

Environmental Education and Recycling Practices Among Underprivileged Children in Bangladesh

Published: May 22, 2024

Sania Iqbal, Wahid bin Ahsan

Department of Human-Centered Design

Userhub

Abstract

This study explores the awareness and practices of reuse and recycling among underprivileged children in Bangladesh, aiming to enhance environmental sustainability through educational strategies. Interviews with children, parents, teachers, NGO workers, community leaders, and government officials reveal significant gaps in understanding and practicing waste management. While children show creativity in repurposing materials, challenges such as limited adult awareness and insufficient government initiatives persist. The study recommends integrating environmental education into school curricula, promoting hands-on learning, increasing community and governmental support, and leveraging cultural practices to foster sustainable behaviors. These strategies aim to create an environmentally conscious society and empower children as proactive environmental stewards.

Keywords: environmental awareness, reuse, recycle, underprivileged children, Bangladesh, environmental education, sustainability, waste management, community engagement, cultural integration

Please cite as: Iqbal, S., & bin Ahsan, W. (2024). *Environmental Education and Recycling Practices Among Underprivileged Children in Bangladesh*. Userhub. <https://doi.org/10.58947/TKQL-NFHB>

Open-access under CC BY 4.0

<https://creativecommons.org/licenses/by/4.0/>

DOI: <https://doi.org/10.58947/TKQL-NFHB>

Introduction

Environmental factors significantly influence human development, especially during childhood when attitudes and behaviors toward the environment are formed (Day, 2007). As the world faces rapid population growth and unsustainable practices, effective environmental education is critical. Children, particularly vulnerable to environmental changes, play a crucial role as future stewards of our planet (Alaydin et al., 2014; Biggs & Watmough, 2012).

In Bangladesh, promoting sustainable practices through early childhood education (ECE) is urgent due to environmental challenges and socio-economic disparities (Chowdhury, 2014). Underprivileged communities face unique challenges, including limited educational resources and environmental burdens, necessitating a thorough examination of barriers to effective environmental education (Matter et al., 2015; Rouse & Ali, 2001). This study explores these challenges within the Bangladeshi context, identifying obstacles to implementing environmental education in low-income areas. By investigating strategies to address these barriers, this research aims to enhance environmental education that instills "reduce, reuse, and recycle" principles among underprivileged children, empowering them to drive sustainable change in their communities (So & Chow, 2019; Supardi, 2023).

Background

Global challenges such as rapid population growth and unsustainable practices are straining natural resources and affecting health and societal well-being. Environmental education is vital for fostering responsible attitudes and behaviors in future generations, particularly among children, essential for sustainable societal transformation (Alaydin et al., 2014; Biggs & Watmough, 2012). Developing environmental awareness through social learning is crucial for effective educational interventions (Kamruzzaman Majumder, 2017).

Early childhood is a critical period for embedding environmental values and knowledge, laying the foundation for individuals to become proactive problem solvers and action takers. International frameworks emphasize the importance of Early Childhood Education (ECE) in integrating sustainability across social, economic, and environmental dimensions (Debrah et al., 2021; Uddin, 2024) (Debrah, 2021; Uddin, 2023). For example, action-based environmental learning programs ensure practical and impactful education (Uddin, 2024).

In Bangladesh, the need for targeted environmental education is urgent, particularly in low-income communities facing significant challenges like pollution and inefficient waste management. The national curriculum's inadequacies in providing comprehensive environmental education highlight the necessity for tailored strategies to address Bangladesh's unique environmental issues (Chowdhury, 2014). Dependence on informal recycling sectors further complicates promoting sustainable practices among underprivileged children (Matter et al., 2015; Rouse & Ali, 2001).

Studies highlight barriers to promoting reuse and recycling among underprivileged children, including socio-economic factors, lack of formal education, inadequate infrastructure, and limited community support (Afroz et al., 2010; Conke, 2018; Kattoua et al., 2019). Effective strategies include integrating experiential learning into daily activities, leveraging community-based initiatives, and fostering partnerships between NGOs, schools, and families to enhance environmental awareness and sustainable practices (Debrah et al., 2021; So & Chow, 2019; Supardi, 2023; Uddin, 2024).

