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THE CHALLENGES OF IMPLEMENTING GREEN ACTIVITIES IN KINDERGARTEN TOWARDS A SUSTAINABLE ENVIRONMENT

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Abstract

This study is novel in its focus on Malaysian kindergartens, a context where sustainability education remains underexplored. By situating the challenges within Malaysia's policy frameworks such as the National Preschool Curriculum Standards and the country's sustainability agenda, the research highlights localized implications for early childhood education. Using survey data from 80 stakeholders (kindergarten owners, teachers, institutional members, and parents) in Perak, the study identifies six major barriers: institutional resistance, resource constraints, curriculum integration issues, parental engagement, cultural norms, and policy gaps. While descriptive statistics provided valuable insights, the reliance on quantitative summaries is acknowledged as a limitation and future research should incorporate inferential analysis and triangulation with qualitative data to strengthen validity. The findings underscore the need for targeted awareness campaigns, dedicated funding, curriculum reform, parental involvement, and culturally responsive pedagogy. By emphasizing localized challenges and policy implications, this study contributes to advancing sustainable practices in Malaysian kindergartens and offers practical recommendations for policymakers, educators, and communities to foster eco-consciousness among young learners.

Keywords: Sustainable environment, Green activities, Kindergarten

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INTRODUCTION

Kindergartens serve as foundational spaces for instilling environmental awareness and sustainable behaviors in children. Introducing green activities in these formative years not only cultivates eco-consciousness but also nurtures lifelong habits that contribute to sustainable living. Early childhood is a critical period for shaping attitudes and behaviors, and incorporating sustainability into kindergarten curricula can have a lasting impact on children's understanding and commitment to environmental stewardship (Davis, J. M., & Elliott, S. (2018). Despite the clear benefits, the successful implementation of green initiatives in kindergarten settings faces numerous challenges. These challenges range from institutional barriers, such as lack of administrative support and inadequate teacher training, to logistical constraints, including limited resources and funding (Hashim, S. Z., Mazlan, D., Ahzahar, N., Mizal, N., Jamaludin, N., & Rijal, N. S. (2023). Understanding these challenges is essential for developing effective strategies to promote sustainability in early childhood education (Zhang, J., & Rahman, M. N. B. (2024). The aim of this research is to thoroughly investigate the challenges associated with implementing green activities in kindergarten settings and to propose viable solutions for overcoming these obstacles. By doing so, the research seeks to advance sustainable practices in early childhood education, ensuring that children develop a strong foundation in environmental awareness and sustainable behaviors from a young age. These challenges may include institutional barriers, such as lack of support from school administration, and logistical constraints, such as limited resources and funding (Constantin, F.-V., Oprea, T.-M., Opricescu, C., & Ștefan, I. (2024). By examining the root causes of these challenges, the research seeks to understand the factors that contribute to the difficulties faced by educators and institutions in integrating green activities into the kindergarten curriculum (Somerville, M., & Williams, C. (2015). The research aims to offer practical and evidence-based solutions to address the identified challenges. These solutions may involve policy recommendations, strategies for teacher training, and suggestions for resource allocation to support the effective implementation of green initiatives (García-González, E., & Schenetti, M. (2022). Ultimately, the research is to contribute to the broader goal of sustainable education by providing insights and recommendations that can help kindergartens foster eco-consciousness and sustainable behaviors in children. By addressing the challenges and proposing solutions, the research seeks to create a more supportive environment for green activities in early childhood education. By achieving these objectives, the research hopes to pave the way for more effective and widespread adoption of sustainable practices in kindergartens, thereby promoting a culture of environmental stewardship from an early age.

RESEARCH BACKGROUND

Learning environments can serve as active teaching tools, where the built, natural, and cultural surroundings are not passive spaces but integral to learning across disciplines such as physics, geometry, botany, and ecology (Taylor, 1993). By engaging with their environment, teachers, students, and parents learn to “read” and interact with it at multiple levels. Play, as the most natural form of childhood learning, further enhances this process by fostering cognitive, physical, and social skills through direct experiences with natural and man-made elements (Putney, 2016). Integrating authentic environmental projects into the curriculum strengthens environmental awareness and allows students to gather data, investigate solutions, and reflect on conservation successes and failures (Putney, 2016). These projects extend beyond science, connecting with social sciences and history to help children understand how communities have addressed environmental challenges over time. Such activities not only enrich classroom learning but also influence parents and communities, as children share their experiences and projects at home. In this way, green activities become transformative, embedding sustainability into education while fostering broader community engagement.

