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## ECO-FRIENDLY PRACTICES IN SCHOOL MANAGEMENT: A CASE STUDY OF SUSTAINABILITY IN PAKISTANI ELEMENTARY SCHOOLS

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### ABSTRACT

This study explores the integration of eco-friendly practices into the management of Pakistani elementary schools and evaluates their impact on the development of students' environmental awareness and behaviors, and the promotion of sustainability. A qualitative case study approach was employed to conduct focus group discussions with 24 students from grades 6 to 8 in four elementary schools located in urban and semi-urban regions. A combination of narrative analysis and thematic coding was utilized to identify key themes related to sustainability, representing the richness of students' experiences. Five key themes were emerged from the data: environmental awareness, behavioral changes, peer engagement, community involvement, and enjoyment and suggestions for the improvement of eco-friendly activities. The results suggest that students' environmental awareness and their adoption of sustainable behaviors beyond the classroom are considerably enhanced by eco-friendly practices in schools. Challenges identified include inconsistent peer engagement and limited community involvement. The study concludes that eco-friendly practices are crucial for promoting sustainability; however, schools need to adopt more interactive and inclusive strategies to effectively engage students and the broader community. This research contributes to understand the important role of schools for encouraging sustainability and offers insights for improving environmental education in Pakistani elementary schools.

*Keywords: Environmental education; Sustainability; Eco-friendly practices; Elementary schools; Student engagement.*

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### INTRODUCTION

Sustainability has become a critical objective across various sectors, including education, due to rising concerns about climate change, environmental degradation, and resource depletion. Educational institutions are in an important position to inculcate environmentally friendly values and behaviors in students, influencing the next generation of environmentally conscious citizens (Sharma, 2023). Educational institutions can not only minimize their environmental impact but also serve as models for sustainable behavior and learning by incorporating eco-friendly practices into school management.

The integration of eco-friendly practices into school management is particularly important in developing countries like Pakistan, which is one of the most vulnerable regions to environmental degradation and climate change. Pakistan is confronted with a variety of challenges, including water scarcity, deforestation, air pollution, and improper waste management (Hussain et al., 2020). Despite being ranked among the countries most affected by climate change, environmental education and sustainable practices in Pakistan's policies and educational systems are still emerging.

The significance of integrating environmental education into the curriculum has been acknowledged by the National Education Policy (2017) and the National Climate Change Policy of Pakistan (2021). However, the implementation of these policies has been inconsistent and frequently hindered by resource limitations, inadequate teacher training, and a lack of awareness among school administrators and community members (Sharma, 2023). Therefore, sustainability education in Pakistani schools is in its early phases of development. The implementation of eco-friendly practices varies significantly across various regions, socioeconomic statuses, and categories of institutions (public versus private). This study endeavors to contribute to the broader discourse on environmental education and provide insights into how schools can act as catalysts for sustainable development in Pakistan by analyzing the ways in which elementary schools integrate sustainability initiatives.

### **Statement of the Problem**

The literature indicates that environmentally sustainable practices in school management can markedly affect students' environmental attitudes and behaviors (Begum et al., 2021; Suryani et al., 2019). However, there is limited understanding regarding the implementation of such practices in Pakistani schools and their influence on students' awareness, behaviors, and participation in sustainability initiatives.

Existing research, in the context of Pakistan, has predominantly concentrated on environmental education within higher education institutions, leaving a gap in understanding how elementary schools contribute to building a culture of sustainability. By focusing on elementary schools in Pakistan, this study contributes to a previously underexplored area of research. The insights gained can inform policy and practice at both the school and national levels, offering guidance on the effective implementation of sustainability education at this foundational level.

### **Research Objective**

This study aims to investigate the integration of eco-friendly practices in the management of elementary schools in Pakistan for promoting sustainability among students. It intends to identify the most effective ways to foster environmental awareness and behavioral change.

### **Research Questions**

1. In what ways are eco-friendly practices incorporated into the management of elementary schools in Pakistan?
2. How do these eco-friendly practices contribute to the promotion of sustainability and the development of students' awareness and behaviors regarding environmental conservation in Pakistani elementary schools?

## **LITERATURE REVIEW**

### **The Significance of Eco-Friendly Practices in Educational Institutions**

In schools, eco-friendly practices encompass a variety of activities and initiatives that mitigate environmental impact, including energy conservation, waste management, recycling, and the promotion of sustainable behaviors among students (Altassan, 2023; Wang, 2015). These approaches have a twofold benefit: they lessen schools' environmental impact and teach students to be environmentally mindful citizens who can solve environmental problems as they arise (Begum et al., 2021; Suryani et al., 2019).