Rationale and Significance

Despite existing efforts, there is a gap in understanding how underprivileged children in Bangladesh perceive and practice reuse and recycling principles. This study investigates the current awareness and practices among these children, identifies barriers to effective environmental education, and explores strategies to enhance awareness and practice. Addressing these factors is crucial for developing programs that teach practical recycling skills and instill a deeper understanding of environmental benefits. This is significant in Bangladesh, where socio-economic disparities exacerbate environmental challenges, making effective educational interventions imperative. Integrating hands-on learning experiences and community engagement initiatives is essential to foster a generation committed to environmental stewardship and sustainability (Debrah et al., 2021; Uddin, 2024).

Methodology

Research Design

This study employs a qualitative approach to explore environmental awareness and practices among underprivileged children in Bangladesh. The central research question, guided by seven sub-questions, examines how reuse and recycling principles are perceived, understood, and practiced, and how educational strategies can enhance these practices.

Literature Review

A comprehensive literature review was conducted at the beginning of the study to inform the research design and methodology. The review focused on existing studies related to environmental education, reuse and recycling practices, and the specific challenges faced by underprivileged communities in Bangladesh. Key findings from the literature review were integrated into the introduction and background sections to provide a solid theoretical foundation for the study. The literature review also helped identify gaps in current knowledge and guided the formulation of research questions and objectives.

Participants

The study involves structured interviews with three primary groups:

1. Children aged 10-12 years
2. Children aged 13-17 years
3. Parents/guardians

Secondary participants include teachers from pre-school and primary schools, while tertiary participants comprise NGO workers, community leaders, professionals, and government officials. Participants are selected using purposive sampling to ensure diverse representation across various low-income settlements in Dhaka.

Data Collection and Analysis

Semi-structured interviews with open-ended questions are conducted to encourage detailed responses. Tailored questions explore the understanding and practices of reuse and recycling, the role of parents in shaping environmental awareness, and the experiences and strategies of educators and community leaders. Interviews are recorded, transcribed, and anonymized. Additionally, field observations and document analysis provide a comprehensive view of the research context.

Data is analyzed using Atlas.ti software. Thematic analysis is applied to identify patterns and themes from qualitative data. Codes and themes were reviewed by multiple researchers to ensure consistency and reliability.

Ethical Considerations

This study follows strict ethical guidelines to protect participants and ensure research integrity (American Psychological Association, 2017). Participants were fully informed about the study's purpose, procedures, risks, and benefits, and informed consent was obtained from parents/guardians with assent from the children. Data confidentiality was maintained by anonymizing information and using secure storage. Participation was voluntary, with the option to withdraw at any time without consequences. Cultural sensitivity was upheld to safeguard participants' rights and ensure research validity.

Findings

This study provides critical insights into the current understanding and practices of reuse and recycling among underprivileged children in Bangladesh.

Awareness and Practices

Children generally understand reuse and recycling principles, often linked to their creative repurposing of materials like plastic bottles and paper. Many children displayed a resourceful mindset by repurposing

discarded materials into new items, indicating a fundamental recognition of the potential value in waste materials. However, their understanding is mainly practical, lacking deeper environmental awareness of the implications of their actions.

Waste Management Education

A significant gap exists in children's knowledge of waste segregation and disposal methods, highlighting a critical area for educational intervention. While children are adept at repurposing items, they often do not understand proper waste management techniques, reflecting a broader deficiency in environmental education. This gap needs to address not only the principles of reuse and recycling but also the specifics of waste management.

Role of Adults and Community

Adult awareness of reuse and recycling principles is limited, hindering effective environmental education for children. Many parents and guardians are not well-informed about proper waste management practices, limiting their ability to model and teach these behaviors. Additionally, the lack of governmental initiatives to support community-wide environmental education exacerbates the problem.

School-Based Programs

School programs are crucial for integrating environmental education into children's lives. However, current curricular efforts are insufficient and need to be expanded to include comprehensive modules on waste management, reuse, and recycling. Educators emphasized the importance of incorporating hands-on activities and creative projects into the curriculum to make learning about environmental sustainability engaging and practical.

Cultural Practices

Cultural practices significantly influence children's attitudes toward waste and recycling. Negative practices, such as littering and improper waste disposal, are prevalent and need to be addressed through culturally sensitive educational campaigns. Leveraging positive cultural practices and integrating environmental messages into cultural events can enhance the acceptance and effectiveness of environmental education.

