity by comparing information from different informants and data collection techniques. The CIPP evaluation framework used in this study is illustrated in the following schematic:

Table 1. The CIPP Evaluation Framework

CIPP Component	Focus of Evaluation	Indicator/ Tools Used
Contex	Needs, goals, school vision, and environmental issues	Vision-mission analysis, environmental policy documents
Input	Program planning, human resources, and budget	Work plans, staffing structure, and BOS fund reports
Process	Implementation, monitoring, and documentation	SOPs, observations, monthly supervision, and records

CIPP Component	Focus of Evaluation	Indicator/ Tools Used
Product	Outcome on student character, infrastructure	Monthly reports, student behavior records

3. FINDINGS AND DISCUSSIONS

Findings

Context Evaluation

The context evaluation in this study, as defined by Stufflebeam & Zhang (2017, p. 23), involves assessing the needs, problems, assets, opportunities, conditions, and relevant contextual dynamics at the Adzkia Islamic School Islamic boarding school in South Tangerang City. This evaluation aims to determine the relevance of the school to the green school program and its effectiveness in improving character education.

Table 2. Context Evaluation Results

Aspect	The Existence of
Need	▪ This foundation aims to foster a generation with noble character and achievement through four main principles: knowledge of Allah, leadership, entrepreneurship, and environmental awareness.
	▪ The foundation's supervisors want students to have strong moral values and demonstrate environmental sensitivity and concern. The school must meet these requirements.
Problem	Student discipline regarding environmental cleanliness and health covers various aspects such as managing kitchen waste and other daily waste, including sorting and recycling, overcoming water pollution in the school lake, improving students' skin health, and preventing waste burning. This discipline emphasizes the importance of consistently maintaining environmental cleanliness and sanitation and fostering consistent sensitivity to environmental issues.
Asset	▪ Adzkia Islamic School aims to create a monotheistic educational institution that produces generations with noble character, intelligence, independence, and care for the environment.
	▪ Its mission is to realize these goals by implementing green school programs and improving character education.
	▪ Adzkia Islamic School has four pillars that are the basis of its vision and mission: ma'rifatullah, leadership, entrepreneurship, and environmental insight. This school has several mottos, namely TSP (avoiding garbage, throwing garbage in its place, and collecting garbage as charity), BR3T (cleanliness, order, and maintenance), and BeBasKoMiBah (managing chaos, wetness, cleanliness, and security). A policy applies to all school residents to use drinking bottles (tumblers) instead of plastic cups during events, and lunch boxes are used for students' lunches in the dormitory.
	▪ The available facilities include buildings, infrastructure, and equipment supporting the learning and care process in dormitories, mosques, school buildings, dormitory buildings, health centers, sports fields, halls, parks, and shelters. These facilities provide a beautiful environment and are surrounded by green trees.
	▪ The existing infrastructure is inadequate, whether in classrooms, libraries, laboratories, teacher offices, official residences for caretakers in dormitories,

Aspect	The Existence of
	waste sorting places, water conservation facilities, energy conservation facilities, healthy canteens, and greenhouses, according to established standards. In addition, there is still a shortage of potential human resources, including teachers, education personnel, and students.
Opportunity	This partnership involves Bank Plastik Indonesia, Jombang Regency Health Center, South Tangerang City Environmental Center, Daarut Tauhid Psychology Bureau of Rahmatan Lil' Aalamiin Foundation, Banten Province Education and Culture Office, Daarut Tauhid Caring School of Rahmatan Lil' Aalamiin Foundation, Darut Tauhid Education Program of Caring Foundation, the school committee, and Madani Scholars School of South Tangerang City. This partnership aims to provide Adiwiyata coaching to Madani Scholars School using BOS and grant funds.
Contextual conditions and dynamics	Adzkia as an 'adiwiyata' school in Tangsel City and Banten Province

The current character and environmental issues demand the implementation of green school programs and character education. Environmental and character issues can be addressed by implementing green school programs and character education. These programs aim to foster a sense of responsibility, self-control, and environmental awareness (Nurwahdah & Ikhsani, 2023). Green school programs, in particular, also advocate environmental management and engage in environmentally friendly initiatives, which greatly influence students' character development (Abu et al., 2023).