Challenges of Implementing Green Activities

Institutional Resistance and Lack of Awareness

Institutional resistance remains a major barrier, as sustainability is often treated as supplemental rather than core in early education. Administrators and policymakers may undervalue its relevance, requiring awareness campaigns, policy advocacy, and integration of green initiatives into institutional priorities (G. D. et al., 2020; Birkes Builders, 2024). The success of such initiatives also depends on teacher capacity. Insufficient guidance and weak collaboration hinder implementation (Zhang & Rahman, 2024), while forest education and nature-based learning can enrich curricula and child development (García-González & Schenetti, 2022). Professional development should therefore equip teachers with practical strategies and foster collaboration to embed sustainability effectively.

Resource Constraints and Funding Challenges

The implementation of green activities in kindergarten settings is faced with significant hurdles due to resource restrictions. Insufficient financial resources, substandard infrastructure, and a dearth of resources impede educators' capacity to create and maintain programmes with an environmental focus (Sulzakimin, M., 2019). To overcome resource limitations, it is imperative that green programmes have special funding, that eco-friendly materials and infrastructure be purchased, and that instructors receive thorough training in green pedagogy.

Sustainable materials and technologies often come with a higher price tag compared to conventional options. This financial barrier can deter developers and builders from adopting green practices, despite the long-term savings and environmental benefits. Financial incentives and subsidies can play a crucial role in mitigating these costs and encouraging the adoption of green building practices (Planning Malaysia Journal, 2024).

Curriculum Integration and Time Constraints

Integrating green activities into the kindergarten curriculum requires careful planning and alignment with educational standards. García-González and Schenetti (2022) suggested that incorporating forest education concepts and nature-based learning can enhance the curriculum and promote holistic child development. However, achieving this integration requires a multidisciplinary approach and collaboration among educators, policymakers, and curriculum developers. Elliott et al. (2016) emphasized the importance of examining environmental education in early childhood education services to identify effective strategies for curriculum integration. This includes developing age-appropriate activities that align with learning objectives and standards, as well as providing teachers with the flexibility to adapt the curriculum to their specific classroom contexts. Additionally, integrating green activities into the curriculum can be supported by creating thematic units that connect environmental education with other subject areas, such as science, math, and language arts.

Parental Engagement and Community Involvement

Parental involvement is vital for the success of green activities in kindergartens, yet inconsistent support often hinders implementation. Public kindergartens benefit from community backing, while private ones face planning challenges due to limited parental engagement (Zhang & Rahman, 2024). Educators' use of outdoor learning environments is also shaped by parental support (Ernest, 2013). Strategies such as workshops, awareness programs, and collaborative activities can strengthen partnerships between parents and educators, fostering a supportive environment for sustainability.

Cultural and Societal Norms

Cultural and societal norms can act as barriers to the successful implementation of green activities in kindergartens. In some communities, there may be a lack of emphasis on environmental conservation or a prevailing attitude of consumerism that contradicts sustainable values. Culturally sensitive pedagogy that places environmental education within regional contexts, encourages alternative viewpoints on consumption and lifestyle decisions, and develops critical thinking

abilities to question social norms that threaten sustainability is necessary to break down cultural barriers.

Policy and regulatory

Policy and regulatory frameworks are critical for implementing green activities in kindergartens. Sustainability in early childhood often remains marginal due to unclear policies (Davis & Elliott, 2018). Strong frameworks can provide supportive environments, address modern challenges, and foster sustainable mindsets among children (Falkiewicz-Szult, 2014; Hashim et al., 2023). Policymakers play a key role by developing guidelines, allocating resources, and promoting collaboration (Aboud, 2024; Kamarulbaid, 2021). Effective regulations should also include monitoring mechanisms to ensure consistent integration of environmental education (Falkiewicz-Szult, 2014).

