

Implementation of Education-Based Community Service to Increase Environmental Awareness among Young People

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Article Information

Received: June 17, 2025

Revised: July 03, 2025

Online: July 05, 2025

Keywords

Knowledge, Attitude, Behavior

ABSTRACT

The present study aims to investigate the impact of community service based on environmental education on increasing environmental awareness among Indonesian youth. The present study employed a descriptive quantitative approach, utilising a pre-experimental design of a single group, pretest-posttest type. These coding techniques were employed to identify narrative patterns, group dynamics and the supporting and inhibiting factors that emerged during the learning process. The descriptive analysis demonstrated a significant increase in all indicators of environmental awareness following the implementation of the community service-based education programme, including participants' knowledge, attitudes, behaviours, and self-efficacy. Furthermore, a significant increase in attitudes was observed, from an initial score of 68.2 to a post-intervention score of 86.7. These results underscore the significance of programme design that integrates critical learning theory, transformative approaches, and community participation in fostering a generation that is aware of, concerned about, and actively engaged in environmental sustainability. It is hoped that this initiative will set a precedent for sustainable community service and make a meaningful contribution to the development of a future-oriented environmental agenda.

Keywords: Knowledge, Attitude, Behavior

INTRODUCTION

Environmental degradation has emerged as one of the most pressing challenges of the 21st century, necessitating active engagement from all sectors of society, particularly the younger generation. Young people, as future leaders and decision-makers, play a pivotal role in shaping a more sustainable world. However, studies indicate that many youths lack adequate knowledge and practical experience regarding environmental issues, often due to gaps in formal education systems (Zamora, 2023). To bridge this gap, education-based community service has gained attention as a powerful pedagogical tool that combines academic learning with community engagement (Cahyo et al., 2024). This model allows students to apply classroom knowledge in real-world contexts,



thereby enhancing their environmental literacy and civic responsibility (Sunari & Nurhayati, 2023). Through participatory activities such as community clean-ups, waste management campaigns, urban gardening, and environmental workshops, young people not only increase their understanding of ecological issues but also develop a sense of agency and responsibility (Simões et al., 2023).

The issue of environmental degradation has become a pressing global concern, especially amidst the increasingly apparent climate crisis and ecological degradation. In this context, the younger generation plays an important role as agents of change in maintaining environmental sustainability. However, low environmental awareness among young people remains a major challenge in collective environmental conservation efforts. (Narwal, 2021).

Several studies have shown that participatory and contextually designed environmental education can increase awareness, knowledge, and active involvement of young people in environmental action. Community-based programs such as ECOCIDADANIA in Portugal, for example, have succeeded in increasing environmental awareness, skills, and responsibility through an educational and participatory approach (Silva et al., 2023).

Strengthening environmental awareness cannot be separated from contextual and collaborative education. Research by (Ardoin et al., 2022) shows that involvement in community-based environmental education can foster positive environmental citizenship skills, attitudes, and knowledge.

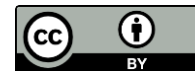
In addition, educational interventions such as eco-camps and hands-on outdoor activities have been shown to foster ecological awareness and reduce climate anxiety among young people (Nelles & Ressler, 2023). Direct environmental education and real-world experiences are key to creating long-term impacts on environmentally friendly behavior.

Active youth engagement in environmental advocacy and action activities can also be fostered through empowerment-based educational programs such as the YES! Framework, which has successfully encouraged youth engagement in citizen science, communication, and policy advocacy (Cardarelli et al., 2021).

However, the success of these programs is highly influenced by the local context, inclusive educational approaches, and support from social actors such as educators, communities, and local governments. A study from the Philippines emphasized that personal involvement and institutional policy support have significant influences on environmental engagement among academics (D. Manalo & T. Manalo, 2023).

In the Indonesian context, the community service approach through environmental-based education has great potential to be adapted as a medium for increasing environmental awareness in youth. Integration between teaching, strengthening values, and real action activities in the community can form a responsible environmental character from an early age.

In addition, providing a voice for young people in the decision-making process and incentives from the government or community have been shown to increase motivation for sustainable environmental involvement (Aden, 2023). This is also reinforced by the results of a study showing that action-based environmental education increases young people's self-confidence and self-efficacy in dealing with environmental issues (Bhati & Kapil, 2025).