It is important to have vision and mission indicators prioritizing character and environmental awareness. The vision and mission serve as guiding principles for making decisions and defining goals, ensuring that all activities and programs align with the school's main goals. (Astuti et al., 2023). Furthermore, the vision and goal statements are a basis for assessing the efficacy and influence of eco-friendly schools and character education. This allows stakeholders to determine whether or not the desired outcomes have been achieved (Kalla et al., 2022). Using drinking bottles (tumblers) instead of plastic cups at events and utilizing lunch boxes for students' meals in the dormitory align with green schools' environmental goals and objectives. This includes instructing students to minimize the use of plastic waste within the school environment and fostering environmentally friendly, sustainable practices (Nurwahdah & Ikhsani, 2023).

The existing facilities and infrastructure are inadequate or do not meet standards regarding the number of classrooms, libraries, laboratories, teacher rooms, caretaker's official residences in the dormitory, waste sorting areas, water conservation facilities, energy conservation facilities, healthy canteens, and greenhouses. Based on the research results, infrastructure is a significant challenge to the effectiveness of the green school program. Therefore, this infrastructure must be completed immediately.

Input Evaluation

The evaluation in this study, as defined by Stufflebeam & Zhang (2017, p. 23) Aims to assess the feasibility and potential cost-effectiveness of the program strategy, action plan, staffing, and budget at the Adzkia Islamic School Kota dormitory in South Tangerang. This evaluation was conducted to determine the relevance of the school's initiative to the green school program and to improve character education.

Table 3. Input Evaluation Results

Aspect	The Existence of
Program	▪ Optimizing the role of partnerships with various institutions such as Bank Plastik Indonesia, Jombang Regency Health Center, South Tangerang City

Aspect	The Existence of
Strategy	Environmental Center, Daarut Tauhid Psychology Bureau of Rahmatan Lil' Aalamiin Foundation, Banten Province Education and Culture Office, and Darut Tauhid Education Program of Peduli Foundation, along with the involvement of school committees and Civil Cendekiawan schools of South Tangerang City, is very important to implement the green school program effectively and improve character education.
	▪ Empowering teachers and education workers to be role models in green school initiatives and enhance character education.
	▪ Integrating an environmentally friendly curriculum into learning into intracurricular activities, co-curricular activities, habituation activities, self-development activities, and extracurricular activities. Integration materials on the environmentally friendly pillar are only found in science, language, and social studies. The lack of uniform awareness among teachers regarding implementing the green school program in education is the cause.
Action plan	Covered in the medium-term work program and the annual work program
Staffing Arrangement	▪ The principal is responsible for overseeing the green school program and improving character education.
	▪ Adiwiyata teams, including teachers and education professionals, are appointed by school administrations to run green school programs and improve character education.
	▪ In the school environment, there is an environmental division in the OSIS management and environmental soldiers. This group is supervised by OSIS advisors and the Adiwiyata team, who catalyze students in implementing the green school program.
Budget and Potential Cost Effectiveness	The budget allocation comes from the BOS (School Operational Assistance) and Foundation revenue sources, as stated in the RKAS (School Work and Budget Plan). The main obstacles in supporting the green school program are mostly related to priorities on a financial scale and the fulfillment of human resource rights.

This partnership needs to be improved, especially in waste management and energy conservation, as shown by the research results. This study emphasizes the importance of partnerships in coordinating activities such as reforestation, waste management, and energy conservation to foster environmental awareness and responsibility among students.

Existing teachers and education personnel should strive to maintain and enhance their role model status. Even simple actions, such as teachers picking up trash in front of children, can significantly impact children's attention to the environment and adoption of pro-environmental behavior (Chen, 2022).

Integrating an environmentally friendly curriculum into various educational activities, such as intracurricular, co-curricular, habituation, self-development, and extracurricular activities, aligns with the school's goal of fostering noble character in students. This approach is in line with the findings of Wahjusaputri et al. (2019) Those who advocate for an environmentally friendly curriculum aim to encourage positive behavioral changes towards environmental cleanliness among students. In addition, Fasikhi et al. (2023) Emphasized that character development can be achieved by implementing character education in all disciplines and routine activities, such as the "green army" initiative, which seeks to foster students' environmental responsibility. However, not all teachers have a uniform understanding of incorporating green school programs into their teaching practices. This lack of consensus poses a significant challenge, as research shows that factors such as limited knowledge of environmentally friendly practices hinder the successful integration of sustainable development initiatives in educational

institutions (Nada et al., 2021). Habituation is one of the strategies used to implement green schools and character education programs. Research has shown that implementing character education strategies, such as habituation and modeling, helps develop positive character traits in students (Kristiawan et al., 2019).