Components of Green Activities for Kindergarten

Table 1 outlines components of green activities in kindergartens, combining theoretical insights and empirical evidence to ensure both scientific and practical relevance. Awareness can be raised through workshops and sustainability-focused curricula (Ardoin & Bowers, 2020). Resource management includes recycling programs and school gardens with native plants (Green and Prosperous, 2025; Teach Starter, 2023). Energy efficiency involves LED lighting, efficient appliances, and staff–student education (Hoople et al., 2020). Water conservation can be promoted with low-flow fixtures, maintenance, and water-saving activities (Iwasaki, 2022). Green spaces and biodiversity are enhanced through gardens and nature walks (Ioja et al., 2014; Teach Starter, 2023). Finally, parental and community engagement is strengthened via events, workshops, and volunteer programs (Salter et al., 2019).

Table 1: Components of Green Activities for Kindergarten

Authors	Awareness and Education	Material Resource Management	Energy Efficiency	Water Conservation	Green Spaces and Biodiversity	Parental and Community Engagement
Nicole M. Ardoin, Alison W. Bowers (2020)	TRUE					
Green and Prosperous, 2025		TRUE				
Teach Starter, 2023		TRUE				TRUE
Hoople et al., 2020			TRUE			
Iwasaki, S. (2022)				TRUE		
Cristian Ioan Ioja et al., (2014)					TRUE	
Salter, R et. al., 2019						TRUE

METHODOLOGY

Based on the analysis provided, the following is a comprehensive methodology section for the research on challenges in implementing green building activities in kindergartens:

Research Design

This study employed a quantitative survey design to examine the challenges of implementing green building activities in kindergartens. The use of structured questionnaires allowed for systematic data collection from multiple stakeholder groups, including kindergarten owners, teachers, institutional members, and parents. This design was chosen to provide a broad overview of the frequency and distribution of challenges encountered, thereby offering a clear descriptive profile of the issues faced in practice. However, the study relies primarily on descriptive statistics (means, frequencies, and distributions) to analyse the data. While this approach provides valuable insights into the prevalence of specific challenges, it limits the ability to draw deeper inferences about relationships between variables or differences across stakeholder groups.

Participants

The focus group of this research consists of kindergarten operators, teachers and institutional department members around Kinta and Perak Tengah, Perak. Total number of respondents is 80, kindergarten owners: 20, teachers: 50, institutional department members: 10 and parents: 20.

A significant number fall into this category, suggesting they have enough experience to understand the practical aspects of implementing green building activities but may still face learning curves. More experienced individuals who can provide deeper insights into the long-term challenges and benefits of green building activities and might offer valuable historical perspectives and long-term views on the evolution of green building activities. Parents play a crucial role in the successful implementation of green building activities in kindergartens. Their perspectives, support, and involvement can significantly influence the effectiveness and sustainability of these initiatives

Sampling Method

A purposive sampling technique was used to select participants who have direct involvement. This method ensures that the data collected is relevant and rich in context regarding the specific challenges faced. All the participants were competent to answer all the questions and involved directly with the situation.

Data Collection Methods

Surveys:

Questionnaire: A structured questionnaire was designed to collect quantitative data on the frequency and types of challenges encountered. The questionnaire included closed-ended questions to gather specific information on five key challenges: lack of awareness, resource constraints, parental engagement, social norms, and curriculum integration. The survey was distributed electronically to participants to ensure a wide and efficient reach.

Data Analysis

Quantitative Analysis:

Descriptive Statistics: The survey data were analysed using descriptive statistics to determine the frequency and distribution of each challenge. This included calculating the mean, median, and mode for each type of challenge. Comparative analysis was conducted to examine differences in challenges across the three respondent groups (owners, teachers, institutional department members and parents).

Limitations

This study's findings are limited by a modest sample size and reliance on self-reported data, which may affect generalizability. Future research should expand the sample and include longitudinal or qualitative methods to enhance validity. Despite these constraints, the methodology offers meaningful insights into challenges and strategies for implementing green building activities in kindergartens. This study did not require formal institutional ethics approval as it involved minimal risk and focused on professional stakeholders (kindergarten owners, teachers, institutional members, and parents). However, to ensure compliance with research ethics standards, informed consent was obtained from all participants prior to data collection. Participants were assured of confidentiality, voluntary participation, and the right to withdraw at any time. No personal identifiers were recorded, and data were used solely for academic purposes.

RESULT

The survey results (Figure 1) highlight six primary challenges in implementing green building activities in Malaysian kindergartens. Among these, cultural and societal norms (97 respondents) and curriculum integration and time constraints (85 respondents) emerged as the most pressing barriers, followed closely by policy and regulatory frameworks (84 respondents) and resource constraints (77 respondents). Institutional resistance (72 respondents) and parental engagement

(76 respondents) were also significant, underscoring the multifaceted nature of the obstacles faced.

