Research Note

Indian Journal of Extension Education
Vol. 62, No. 2 (April–June), 2026, (179-182)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Environmental Awareness and Behavioural Gap among High School Students in East Champaran, Bihar

Kritika[1] and Rajni Pandey[2]

[1]Ph.D. Scholar, [2]Senior Assistant Professor, Post Graduate Department of Home Science, Patna University, Patna, Bihar, India
Corresponding author email id: ritikathakur1713@gmail.com

HIGHLIGHTS

- Awareness levels were higher than behavioural adoption and showed a measurable awareness–action gap.
- Climate change awareness showed a significant behavioural association.

ARTICLE INFO

Keywords: Environmental awareness, Pro-environmental behaviour, High school students, Environmental education, Chi-square test.

https://doi.org/10.48165/IJEE.2026.622RN02

Citation: Kritika & Pandey, R. (2026). Environmental Awareness and Behavioural Gap among High School Students in East Champaran, Bihar. *Indian Journal of Extension Education*, *62*(2), 179-182. https://doi.org/10.48165/IJEE.2026.622RN02

ABSTRACT

The study was conducted in 2026 in the East Champaran district of Bihar to examine the relationship between environmental awareness and behavioural adoption among high school students. A descriptive survey design was employed, and primary data were collected from 300 students of Classes IX and X selected through stratified random sampling from four secondary schools. A structured questionnaire was used to measure environmental awareness, understanding of environmental issues and behavioural adoption using a five-point Likert scale. The results revealed that students possessed a moderate level of environmental awareness (Mean = 3.60) and understanding (Mean = 3.42), whereas behavioural adoption was comparatively lower (Mean = 3.25). The paired t-test indicated a statistically significant difference between awareness and behavioural adoption scores ($p < 0.01$), confirming the presence of an awareness–action gap. Chi-square analysis showed that demographic variables such as gender and class level were not significantly associated with environmental awareness. In contrast, climate change awareness was significantly associated with carbon reduction behaviour. The findings suggest that awareness alone is insufficient to ensure consistent environmental practices. Strengthening experiential and participatory environmental education at the school level may help translate environmental knowledge into sustained behavioural engagement.

INTRODUCTION

Environmental challenges such as pollution, climate change, and resource depletion are becoming increasingly visible in everyday life, particularly in Bihar's rural regions. In areas such as East Champaran, environmental concerns are closely intertwined with agriculture, public health, and local livelihoods. Within this context, schools play a critical role in shaping environmental consciousness among adolescents. Environmental education has expanded significantly in recent years, emphasising sustainability, climate awareness, and responsible citizenship (Wals & Benavot, 2017; Hicks & Holden, 2019). Research indicates that young people today are more exposed to environmental information than previous generations. However, access to environmental information does not always translate into consistent behavioural engagement. Studies in environmental psychology and education consistently report a divergence between awareness and action, often referred to as the awareness–action gap (Otto & Pensini, 2017; Ardoin et al., 2020). While students may express concern about environmental degradation, consistent engagement in pro-environmental practices remains uneven. Recent empirical investigations show that

Received 26-02-2026; Accepted 12-03-2026

environmental behaviour is influenced by multiple factors, including emotional connection to nature, peer influence, social identity, and contextual reinforcement (Fielding & Hornsey, 2016; Collado et al., 2017; Geng et al., 2019). Adolescents who perceive environmental issues as personally relevant or socially valued are more likely to adopt sustainable practices. At the same time, behavioural adoption depends on experiential learning opportunities rather than purely theoretical instruction (Stevenson et al., 2017).

Within the Indian context, extension education models increasingly emphasise participatory and community-linked strategies to strengthen behavioural engagement among rural youth. Environmental awareness among adolescents is often moderate, but behavioural consistency improves when school-based initiatives are integrated with local environmental activities (Singh & Verma, 2022; Kumar et al., 2023; Yadav & Patel, 2024). These findings suggest that bridging the awareness–action divide requires structured experiential reinforcement.

Although environmental concern among youth is rising globally, studies indicate that behavioural adoption remains selective and context-dependent (Zsóka et al., 2017; Whitmarsh et al., 2020). In districts such as East Champaran, where environmental realities are immediate and visible, examining the relationship between awareness and behaviour becomes particularly relevant. However, systematic empirical evidence focusing on this relationship at the secondary school level in Bihar remains limited.