Informal Recycling Sectors

Informal recycling sectors, such as garbage collectors and feriwalas (itinerant vendors or street hawkers), play a vital role in Bangladesh's recycling ecosystem. Recognizing and formalizing these grassroots efforts could significantly improve waste management practices. Children involved in these activities demonstrate the potential for significant contributions to sustainable practices if provided with proper support and education.

To summarize the findings, while underprivileged children in Bangladesh have a foundational understanding of reuse and recycling, significant gaps exist in comprehensive environmental education. Addressing these gaps through school programs, community engagement, and cultural integration is essential for fostering a generation committed to sustainable practices. These insights inform the study's recommendations to create a more informed and environmentally responsible society.

Discussion

This study provides critical insights into improving environmental awareness among underprivileged children in Bangladesh, addressing the key objectives outlined at the beginning of the study.

The findings reveal that underprivileged children possess a basic understanding of reuse and recycling, often linked to their creative processes. Many children demonstrated resourcefulness by repurposing discarded materials into new items. However, this practical understanding lacks deeper environmental awareness, indicating a need for more comprehensive education (Afroz et al., 2010; Conke, 2018).

Significant gaps were identified in children's knowledge of proper waste segregation and disposal methods, highlighting a critical area for educational intervention. Although children are adept at repurposing items, they often do not understand proper waste management techniques, reflecting a broader deficiency in environmental education. Additionally, limited adult awareness regarding reuse and recycling principles significantly hinders children's learning. The lack of governmental initiatives to support community-wide environmental education further exacerbates these challenges (Afroz et al., 2010; Conke, 2018).

The study underscores the importance of integrating environmental education into school curricula, emphasizing hands-on learning and creative projects. School-based programs are crucial for embedding environmental sustainability into children's daily lives (Matter et al., 2015). However, current curricular efforts are insufficient and need to be expanded to include comprehensive modules on waste management, reuse, and recycling (Debrah et al., 2021). Educators highlighted the importance of incorporating hands-on activities and creative projects into the curriculum to make learning about environmental sustainability engaging and practical (So & Chow, 2019; Supardi, 2023). Moreover, leveraging cultural practices and integrating environmental messages into cultural events can enhance the acceptance and effectiveness of environmental education (Debrah et al., 2021; Tasnim et al., 2023).

Community and governmental support are vital for effective environmental education. The study found that many parents and guardians are not well-informed about proper waste management practices, limiting their ability to model and teach these behaviors to their children (Afroz et al., 2010). Increasing adult awareness through community events and media collaboration is necessary to foster a culture of environmental responsibility (Debrah et al., 2021). Government support through national campaigns, funding, and public-private partnerships is crucial for driving broader community impact and ensuring well-resourced schools (Debrah et al., 2021).

Informal recycling sectors, such as garbage collectors and feriwalas, play a crucial role in Bangladesh's recycling ecosystem. Recognizing and formalizing these grassroots efforts can significantly improve overall waste management practices (Rouse & Ali, 2001). The study highlights the potential contributions of children involved in these activities, emphasizing the need for proper support and education to enhance their role in sustainable practices (Rouse & Ali, 2001).

By addressing these findings, the study aligns with the objectives of enhancing environmental education and promoting sustainable practices among underprivileged children in Bangladesh. The proposed recommendations aim to create a comprehensive approach, focusing on school programs, community engagement, and cultural integration. These strategies are designed to foster a generation committed to environmental stewardship and sustainability.

Recommendations

To enhance environmental awareness and practices among underprivileged children in Bangladesh, several key recommendations are proposed:

Integrate Environmental Education

Incorporate environmental education into the formal curriculum with practical applications and hands-on learning. Train teachers effectively and assess students' understanding and application of sustainability principles.

Develop Comprehensive Waste Management Education

Implement community workshops, seminars, and distribute educational materials in partnership with local governments. These initiatives should target both children and adults to increase community knowledge of proper waste management practices.

Promote Hands-On Learning and Creativity

Establish creative workshops in schools and community centers. Encourage projects that create useful items from recyclables and recognize innovative recycling projects to nurture creativity and practical skills.