Considering the urgency and relevance of the issue, this community service research aims to implement an environmental-based education approach among youth as a strategy to increase awareness and responsibility for environmental sustainability.

Through collaboration between lecturers, students, communities, and local policy makers, it is hoped that this program can become a model of sustainable community service and provide real contributions to future-oriented environmental development.

METHODS

This study used a descriptive quantitative approach with a pre-experimental design of one group pretest-posttest type. This design was chosen to directly evaluate changes in participants' knowledge levels, attitudes, behaviours and self-efficacy before and after receiving an environmental education intervention. Through this design, researchers can observe the effectiveness of education-based interventions applied to one target group without an external comparison, but can still measure the impact in a structured manner. The choice of this design is relevant to the characteristics of community service activities that are applicable and integrated with the social context of the participants, and allows direct observation of the transformation of environmental awareness that occurs as a result of the educational activities provided.

Data collection techniques were combined to strengthen the validity of the findings. The main instrument was a Likert scale questionnaire with a score range of 0-100 that was distributed before and after the educational programme (pretest and posttest). In addition, structured observations were used to record participants' engagement during the activities, including observations of changes in attitudes and behaviours that emerged spontaneously in their social interactions. Visual and narrative documentation of the activities, as well as content analysis of the campaign materials and educational media created by the participants, were also part of the data sources analysed.

The quantitative data obtained were analysed descriptively to determine the change in average scores on each KAB-SE indicator. This process allowed the researcher to evaluate the extent to which the education programme was able to measurably increase participants' environmental awareness.

To maintain the integrity and validity of the research results, data triangulation was conducted based on variations in sources, collection techniques, and time. Validation of the research results was also strengthened through member checking of key informants to ensure that the interpretation of the data was in line with their real experiences. All research procedures were conducted in accordance with the principles of social research ethics, including the provision of informed consent, protection of the confidentiality of respondents' identities, and respect for the right of participants to be involved voluntarily in every stage of the activity.

Through this approach, this research is expected to not only produce findings that illustrate the impact of environmental education on increasing ecological awareness among adolescents, but also become a model for implementing education-based community service that can be replicated in various other areas according to their respective local characteristics.



RESULTS

The Knowledge-Attitude-Behaviour (KAB) framework was used to measure several key indicators to determine how effective community service-based education is in increasing environmental awareness among adolescents. Two evaluation tools were used to collect data: structured observations and a Likert-scale questionnaire that measured participants' reactions to the environmental education activities they participated in. Using the average scores for each indicator before and after the intervention, the following descriptive analysis assessed the level of change in ecological awareness of programme participants.

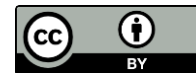
Table 1. Changes in Environmental Awareness of Young People Before and After Educational Intervention

Awareness Indicator	Measured Aspects	Average Previous Score (0–100)	Average Score After (0–100)	Change (%)
Knowledge	Understanding of local environmental issues	62.5	84.0	+34.4%
Attitude	Concern for environmental sustainability	68.2	86.7	+27.1%
Behavior	Participation in environmental actions (e.g. recycling, environmental clean-ups)	55.0	78.5	+42.7%
Self Efficacy	Belief in the power to make real changes	60.4	82.1	+35.9%

Based on the results of the descriptive analysis, the participatory education program improved participants' knowledge, attitudes, behaviors, and self-efficacy about environmental issues. The delivery of environmental materials in a contextual and interactive manner succeeded in improving participants' understanding of local issues such as waste management and degradation of green open spaces. This shows an increase in the average knowledge score of participants from 62.5 to 84.0. This increase indicates that the community-based education method succeeded in delivering relevant and useful knowledge to adolescents.

In addition, attitudes increased significantly – from an initial score of 68.2 to a score of 86.7 after the intervention. This indicates that participants are more concerned and more aware of their responsibilities towards environmental preservation. This increase was influenced by participants engaging in group discussions, thinking about values, and seeing environmental issues in their surroundings. In the future, a positive perspective is essential to developing sustainable behavior.

In addition, the participation score in real action increased from 55.0 to 78.5, indicating a change in behavior. Participants began to participate in conservation activities such as environmental clean-up movements, waste sorting, and environmentally friendly digital campaigns. This change shows that community service programs have the ability to transform awareness into concrete actions. This is in line with the theory of experiential learning in environmental education.