Establishing a clear division of responsibilities in implementing sustainable education programs is essential. Rahman et al. (2019) Have shown that teachers who lead environmental clubs and have a deep interest in the environment have a significant impact on making schools more environmentally friendly and providing sustainability knowledge to students. Investment in green schools and character education programs is essential because it allows for implementing initiatives that foster environmental awareness and character development in students.

Process Evaluation

According to Stufflebeam & Zhang (2017, p. 23), The evaluation process in this study includes monitoring, documenting, assessing, and reporting the plan's implementation at the Adzkia Islamic School Islamic Boarding School in South Tangerang City. The evaluation focuses on determining the school's compliance with the green school program and its efforts to improve character education.

Table 4. Process Evaluation Results

Aspect	The Existence of
Monitoring	▪ Preparation of documents for the green school program quality manual. One of the documents included is the Standard Operating Procedure (SOP) for the green school program. After reviewing the available documentation, it is apparent that the current Standard Operating Procedure (SOP) has not yet advanced to the evaluation stage. However, several green school programs, such as POS BR3T (Clean, Tidy, Orderly, Well-Maintained), have been successfully implemented. Unfortunately, evaluation procedures related to the green school program and character education enhancement have not been well developed, making it impossible to measure individual students.
	▪ Monitoring BR3T (Clean, Tidy, Orderly) habits includes supervising tasks such as making beds, cleaning bathrooms, tidying dining rooms, organizing wardrobes, and maintaining cleanliness in classrooms, school environments, and dormitories. These tasks are carried out in turns.
	▪ There are monthly audits of the educational programs conducted by the foundation.
Documentation	There is a lack of documentation on Standard Operating Procedures (SOPs) for green schools and comprehensive character education.
Evaluation	Although monthly character evaluations exist, no comprehensive assessment tool is available to generate specific statistics on each student's progress in character education resulting from implementing the green school program.
Reporting	Monthly achievement reports for green school programs may only be provided at a general level for the entire school, rather than on an individual student basis. In addition, not all instructors have incorporated green school program content into their learning or evaluation processes.

The absence of a comprehensive evaluation tool indicates that the lack of standardized assessment will be a challenge in the implementation of character education (Barus, 2017). Therefore, there is a need to improve the evaluation of character education every month because the evaluation plays an important role in developing positive characters such as integrity, accountability, empathy, and self-esteem (Supriyadi, 2015).

Product Evaluation

This study aims to evaluate the product at the Adzkia Islamic School in South Tangerang City. The evaluation will focus on identifying and assessing the short-term and long-term costs and outcomes of the school's relevance to the green school program and its impact on character education. This evaluation is based on the framework proposed by Stufflebeam & Zhang (2017, p. 23).

Table 5. Product Evaluation Results

Aspect	The existence of
Identification and Assessment of Bisaya	BOS (School Operational Assistance) and Daarut Tauhid Peduli Foundation often provide financial assistance for elementary school operations.
Short Term and Long Term Results	▪ Characteristics of students manifest in the form of developing attitudes and emotions in the form of sensitivity, compassion, affection, tolerance, perseverance, responsibility, discipline, and humility. ▪ The school and dormitory environment has improved in terms of cleanliness, health, and comfort.

Cost identification shows inadequate funding for green school programs is a major contributing factor. This is in line with research findings that indicate limited implementation of green infrastructure in schools due to factors such as lack of awareness, funding options, and technical difficulties (Zhao et al., 2015).

The green school program fosters attitudes and emotions characterized by sensitivity, caring, compassion, tolerance, perseverance, responsibility, discipline, and humility. Research on environmental education in Adiwiyata schools confirms that this program has a positive impact on the formation of student character. Various activities and regulations implemented in this school foster values such as honesty, responsibility, and concern for nature (Nada et al., 2021). Implementing the green school program improves the cleanliness, health, and comfort of the school and dormitory environment. This finding is in line with previous research showing that green school initiatives have a positive impact on creating a pleasant, hygienic, and healthy school environment, which is beneficial for children and staff (Trihantoyo & Rahma, 2018).