Eco-friendly policies and programs in schools can have a positive impact on students' understanding of sustainability and their environmental behaviors from an early age (Sidiropoulos, 2019; Sihvonen et al., 2024). Schools can establish a hands-on learning environment in which sustainability is experienced rather than solely taught by engaging students in activities such as recycling, composting, and energy-saving campaigns. This experiential learning approach is effective in promoting long-term behavioral change among students. Studies have also indicated that the implementation of environmentally friendly practices

by schools frequently results in a positive cultural shift, with a rise in environmental consciousness among students, faculty, and the community at large (Karpinski, 2016; Rustamova, 2023).

### **Leadership and School Management in Promoting Sustainability**

The successful implementation of eco-friendly practices in an organization is significantly influenced by the leadership and management (Boeske, 2023). Prioritizing ecological issues among school administrators and principals can have a substantial impact on the integration of sustainability initiatives. School administrators may do their share to promote sustainability by supporting green initiatives, encouraging student participation for climate cause, and incorporating environmental education into all aspects of school life.

Research suggests that effective school management is crucial for the articulation of a shared vision for sustainability, the provision of resources for eco-friendly initiatives, and the engagement of all stakeholders, including teachers, students, and parents (Kadji-Beltran et al., 2013). By exemplifying a commitment to environmental stewardship, school leaders may cultivate an atmosphere in which sustainability is embedded in the school's identity.

### **Challenges in Implementing Eco-Friendly Practices in Schools**

Despite growing recognition of sustainability's significance in education, schools come across several challenges in implementing eco-friendly practices (Iroegbu, 2024). Khanum (2019) identifies inconsistent peer engagement, limited community involvement, financial constraints, and a lack of awareness as significant barriers to the implementation of sustainability initiatives. This is particularly evident in developing countries such as Pakistan, which face multiple challenges that include limited resources, inadequate infrastructure, and a lack of trained educators, hindering the long-term sustainability of eco-friendly practices.

Additionally, social and cultural factors may affect the effectiveness of environmental education programs (Begum et al., 2021; Khanum, 2019). In certain instances, students may not perceive the immediate implications of sustainability initiatives for their lives or may be influenced by their peers who are not participating in such activities. This underscores the need for educational institutions to implement more interactive and student-centered approaches for fostering sustainability.

The implementation of eco-friendly practices in Pakistani schools is still evolving. The limited integration of environmentally sustainable practices in national schools is often ascribed to several factors, including a lack of awareness, insufficient funding, inadequate teacher training, and the absence of a formal environmental education curriculum (Hussain et al., 2020; Khanum, 2019). Schools that have implemented green initiatives typically rely on the efforts of individual teachers, administrators, or non-governmental organizations (NGOs), rather than on systematic policy implementation (Ahmad et al., 2023). Since Pakistani schools are important venues for teaching students about sustainability and the ways to live a sustainable life, there is an immediate need for a more organized and all-encompassing strategy to environmental education in the country.

## **METHODOLOGY**

### **Research Design**

A case study approach was employed in the study to investigate the incorporation of eco-friendly practices in the elementary schools in Pakistan. This qualitative design allows to obtain comprehensive insights into students' experiences, perceptions, and attitudes regarding sustainability initiatives in their school environments. This approach also facilitates an examination of eco-friendly practices within their actual context, providing a thorough understanding of their implementation and perception among students.

## Sampling

Four elementary schools from urban and semi-urban areas were selected using purposive sampling in order to capture a variety of perspectives on eco-friendly practices. The research involved 24 student participants, aged 10-13, who were enrolled in grades 6-8. Six students from each school were chosen for the sample, based on their participation in eco-friendly initiatives or environmental groups. Since children, in this developmental stage, are more capable to comprehend and express their experiences with sustainability programs, this age group was selected for the study.

## Data Collection

Focus Group Discussions (FGDs) were used to collect data by encouraging participants to express their views, experiences, and suggestions about environmentally friendly practices used in their schools. The semi-structured FGDs that allowed for open dialogue lasted approximately 45 minutes, ensuring that important points were covered and audio-recorded with the consent of participants and their parents. Moreover, students' experiences with eco-friendly practices, their awareness of sustainability, and the impact of these practices on their behavior both at home and school were investigated using a structured interview guide with open-ended questions.