The present study, therefore, examines environmental consciousness among high school students in East Champaran district with specific attention to the relationship between awareness and behavioural adoption. It aims to determine whether higher levels of environmental awareness are associated with stronger pro-environmental engagement. Based on existing environmental education scholarship, the study hypothesises that awareness levels are significantly higher than behavioural adoption levels, indicating a measurable awareness–action gap.

METHODOLOGY

The present study adopted a descriptive survey research design to examine the relationship between environmental awareness and behavioural adoption among high school students. A descriptive design was considered appropriate because it enables systematic collection of information from a large number of respondents to describe existing levels of awareness, understanding and environmental practices without manipulating the study variables. The study was conducted in the East Champaran district of Bihar, a predominantly rural region where environmental education initiatives are increasingly important in school curricula. Two administrative blocks of the district were selected purposively to represent typical rural educational settings and to facilitate efficient field data collection. From each selected block, secondary schools were identified and included in the sampling frame.

A stratified random sampling technique was employed to ensure adequate representation of students across relevant categories. Stratification was carried out on the basis of class level and gender, enabling balanced participation of students from Classes IX and X and capturing possible variation in environmental awareness and behavioural practices. From the selected schools, a total of 300 students were randomly chosen as respondents for the study. Primary data were collected through a structured questionnaire designed to measure key dimensions of environmental awareness and behaviour among students. The questionnaire consisted of items related to environmental issues such as pollution, climate change, waste management, biodiversity conservation and energy conservation. Responses were recorded on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

The key variables of the study were environmental awareness, environmental understanding and behavioural adoption. Environmental awareness refers to students' knowledge and perception of major environmental problems and their causes. Environmental understanding represented students' conceptual comprehension of environmental processes and their broader ecological implications. Behavioural adoption referred to the extent to which students reported practising environmentally responsible behaviours in daily life, such as conserving resources, reducing waste and participating in environmental activities. Composite scores for each variable were calculated using the mean responses of the respective questionnaire items.

Prior permission for data collection was obtained from the school authorities, and student participation was voluntary. Responses were recorded anonymously to maintain confidentiality.

RESULTS

The analysis of the collected data focused on examining students' level of environmental awareness, environmental understanding and behavioural adoption of sustainable practices. Descriptive statistics were used to summarise the responses, while inferential statistical techniques were employed to identify significant differences and relationships among the study variables. The results are presented and interpreted in the following sections.

The responses regarding the most pressing environmental concerns perceived by the respondents are presented in Table 1. The students demonstrated a moderate level of environmental awareness, as evidenced by their mean score of 3.60 (SD = 0.876). Students appeared to have a reasonable understanding of environmental concepts, as indicated by the mean understanding score of 3.42 (SD = 0.884). However, behavioural adoption recorded a comparatively lower mean of 3.25 (SD = 0.912), pointing to less consistent engagement in environmentally responsible practices. For interpretation of mean scores, the following classification was used: 1.00–2.33 = low level, 2.34–3.66 = moderate level, and 3.67–5.00 = high level. The comparatively lower adoption score, when viewed alongside awareness and understanding, suggests that behavioural responses have not advanced in proportion to students' cognitive knowledge.

The results of the paired-sample t-test used to examine the awareness–action gap are presented in Table 2. The analysis

Table 1. Mean scores of environmental constructs

Variable	Mean	SD
Awareness	3.60	0.876
Understanding	3.42	0.884
Adoption	3.25	0.912

Note: Scale: 1 = Strongly disagree to 5 = Strongly agree

Table 2. Paired comparison of awareness and adoption

Variable Pair	Mean Difference	t-value	p-value
Awareness – Adoption	0.35	4.96	0.002

Note: Significant at $p < 0.01$

indicated a statistically significant difference between awareness and behavioural adoption scores ($t = 4.96$, $df = 299$, $p < 0.01$), with a mean difference of 0.35. This result suggests that although students demonstrate a reasonable level of environmental awareness, the translation of this awareness into consistent environmental behaviour remains comparatively limited.

The chi-square analysis examining associations between demographic variables and environmental indicators is presented in Table 3. The findings revealed no significant association between gender and environmental awareness ($p > 0.05$) or between class level and awareness ($p > 0.05$), indicating that levels of awareness were broadly similar across these demographic groups. On the other hand, a statistically significant correlation ($p < 0.05$) was found between carbon-reduction behaviour and climate-change awareness. This suggests that students with a deeper understanding of climate change were more likely to engage in specific eco-friendly activities.