Discussion

The evaluation results indicate that the Green School Program at Adzkia Islamic School has made a meaningful contribution to student character development, particularly in discipline, responsibility, environmental care, and empathy. These findings support the theoretical framework of character education, which views moral and civic development as shaped by intentional curriculum and school culture (McGrath et al., 2022; A. K. Singh & Meena, 2022). According to Lickona's character education theory, positive character traits develop when students actively engage in moral action and reflection, which are both promoted through the green school initiatives. From the perspective of environmental education theory, particularly within the scope of the Green School model, this study affirms that experiential and participatory environmental practices help internalize values such as sustainability and ecological responsibility (Hidayat et al., 2023; Nada et al., 2021). Students learn about environmental issues and actively engage in daily practices such as waste sorting, energy and water conservation, and eco-friendly behavior, aligning with behavioral change principles through habituation and modeling (Kristiawan et al., 2019).

The context evaluation revealed that Adzkia's vision, supported by environmental mottos like *TSP* and *BeBasKoMiBah*, provides a strong institutional foundation for green character education. This institutional alignment mirrors findings from Astuti et al. (2023), who argue that a school's vision and values must be consistently translated into actions to affect student attitudes (Astuti et al., 2023).

In the input evaluation, the involvement of multiple stakeholders and the integration of environmental content into the curriculum, albeit uneven, aligns with (Wahjusaputri et al., 2019), who found that such integration increases student environmental awareness. However, the lack of uniform teacher awareness and inadequate environmental training echoes the challenges highlighted by (Nada et al., 2021), Who observed that teacher capacity significantly affects the success of environmental education.

The process evaluation revealed gaps in evaluation tools and reporting mechanisms, especially at the individual student level. This lack of measurable indicators of character growth on the absence of standardized character education assessments in schools. The reliance on general observations and monthly reports, without individualized metrics, limits the program's ability to track longitudinal character development (T. Barus, 2017).

In the product evaluation, improvements in student attitudes, such as increased discipline, cleanliness, and empathy, mirror the outcomes of other Adiwiyata-based schools (Abualrob & Al-Saadi, 2019; Trihantoyo & Rahma, 2018)These changes demonstrate that character development through environmental engagement is feasible and impactful when supported by structured routines and a nurturing school climate. Nevertheless, this study also highlights the need for more robust infrastructure and stronger curriculum integration across subjects—echoing, who argue that the sustainability of green school programs hinges on institutional commitment and sufficient resource allocation (Nurmansah & Retnowati, 2020; Teichmann et al., 2023).

In summary, the research underscores that when systematically implemented through the CIPP model, environmental education can be a powerful vehicle for character formation in Islamic boarding school settings. The findings extend previous literature by demonstrating the model's relevance in the Adzkia Islamic School Islamic Boarding School context, which has been underrepresented in prior studies. This offers a theoretical contribution to the adaptation of environmental character education in religious schooling environments and calls for future research using mixed methods to measure behavioral changes more quantitatively.

4. CONCLUSION

This study aimed to evaluate the effectiveness of the Green School Program in improving student character education at Adzkia Islamic School Islamic Boarding School using the CIPP (Context, Input, Process, Product) model. The findings show that the program contributes positively to developing students' character, especially in promoting discipline, responsibility, and environmental awareness, though several aspects still require enhancement. These include the completeness of infrastructure, consistency in teacher participation, curriculum integration, and the absence of standardized evaluation tools for individual character development. Theoretical implications of this study confirm that integrating environmental education within school culture is an effective strategy to support character education, particularly in Islamic boarding school settings. Using the CIPP evaluation model also proves effective in providing a comprehensive framework to assess implementation and outcomes in educational programs.

The findings can be a reference for school leaders, policymakers, and education stakeholders in designing and strengthening character education through structured environmental programs. Schools with similar characteristics may adopt the CIPP-based evaluation model to monitor and improve their green school initiatives continuously. Further research is recommended to develop and validate specific character assessment tools that quantitatively measure student outcomes. In addition, future studies should explore the long-term impact of the Green School Program using mixed-method approaches across different school types and regions.

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