## RESULTS AND DISCUSSION

The audio recordings were transcribed verbatim, followed by a narrative analysis to capture the richness and depth of the stories that emerged from the students' discussions. Thematic coding was employed to systematically identify and categories recurring themes within these narratives, focusing on the integration of eco-friendly practices, student awareness, behavior changes, peer engagement, and suggestions for improvement. This combined approach ensures that the detailed, context-rich nature of the students' experiences was preserved as well as the data was organized into coherent themes to address the research questions.

The following themes emerged from the analysis of the data.

### Theme 1: Environmental Awareness (T1-EA)

The narrative analysis indicated that students from all four schools exhibited considerable knowledge of environmental issues, primarily due to the eco-friendly practices implemented at their institutions. Students often identified recycling programs, composting activities, and energy-saving campaigns as essential initiatives that enhanced their understanding of environmental protection. A student from E2 School remarked, "We learnt that waste separation reduces pollution and contributes to the earth through composting." This demonstrates that school-based initiatives successfully enhanced students' environmental awareness.

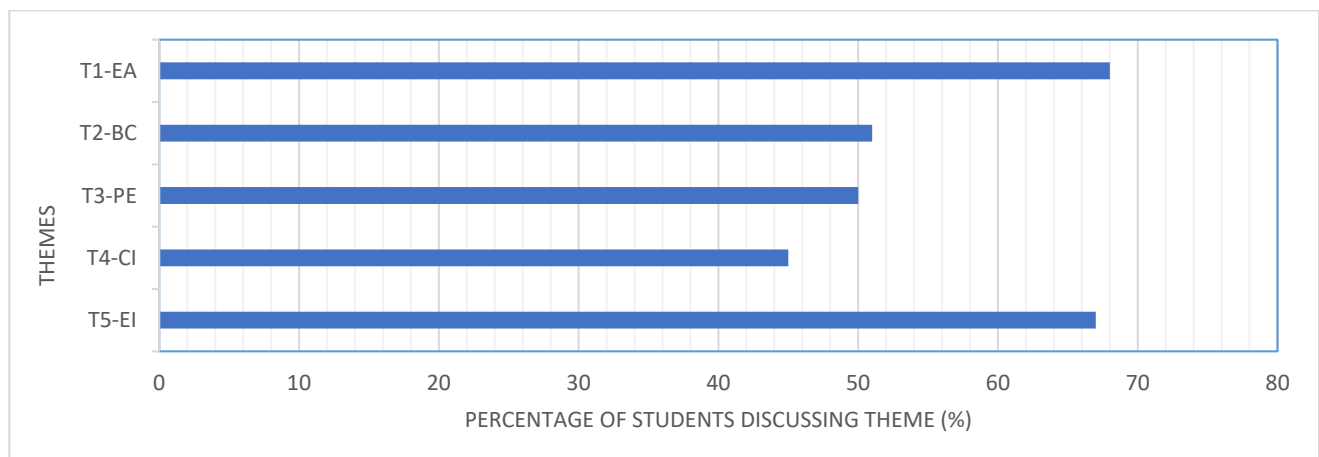


Figure 1. Distribution of key themes discussed by students.

### Theme 2: Behavioural Changes (BC)

The transmission of eco-friendly behaviors learnt at school to their homes was reported by a substantial number of students (Figure 1), particularly those from urban area schools. Some participants discussed the ways in which they motivated their families to implement practices such as conserving electricity, reducing water consumption, and recycling. A student from E1 School stated, "I encouraged my siblings to turn off lights when unnecessary, similar to our practice at school." This implies that the eco-friendly practices implemented at the school had a positive impact on the broader community, promoting a culture of sustainability that extended beyond the school environment.

### Theme 3: Peer Engagement (PE)

Some students actively engaged in eco-friendly practices; however, half of the participants voiced concerns regarding inconsistent peer participation (Figure 1). A student from E3 School, at semi-urban location, noted, "Not all my classmates are interested in recycling or energy-saving activities; they perceive it as boring." This implies that schools encounter challenges in fostering consistent engagement across the entire student body, despite the success of certain sustainability initiatives.

### Theme 4: Community Involvement (CI)

Some participants expressed a desire for a more meaningful level of community involvement in sustainability initiatives. Involving parents, neighbors, and local businesses may enhance the effectiveness of eco-friendly practices. A student from E4 School shared, "I wish we could have neighborhood clean-up days where I could involve my parents and siblings. It would be a fun way to help the environment while working with my family." This not only shows the limited community involvement at present but also underscores the potential of schools to act as catalysts for broader community involvement in environmental conservation.

