



## Empowering Communities Through KKN: Promoting Environmental Awareness and Early Education in Payaroba, Binjai

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### Abstract.

#### Background

Environmental degradation and limited awareness of hygiene remain key challenges in many Indonesian communities. Higher education institutions have a strategic role in addressing these issues through community-based programs.

#### Objectives

This study aims to assess the impact of the Student Fieldwork Program (KKN) in promoting environmental awareness and informal education among residents and children in Payaroba Subdistrict, Binjai.

#### Methods

The project was conducted from November 2 to December 2, 2022. Using observational and participatory methods, students engaged in clean-up campaigns, hygiene education, and creative learning activities, including a children's coloring competition.

#### Results

The program significantly improved local awareness of environmental hygiene. Children showed enhanced knowledge, discipline, and creativity. Community members became more involved in maintaining clean and healthy surroundings.

#### Conclusion

The KKN initiative effectively integrated academic learning with real-world application, fostering civic responsibility and environmental consciousness. It serves as a model for sustainable community service in higher education.

**Keywords:** KKN, Community Service, Environmental Awareness, Informal Education, Binjai

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## INTRODUCTION

Higher education in Indonesia is guided by the Tri Dharma Perguruan Tinggi, which encompasses education, research, and community service. Among these, community service frequently implemented through the Student Fieldwork Program (Kuliah Kerja Nyata or KKN) plays a vital role in bridging academic knowledge with societal needs (Republic of Indonesia, Law No. 12/2012). KKN enables students to apply theoretical knowledge in practical contexts, engage with communities, and develop social responsibility through real-world experiences (Syardiansah, 2019).

However, several challenges persist in Indonesian society, such as low environmental awareness, limited public health knowledge, and a lack of early childhood education initiatives—especially in semi-urban and rural areas (Coetzee, 2023; Idris et al., 2012).

The KKN program at Sekolah Tinggi Olahraga dan Kesehatan (STOK) Bina Guna aimed to respond to these challenges through a series of community-based initiatives in Kelurahan Payaroba, Binjai. These included environmental clean-up efforts, public education campaigns on hygiene and waste management, and interactive activities designed to foster learning and creativity in children. Prior studies have shown that such community outreach not only benefits residents but also enhances students' problem-solving and civic engagement skills (Rong et al., 2023).

This paper explores the outcomes of the KKN activities in Payaroba, highlighting how structured student involvement can promote environmental consciousness and educational values in underrepresented communities (Duram & Williams, 2015).

## METHOD

### Participant

(Sugiyono, 2012) The participants in this community service program were residents of Kelurahan Payaroba, Binjai, specifically those living in RT 01 RW 03. The primary focus groups were local adults for environmental awareness activities and children for informal education interventions. The student team from STOK Bina Guna, consisting of seven members, served as facilitators and observers throughout the one-month KKN program.

### Research Design

(Arikunto, 2010) This study employed a descriptive qualitative approach using field observation. The research was carried out through direct participation in community-based activities such as environmental clean-up efforts, hygiene campaigns, and educational events. The design aimed to evaluate how student-led interventions could raise environmental awareness and support early learning development in a real-world community context.

### Data Analysis

Data were collected through observational notes, documentation (photos and videos), and informal interviews with community members and participating children. Thematic analysis was used to identify recurring patterns and outcomes related to behavior change, environmental awareness, and engagement levels. The qualitative findings were then organized into categories reflecting the impact on both the community and student participants.

## RESULTS AND DISCUSSION

### Results

The implementation of the Student Fieldwork Program (KKN) in Kelurahan Payaroba, Binjai, demonstrated positive outcomes in two primary areas: environmental awareness among local residents and informal education among children.

First, the environmental clean-up activities increased community participation in maintaining public spaces. Residents showed improved understanding of hygiene practices and the importance of disposing of waste properly. Several households began adopting more consistent efforts to keep their surroundings clean. The provision of garbage bins and the regular clean-up schedule fostered a sense of shared responsibility within the neighborhood.