In addition, the self-efficacy dimension also increased from 60.4 to 82.1, indicating that young people are more confident in becoming agents of change for environmental issues. Their perception of their abilities increased as a result of their participation in decision-making, activity planning, and success in solving real challenges during the program. This self-efficacy is very important in the long term to form a young generation that is not only environmentally aware but also proactive and resilient to environmental crises.

Overall, the findings of this study reinforce previous findings that community-based environmental education can produce diverse changes in young people. Educational interventions that are carried out collaboratively, contextually, and empowering have proven effective in increasing knowledge, shaping attitudes, fostering positive behaviors, and increasing individuals' ability to preserve the environment.

DISCUSSION

The results showed a significant increase in all indicators of environmental awareness after the implementation of the community service-based education program, including participants' knowledge, attitudes, behaviors, and self-efficacy. These findings can be further dissected to explore the relationship between the results, underlying theories, and relevance to recent empirical studies.

First, the increase in knowledge scores from 62.5 to 84.0 reflects the effectiveness of contextual and participatory material delivery. This supports the constructivist learning theory which emphasizes that knowledge is formed through direct engagement with the social and physical environment. However, it is important to note that increased knowledge is not always directly proportional to behavioral change. A study by (Elshaer et al., 2023) showed that although environmental knowledge among adolescents was quite good, only a few showed real behavioral changes without strong attitudes and self-efficacy.

Second, the attitude score towards environmental conservation increased from 68.2 to 86.7. This indicates the awakening of emotional awareness and ecological values of participants, which is in accordance with the affective approach in environmental education. Research by (Baierl et al., 2022) confirms that an increase in attitudes is very likely to occur when participants are given direct experience in nature, which creates an emotional attachment to the environment.

Third, the behavioral change indicator showed the largest increase (+42.7%), which means that young people not only receive information, but also transform it into real actions such as digital campaigns and environmental clean-up activities. This confirms the results of a meta-analysis by (Wetering et al., 2022), which found that good environmental education has a significant impact on behavioral change, with attitude factors as the main mediator.

Fourth, the self-efficacy dimension – that is, participants' confidence in their ability to bring about change – increased from 60.4 to 82.1. This increase indicates that the program has succeeded in boosting adolescents' self-confidence and problem-solving abilities in dealing with environmental issues. A study by (Baldwin et al., 2022) stated that although young people are aware of environmental threats, they often experience "climate helplessness" due to low self-efficacy. Therefore, direct involvement in planning and implementing actions is essential to increasing self-efficacy.

The basic assumption in this discussion is that changes in environmental awareness in adolescents require an integrative approach between information, values, actions, and self-



confidence. Research by (Zhang & Cao, 2025) shows that in the Education for Sustainable Development (ESD) framework, the transformation of attitudes into behavior is influenced mediatively by self-efficacy and social norms.

Thus, the success of this program shows that the community service-based environmental education approach is not only able to raise awareness, but also encourage sustainable behavioral changes among young people. These results emphasize the importance of program design that integrates critical learning theory, transformative approaches, and community participation in creating a generation that is aware, cares, and takes real action for environmental sustainability.

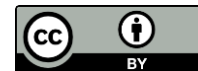
CONCLUSIONS

According to this study, implementing community service based on environmental education conducted in a contextualised and participatory manner proved effective in increasing environmental awareness among adolescents. The programme successfully improved four key dimensions of environmental awareness: knowledge, attitude, behaviour and self-efficacy. This was achieved through an approach that combined hands-on experience, reflective discussion, and active engagement in environmental action activities. Attitudinal changes showed a strengthening of principles and concern for environmental issues, and an increase in participants' knowledge demonstrated the efficacy of disseminating information relevant to the local context. A significant behavioural transformation indicates that participants not only gained a theoretical understanding of environmental issues but were also motivated to take concrete action. In addition, the increased level of self-efficacy is an important indicator that the programme was able to instill youth confidence in their capacity to contribute to environmental change.

Therefore, community service that blends aspects of experiential learning, critical education, and community involvement has a great chance of forming a younger generation that is conscious of, concerned about, and committed to environmental sustainability. In addition to having an impact locally, this initiative can serve as a model for replication in other regions. The younger generation will be better able to comprehend environmental issues and take part in the fight against global environmental problems as a result.

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