Increase Adult Awareness

Launch community events and awareness campaigns targeting adults. Provide resources for parents and collaborate with local media to broadcast environmental education messages, fostering a culture of environmental responsibility.

Collaborate with Government

Work with the government to develop national campaigns, provide funding and resources for schools, and encourage public-private partnerships. Government support is crucial for community-wide environmental initiatives.

Incentivize Environmental Education

Implement awards and grants to motivate schools to adopt effective practices. Recognize and reward schools for their efforts to drive broader adoption of sustainability principles.

Support Grassroots Recycling Initiatives

Collaborate with NGOs to establish training programs and provide financial and logistical support for grassroots recycling initiatives. Encourage partnerships between NGOs and local communities to strengthen recycling practices.

Integrate Environmental Themes into Cultural Events

Use traditional storytelling, performances, and collaborate with cultural influencers to align environmental practices with cultural traditions, enhancing acceptance and relevance.

Table: Key Actions for Enhancing Environmental Awareness and Practices

Recommendation	Key Actions	Key Actors	Expected Outcomes
Early Integration of Environmental Education	Integrate into curriculum, train teachers, assess understanding	Education Ministry, Schools	Enhanced sustainability education, improved student engagement
Comprehensive Waste Management Education	Develop workshops, distribute materials, partner with governments	NGOs, Local Governments, Schools	Increased community knowledge of waste management
Promotion of Hands-On Learning and Creativity	Establish workshops, encourage creative projects, recognize innovation	Schools, Community Centers, NGOs	Fostered creativity, practical skills, and environmental consciousness
Addressing Lack of Adult Awareness	Launch campaigns, provide resources for parents, collaborate with media	NGOs, Community Organizations, Media	Increased adult awareness, community-wide behavior change
Government Initiatives for Environmental Education	Develop campaigns, provide funding, encourage partnerships	Government, Public-Private Partners	National awareness, well-resourced schools, broad community impact

Incentivizing Environmental Education in Schools	Create awards and grants, promote model schools	Education Ministry, NGOs	Motivated schools, dissemination of best practices
NGO Support for Grassroots Recycling Efforts	Establish training programs, provide support, encourage partnerships	NGOs, Local Communities	Strengthened grassroots recycling, sustainable community efforts
Cultural Integration for Behavioral Change	Integrate themes into events, use storytelling, collaborate with influencers	Community Leaders, Cultural Influencers	Culturally aligned environmental practices, broader acceptance

Table 1: Key Actions for Enhancing Environmental Awareness and Practices

These recommendations and actions aim to create a comprehensive approach to environmental education, promoting sustainable practices among underprivileged children in Bangladesh through school programs, community engagement, and cultural integration. By implementing these strategies, communities can foster a more environmentally conscious and responsible society.

Conclusion

This study highlights the need to enhance environmental awareness and sustainable practices among underprivileged children in Bangladesh. While children show creativity in repurposing materials, significant gaps in understanding proper waste management and recycling persist. The proposed recommendations focus on integrating environmental education into school curricula, promoting hands-on learning, and increasing adult awareness through community engagement. Effective implementation requires collaboration among government bodies, NGOs, schools, and community leaders. By focusing on early education, community involvement, and cultural integration, these strategies aim to create lasting behavioral changes, enhancing environmental literacy and empowering children as proactive environmental stewards.

Limitations and Future Research

This study has several limitations. The small sample size may not fully represent the diverse population of underprivileged children in Bangladesh. Purposive sampling, while ensuring diverse perspectives, limits generalizability. Self-reported data may introduce bias, as participants might not accurately recall their behaviors and experiences. The qualitative nature of the study limits generalization to broader populations.

Future research should use larger, more representative samples and incorporate quantitative methods. Longitudinal studies could provide insights into how awareness and practices of reuse and recycling evolve over time. Exploring specific educational interventions and policies in promoting sustainable behaviors among underprivileged children could offer valuable guidance for educators and policymakers. Investigating the impact of cultural and socio-economic factors on environmental awareness and practices in different regions of Bangladesh could further enrich understanding of this issue.

Acknowledgments

The authors extend their heartfelt gratitude to our parents for their unwavering support and guidance, which have been instrumental in our achievements. We would like to thank Userhub for their invaluable support and resources, which made this study possible. Special thanks to all the participants of the study for their valuable time and insights, without which this research would not have been possible.