Second, children engaged enthusiastically in the informal educational activities, especially the coloring competition. This activity helped enhance their fine motor skills, discipline, and understanding of cleanliness. The use of educational games and hands-on tasks promoted learning in a relaxed and interactive environment. Parents reported a noticeable change in their children's attitudes toward cleanliness and structured tasks at home.

Overall, the KKN program provided a platform for mutual learning between students and the community. Students gained firsthand experience in planning, implementing, and evaluating outreach programs, while the community benefited from increased awareness and improved behaviors related to hygiene and early education.

**Table 1.** Summary of Community Engagement Outcomes from the KKN Program in Payaroba

Focus Area	Activity	Observed Outcome
Environmental Awareness	Clean-up campaigns, distribution of trash bins	Increased community participation; improved waste disposal habits
Hygiene Education	Informal discussions, poster-making	Better understanding of cleanliness and sanitation practices
Children's Informal Learning	Coloring competitions, creative games	Improved fine motor skills, discipline, and environmental awareness among children
Student Experience	Program planning and implementation	Enhanced ability in teamwork, leadership, and social communication

### Discussion

The findings of this study demonstrate that the KKN program served as an effective platform for promoting community engagement, environmental stewardship, and early childhood education. These outcomes align with previous research emphasizing the importance of integrating academic service into community development (Haldane et al., 2019; Henderson et al., 2021).

The environmental clean-up activities not only improved physical sanitation in Kelurahan Payaroba but also cultivated a culture of shared responsibility. This confirms the view that environmental education is most effective when it involves active community participation (Akinsemolu & Onyeaka, 2025; Ardoin et

al., 2020). The introduction of structured waste disposal practices through community collaboration supported the long-term sustainability of these behaviors.

The informal education activities targeting children, particularly the coloring competition, contributed to both cognitive and motor development (Jumiyati et al., 2023; Mulyani, 2024). These findings are supported by Bloom's theory of early intellectual development, which stresses that the majority of human intelligence is formed during early childhood (Blaga et al., 2009). Engaging children in creative, hands-on learning activities promoted not only knowledge acquisition but also discipline and patience skills essential for academic and personal growth.

In addition, the KKN program enriched the student participants' experience through real-world application of theoretical knowledge. Students reported enhanced problem-solving skills, better teamwork, and a deeper understanding of social responsibility. These findings echo previous studies which highlight how experiential learning can cultivate civic engagement and leadership qualities among university students (Blaga et al., 2009).

However, sustaining the program's impact requires continued collaboration between academic institutions and local governments. While the short-term outcomes were promising, long-term behavioral changes and infrastructure maintenance rely on consistent follow-up and support from both stakeholders.

## CONCLUSION

The implementation of the KKN program in Kelurahan Payaroba, Binjai successfully enhanced both environmental awareness among residents and informal learning opportunities for children. Through participatory clean-up efforts and educational activities, the program fostered behavioral change and community engagement. It also provided valuable experiential learning for student participants, strengthening their leadership and social responsibility skills. These outcomes affirm the significance of community-based service learning in supporting sustainable development and bridging academic knowledge with practical community impact.

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## AUTHOR CONTRIBUTION STATEMENT

All authors contributed equally to the planning, implementation, and reporting of this community service program. Kristiani Gulo served as the project coordinator and corresponding author. Syahrian Sapiliang and M. Bayu Samudra Batubara were responsible for field coordination and data collection. Dwi Agilia Putri and Muhammad Fadli led the educational activities for children. Muhammad Aji Gumelar and Dekati Harefa contributed to community engagement and environmental campaign design. All authors reviewed and approved the final manuscript.

## CONFLICT OF INTEREST AND FUNDING

The authors declare no conflict of interest related to the conduct, authorship, or publication of this study.

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