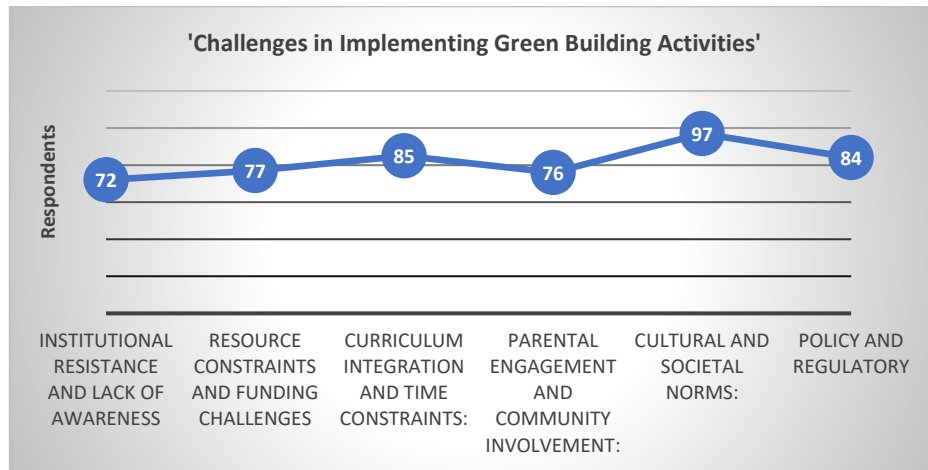


Figure 1: Challenges in Implementing Green Building

Institutional Resistance and Lack of Awareness (72 respondents):

This suggests that there is insufficient knowledge or understanding about green building activities among the stakeholders involved. It indicates a need for more educational initiatives and awareness campaigns to inform and educate people about the importance and benefits of green building.

Resource Constraints and Funding Challenges (77 respondents):

Resource constraints are the most frequently cited challenge. This could include a lack of financial resources, materials, or infrastructure necessary to implement green building activities. Addressing this challenge may require increased funding, better resource allocation, and perhaps more efficient use of existing resources.

Curriculum Integration and Time Constraints (85 respondents):

Integrating green building concepts into the educational curriculum is another significant challenge. This highlights the need for curriculum development and teacher training to embed sustainability effectively. It may also require alignment with educational standards and policies.

Parental Engagement and Community Involvement (76 respondents):

The data indicates that there is some difficulty in getting parents involved in green building activities. This could be due to lack of interest, understanding, or time

on the part of the parents. Efforts to engage parents might include informational sessions, workshops, and involving them in school activities related to green building.

Cultural and Social Norms (97 respondents):

Social norms represent a smaller but significant barrier. This challenge might stem from societal attitudes and behaviours that are resistant to change or not supportive of green building initiatives. Overcoming this may involve broader cultural shifts and the promotion of green building as a community value.

Policy and Regulatory (84 respondents):

The finding that 86 respondents agreed that policy and regulatory frameworks are significant challenges in implementing green building activities in kindergartens highlights a critical barrier to sustainability efforts in early childhood education settings. One of the primary issues identified by respondents is the absence of clear and comprehensive policies and guidelines that support the implementation of green building activities. Without well-defined regulations, kindergartens may struggle to understand the requirements and best practices for integrating sustainability into their operations.

DISCUSSION

The data highlights several key challenges in implementing green building activities, with resource constraints being the most significant. Addressing these challenges requires a multifaceted approach involving increased awareness, better resource management, enhanced parental engagement, cultural shifts, and curriculum integration. By focusing on these areas, stakeholders can create a more supportive environment for green building initiatives, ultimately leading to more sustainable educational practices.

Institutional Resistance and Lack of Awareness

The finding that 72 respondents identified institutional resistance reflects limited awareness and prioritization of sustainability within early childhood education. This challenge aligns with the broader issue of environmental education being treated as supplemental rather than core in Malaysia's Preschool Curriculum Standards (KSPK). Addressing this requires targeted awareness campaigns and professional development programs for teachers, alongside policy directives that embed sustainability into institutional goals.