Table 3. Chi-square association between awareness and behaviour

Independent Variable	Dependent Variable	χ^2	df	p-value
Gender	Environmental Awareness	3.21	2	0.071
Class Level	Environmental Awareness	2.87	2	0.089
Climate Change Awareness	Carbon Reduction Behaviour	4.21	1	0.040

Note: Significant at $p < 0.05$

DISCUSSION

The findings of the present study indicate that although high school students in East Champaran possess a moderate level of environmental awareness, the level of behavioural adoption remains comparatively lower. The statistical difference observed between awareness and behavioural adoption confirms the presence of an awareness–action gap. This pattern suggests that environmental knowledge alone does not automatically lead to consistent pro-environmental behaviour among adolescents. While students appear to understand environmental issues such as pollution and climate change, translating this knowledge into everyday environmental practices remains limited. The comparatively higher mean score for environmental awareness in the present study indicates that students are increasingly exposed to environmental information through school curricula, media, and public discourse. However, the lower behavioural adoption score suggests that awareness by itself may not be sufficient to influence routine environmental practices. This finding reinforces earlier research in environmental education, which highlights that behavioural change requires not only cognitive understanding but also practical engagement, motivation, and supportive social environments.

The absence of a significant association between demographic variables, such as gender and class level, and environmental awareness further suggests that environmental information is reaching students relatively uniformly across the school system. However, the significant association observed between climate change awareness and carbon reduction behaviour indicates that issue-specific understanding may encourage more concrete environmental actions. Students who better understand the implications of climate change may be more inclined to adopt practices such as reducing energy consumption, avoiding wasteful resource use, or supporting environmentally responsible habits. These findings highlight the importance of experiential and participatory learning approaches in environmental education. Classroom-based instruction alone may create awareness, but behavioural engagement is more likely to develop when students are actively involved in environmental activities. School-based initiatives such as environmental clubs, tree-planting drives, waste-segregation campaigns, and community clean-up programmes can provide students with opportunities to translate environmental knowledge into practical action. Participation in such activities strengthens students' sense of responsibility and encourages long-term environmental commitment.

From a policy perspective, the results suggest that environmental education programmes at the secondary school level should place greater emphasis on action-oriented learning rather than solely theoretical instruction. Educational policies may encourage integration of project-based environmental learning, field activities, and community participation within school curricula. Schools may also collaborate with local institutions and community organisations to provide students with opportunities to engage directly with environmental issues affecting their local surroundings. The findings also carry important implications for extension education and environmental outreach programmes. Extension agencies working in rural areas can collaborate with schools to promote youth-centred environmental initiatives such as awareness campaigns, village sanitation drives, water conservation programmes, and climate-responsive practices. Such initiatives can create stronger linkages between formal education and community-based environmental action. By involving students in local environmental improvement activities, extension programmes can help bridge the gap between awareness and behavioural adoption.

Overall, the results emphasise that environmental awareness forms an important foundation for sustainable behaviour, but it must be reinforced through practical engagement, community participation, and supportive institutional frameworks. Strengthening experiential environmental education and extension-based environmental initiatives may therefore play a crucial role in transforming environmental awareness into consistent behavioural practice among adolescents.

CONCLUSION

Students possess a moderate level of environmental awareness and understanding of environmental issues, which does not always translate into consistent pro-environmental behaviour. The statistically significant difference observed between awareness and behavioural adoption confirms the presence of an awareness–action gap among adolescents. The significant association observed

between climate change awareness and carbon reduction behaviour suggested that issue-specific understanding can encourage more concrete environmental actions. Environmental education at the secondary school level should emphasise experiential and participatory learning approaches. Activities such as school environmental clubs, tree-planting programmes, waste management initiatives, and local environmental campaigns can provide students with opportunities to apply environmental knowledge in real-world contexts. Such initiatives can strengthen students' sense of environmental responsibility and encourage the development of sustainable behavioural practices. Extension agencies, educational institutions, and community organisations can collaborate to organise environmental awareness drives, community-based environmental projects, and youth-led sustainability activities and can create stronger linkages between formal education and community-level environmental action.