We sincerely thank Chowdhury Noshin Tabassum for her invaluable support, as well as the Platform of Community Action and Architecture (POCAA), and the communities from Gabtoli and Adabor for their assistance. We are deeply grateful to Fatma Zaman Meem for her unwavering support and efforts throughout this research, and to Samira Ahsan for her pivotal suggestion at the outset of this course that made this research a reality.

We also wish to acknowledge everyone who assisted us in conducting this research. Your contributions have been indispensable to our work.

Declaration of Interest

The authors of this article confirm that there are no conflicts of interest involved in this study.

References

- Afroz, R., Hanaki, K., Tuddin, R., & Ayup, K. (2010). A survey of recycling behaviour in households in Dhaka, Bangladesh. *Waste Management & Research: The Journal for a Sustainable Circular Economy*, 28(6), 552–560. <https://doi.org/10.1177/0734242X09353434>
- Alaydin, E., Demirel, G., Altin, S., & Altin, A. (2014). Environmental Knowledge of Primary School Students: Zonguldak (Turkey) Example. *Procedia - Social and Behavioral Sciences*, 141, 1150–1155. <https://doi.org/10.1016/j.sbspro.2014.05.195>
- Biggs, E. M., & Watmough, G. R. (2012). A COMMUNITY-LEVEL ASSESSMENT OF FACTORS AFFECTING LIVELIHOODS IN NAWALPARASI DISTRICT, NEPAL. *Journal of International Development*, 24(2), 255–263. <https://doi.org/10.1002/jid.1844>
- Chowdhury, M. A. T. (2014). Nature of Environmental Education in Bangladesh: A School Level Assessment with Reference to the National Curriculum. *International Electronic Journal of Environmental Education*, 4(1), 53–60.
- Conke, L. S. (2018). Barriers to waste recycling development: Evidence from Brazil. *Resources, Conservation and Recycling*, 134, 129–135. <https://doi.org/10.1016/j.resconrec.2018.03.007>
- Day, C. (2007). *Environment and Children: Passive Lessons from the Everyday Environment*. Routledge.

-
- Debrah, J. K., Vidal, D. G., & Dinis, M. A. P. (2021). Raising Awareness on Solid Waste Management through Formal Education for Sustainability: A Developing Countries Evidence Review. *Recycling*, 6(1), 6. <https://doi.org/10.3390/recycling6010006>
- Kamruzzaman Majumder, A. (2017). Assessments of Environmental Awareness Among the Some Selective University Students of Bangladesh. *International Journal of Education, Culture and Society*, 2(6), 190. <https://doi.org/10.11648/j.ijecs.20170206.15>
- Kattoua, M. G., Al-Khatib, I. A., & Kontogianni, S. (2019). Barriers on the propagation of household solid waste recycling practices in developing countries: State of Palestine example. *Journal of Material Cycles and Waste Management*, 21(4), 774–785. <https://doi.org/10.1007/s10163-019-00833-5>
- Matter, A., Ahsan, M., Marbach, M., & Zurbrügg, C. (2015). Impacts of policy and market incentives for solid waste recycling in Dhaka, Bangladesh. *Waste Management*, 39, 321–328. <https://doi.org/10.1016/j.wasman.2015.01.032>
- Rouse, J., & Ali, S. (2001). *Waste pickers in Dhaka : using the sustainable livelihoods approach : key findings and field notes*.
- So, W. W. M., & Chow, S. C. F. (2019). Environmental education in primary schools: a case study with plastic resources and recycling. *Education 3-13*, 47(6), 652–663. <https://doi.org/10.1080/03004279.2018.1518336>
- Supardi, S. (2023). CHANGING THE ENVIRONMENTAL PARADIGM THROUGH 3R (Reuse, Reduce, Recycle) EDUCATION: Student Devotion to Plastic Waste Management and Sustainable Creativity with Economical Value. *Jurnal PKM Manajemen Bisnis*, 3(2), 85–93. <https://doi.org/10.37481/pkmb.v3i2.604>
- Uddin, Md. K. (2024). Environmental education for sustainable development in Bangladesh and its challenges. *Sustainable Development*, 32(1), 1137–1151. <https://doi.org/10.1002/sd.2728>