### Theme 5: Enjoyment and Suggestions for Improvement (EI)

Eco-friendly activities, particularly those that involve hands-on projects like composting, gardening, and constructing bird feeders, were generally well-received by students. Nevertheless, they found themselves more engaged when sustainability practices were taught in interesting ways, such as through educational festivals, interactive activities, or competition shows in schools. For instance, a student from E2 School suggested, "Our school should organize more competitions to determine who can conserve the most energy or recycle the most in a month." This suggests a desire for more participatory and dynamic learning experiences that are pertinent to sustainability.

## Discussion

The results of this investigation indicate that the implementation of eco-friendly practices in elementary schools in Pakistan is essential for the development of students' attitudes and behaviors towards environmental conservation and the promotion of sustainability. The key findings of the study are:

### *Eco-friendly Practices Foster Environmental Awareness*

Eco-friendly initiatives, including recycling programs and energy-saving campaigns, have significantly enhanced students' awareness of environmental issues. This finding is consistent with prior studies (Begum et al., 2021; Suryani et al., 2019), which highlighted the importance of experiential learning in fostering pro-environmental attitudes in students. Participation in hands-on sustainability activities enabled students to gain a deeper understanding of the environmental impact of their actions, which is important for promoting long-term behavioral change.

### *Positive Effects on Domestic and Community Settings*

The research suggested that environmentally sustainable practices acquired in educational settings were adopted by students in their homes, suggesting that schools served as significant facilitators for change in

the community. This aligns with previous research (Bergman, 2016; Sidiropoulos, 2019), which found that environmental education programs have a positive impact on students' behavior beyond the classroom.

#### *Challenges in Peer Engagement*

This study identified inconsistent peer engagement as a significant barrier to the effective implementation of eco-friendly practices. Engaging students in sustainability requires interactive, student-centered approaches as suggested by Byrne (2016), in his study. Similarly, this study's findings also revealed that schools should create more engaging and participatory activities to ensure active student involvement in sustainability initiatives.

#### *Potential for Broader Community Involvement*

Students' desire for increased community engagement indicates an awareness of the need for collective action in tackling environmental challenges. This shows that schools can act as platforms for broader sustainability initiatives, enabling collaborations with families, local businesses, and community organizations. The finding is consistent with Boeske's (2023) argument that leadership plays a critical role in encouraging community participation in sustainability initiatives.

### **CONCLUSIONS AND RECOMMENDATIONS**

The present research concludes that the integration of eco-friendly practices into the elementary school management in Pakistan is indispensable for the cultivation of environmental awareness and the promotion of sustainability among students. The results indicate that schools have the potential to positively impact broader societal change by not only teaching students about sustainability but also encouraging them to adopt eco-friendly behaviors at their homes. However, schools need to adopt more interactive and inclusive sustainability education strategies to deal with the challenges such as inconsistent peer engagement and limited community involvement.

Schools should implement more interactive, student-centered activities, including sustainability workshops, project-based learning, and competitions, to encourage deeper engagement in eco-friendly practices. The challenge of inconsistent peer engagement can be addressed by these approaches. Additionally, schools should endeavor to engage parents, local businesses, and community organizations in sustainability initiatives. This may entail the organization of community clean-up campaigns, workshops, and environmental awareness programs, which can broaden the scope of school-based practices beyond the classroom. Environmental education should be more systematically integrated into the national curriculum of Pakistan by policymakers to ensure sustainability as a fundamental aspect of learning at all levels of education. This will allow the standardization of eco-friendly practices implementation in schools across the country. Moreover, training programs are required to provide teachers with the necessary skills and knowledge to effectively incorporate sustainability education and eco-friendly practices into the classrooms. This way, we can be confident that teachers will have all the resources they need to help their students become environmentally conscious.

Future researchers should conduct longitudinal studies to evaluate the long-term effects of eco-friendly practices on students' attitudes and behaviors toward sustainability. Incorporating perspectives from multiple stakeholders, including teachers, administrators, parents, and community members, will offer a comprehensive understanding of the challenges and opportunities in implementing these practices. Additionally, investigating differences between urban and rural schools in future studies can provide insights into how socioeconomic and geographical factors influence sustainability initiatives.

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