DECLARATIONS

Ethics approval and informed consent: Prior permission for data collection was obtained from the school authorities, and student participation was voluntary. Responses were recorded anonymously to maintain confidentiality.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The authors declare that during the preparation of this work, they thoroughly reviewed, revised, and edited the content as needed. The authors take full responsibility for the final content of this publication.

The authors express their sincere gratitude to the participating schools and students for their cooperation during data collection. The authors also acknowledge the academic guidance and institutional support received from the Department of Home Science, Patna University, during the course of this research.

Acknowledgement: The authors are grateful to the ACIAR-funded "Transforming Smallholder Food Systems in the Eastern Gangetic Plain (RUPANTAR) Project" for funding this PhD Fellowship. In addition to the project's financial support, the authors thank everyone who helped accomplish this research.

Publisher's note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organisation, or those of the publisher, the editors, and the reviewers. Any product/process or technology that may be evaluated in this article, or a claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

REFERENCES

Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biological Conservation, 241*, 108224. https://doi.org/10.1016/j.biocon.2019.108224

Chawla, L. (2020). Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. *People and Nature, 2*(3), 619–642. https://doi.org/10.1002/pan3.10128

Collado, S., Evans, G. W., & Sorrel, M. A. (2017). The roles of parents and best friends in children's pro-environmentalism: Differences by age and gender. *Journal of Environmental Psychology, 54*, 27–37. https://doi.org/10.1016/j.jenvp.2017.09.007

Deshiana, D., Sriyanti, I., & Ismet, I. (2022). Environmental awareness and pro-environmental behaviour among high school students. *Journal of Physics: Conference Series, 2309*, 012019. https://doi.org/10.1088/1742-6596/2309/1/012019

Fielding, K. S., & Hornsey, M. J. (2016). A social identity analysis of climate change and environmental attitudes and behaviours: Insights and opportunities. *Frontiers in Psychology, 7*, 121. https://doi.org/10.3389/fpsyg.2016.00121

Geng, L., Xu, J., Ye, L., Zhou, W., & Zhou, K. (2019). Connections with nature and environmental behaviours. *PLoS ONE, 14*(5), e0216620. https://doi.org/10.1371/journal.pone.0216620

Hicks, D., & Holden, C. (2019). The future of environmental education. *Environmental Education Research, 25*(4), 523–535. https://doi.org/10.1080/13504622.2019.1593229

Kumar, R., Singh, P., & Sharma, A. (2023). Environmental awareness and sustainable behaviour among rural youth. *Indian Journal of Extension Education, 59*(4), 45–50. https://doi.org/10.48165/ijee.2023.59409

Otto, S., & Pensini, P. (2017). Nature-based environmental education of children: Environmental knowledge and connectedness to nature together are related to ecological behaviour. *Global Environmental Change, 47*, 88–94. https://doi.org/10.1016/j.gloenvcha.2017.09.009

Singh, R., & Verma, P. (2022). Environmental education and behavioural change among rural youth. *Indian Journal of Extension Education, 58*(3), 112–116. https://doi.org/10.48165/IJEE.2022.58322

Stevenson, K. T., Peterson, M. N., & Bondell, H. D. (2019). The influence of personal beliefs, friends, and family in building climate change concern among adolescents. *Environmental Education Research, 25*(6), 832–845. https://doi.org/10.1080/13504622.2016.1177712

Stevenson, R. B., Brody, M., Dillon, J., & Wals, A. E. J. (2017). *International handbook of environmental education*. New York: Routledge.

Wals, A. E. J., & Benavot, A. (2017). Can we meet the sustainability challenges? The role of education and lifelong learning. *European Journal of Education, 52*(4), 404–413. https://doi.org/10.1111/ejed.12250

Whitmarsh, L., Capstick, S., & Moore, I. (2020). Use of behavioural science in climate change adaptation and mitigation. *Current Opinion in Environmental Sustainability, 42*, 114–121. https://doi.org/10.1016/j.cosust.2020.01.002

Yadav, S., & Patel, M. (2024). Role of extension education in climate-responsive practices among adolescents. *Indian Journal of Extension Education, 60*(2), 78–83. https://doi.org/10.48165/ijee.2024.60216

Zsóka, Á., Szerényi, Z. M., Széchy, A., & Kocsis, T. (2017). Greening due to environmental education? Environmental knowledge, attitudes, consumer behaviour and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Cleaner Production, 48*, 126–138. https://doi.org/10.1016/j.jclepro.2012.11.030