Resource Constraints and Funding Challenges

Resource limitations, cited by 77 respondents, remain a critical barrier. Implementing green initiatives often requires financial investment in eco-friendly infrastructure, materials, and training. Without dedicated funding streams, kindergartens struggle to sustain such practices. This finding reinforces the need for government grants, private partnerships, and incentives aligned with Malaysia's *Education Blueprint 2013–2025*, which emphasizes resource equity and innovation in education.

Curriculum Integration and Time Constraints

Curriculum integration was reported by 85 respondents as a major challenge. Current preschool curricula lack explicit sustainability modules, making it difficult for teachers to incorporate green activities within existing time and subject constraints. Aligning sustainability education with KSPK standards and developing thematic units that connect environmental topics with science, mathematics, and language arts would help overcome this barrier. Teacher training programs should also be expanded to build capacity for integrating sustainability into daily classroom practice.

Parental Engagement and Community Involvement

Parental involvement, noted by 76 respondents, is essential for reinforcing sustainability values beyond the classroom. Limited engagement reflects both time constraints and a lack of awareness among parents. Strengthening communication strategies through newsletters, workshops, and community-based projects can foster collaboration between schools and families. Linking these efforts to local authority initiatives, such as municipal recycling programs, can further embed sustainability into community life.

Cultural and Social Norms

The most frequently cited challenge, with 97 respondents, relates to cultural and societal norms. Prevailing consumerist attitudes and limited emphasis on conservation hinder the adoption of sustainable practices. Addressing this requires culturally responsive pedagogy that situates environmental education within Malaysian values and traditions. Encouraging critical reflection on consumption and lifestyle choices can help shift societal attitudes toward sustainability.

Policy and Regulatory

Policy gaps, identified by 84 respondents, highlight the absence of clear guidelines for integrating sustainability into early childhood education. Without robust regulatory frameworks, kindergartens lack direction and support for

implementing green initiatives. Policymakers must develop comprehensive guidelines, allocate resources, and establish monitoring mechanisms to ensure consistent adoption of sustainability practices. This aligns with Malaysia's national sustainability agenda and supports the broader goal of embedding environmental stewardship across all levels of education.

Table 2: Strategic Actions by Challenge Area

Challenge Area	Strategic Action	Stakeholders Involved
Institutional Resistance	Awareness campaigns, policy advocacy	MOE, JPN, Kindergartens
Resource Constraints	Grants, partnerships, efficient budgeting	Government, NGOs, Private Sector
Curriculum Integration	Curriculum reform, teacher training	MOE, Curriculum Developers, Educators
Parental Engagement	Communication tools, volunteer programs	Schools, Parents, Community Leaders
Cultural Norms	Community education, media engagement	Local Authorities, NGOs, Cultural Groups
Policy & Regulatory	National guidelines, funding, monitoring	Policymakers, Education Ministries

This action plan outlines six key challenges and targeted strategies for integrating green building activities in Malaysian kindergartens. Institutional resistance requires awareness campaigns led by MOE, JPN, and schools. Resource constraints demand funding via grants and partnerships. Curriculum integration calls for reform and teacher training. Parental engagement needs better communication and involvement. Cultural norms must shift through education and media. Policy gaps require national guidelines and monitoring. Success depends on coordinated efforts across sectors to embed sustainability in early education.

CONCLUSION

As shown in Figure 1, cultural and societal norms (97 respondents) and curriculum integration and time constraints (85 respondents) were identified as the most pressing barriers to implementing green activities in Malaysian kindergartens. Policy and regulatory gaps (84 respondents) and resource constraints (77 respondents) also emerged as significant challenges, while institutional resistance (72 respondents) and limited parental engagement (76 respondents) further complicated efforts. These findings underscore the multifaceted nature of sustainability implementation in early childhood education, where cultural attitudes, curriculum design, and policy support intersect. By situating these challenges within Malaysia's localized context, the study highlights the need for systemic reforms. Aligning sustainability education with the *Preschool Curriculum Standards (KSPK)*, embedding green practices into national planning frameworks, and providing targeted funding and teacher training are critical steps forward. Strengthening parental engagement through community-based initiatives and culturally responsive pedagogy can also help shift societal norms toward sustainability. Ultimately, this study contributes to advancing sustainable practices in Malaysian kindergartens by emphasizing localized challenges and policy implications. By addressing the barriers identified in Figure 1, policymakers, educators, and communities can foster eco-consciousness among young learners, thereby supporting Malaysia's broader sustainable development agenda and cultivating a generation committed to environmental stewardship.

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