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Environmental Awareness in Relation to Environmental Ethics and Pro-Environmental Behaviour among College Going Students of Ranchi District, Jharkhand

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Abstract
Environmental degradation is a global crisis demanding immediate action, and the role of environmental awareness, ethics, and pro-environmental behaviour among youth has become central to sustainable futures. This study aimed to assess the level of environmental awareness and environmental ethics among college going students in Ranchi District, Jharkhand, and to examine their relationships with pro-environmental behaviour. A descriptive research design was employed with a sample of 82 students (40 male, 42 female) from Ranchi. Three standardised tools were used: Environmental Awareness Ability Measure (EAAM-J), Environmental Ethics Scale (EES), and Pro-Environmental Behaviour Scale (PEBS-SA). Data were analysed using Pearson's Correlation Coefficient. Majority of students (66.99%) demonstrated high environmental awareness, while 57.78% exhibited high environmental ethics. A significant moderate positive correlation was found between environmental awareness and environmental ethics ($r = 0.522$, $p < 0.05$), and a significant low positive correlation between environmental awareness and pro-environmental behaviour ($r = 0.306$, $p < 0.05$). Male and rural students exhibited significantly higher environmental awareness than their counterparts. While students demonstrate commendable awareness and ethics, a meaningful gap exists between knowledge, values, and actual behaviour. Environmental education curricula must be revised to be more activity-based, value-centred, and locally relevant to bridge this gap effectively.

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1. Introduction

Environmental conservation and environmental education are two mutually reinforcing pillars in the collective effort to safeguard the natural world from further degradation [1]. Environmental conservation refers to the responsible management, protection, and restoration of natural ecosystems — encompassing forests, wetlands, rivers, soil, and biodiversity — with the explicit goal of maintaining ecological balance and ensuring the sustainable availability of resources for future generations [2, 3]. Environmental degradation represents one of the most urgent crises confronting humanity in the twenty-first century. Anthropogenic activities—industrialisation, deforestation, unsustainable agriculture, and fossil fuel combustion—have collectively accelerated the deterioration of ecosystems at an unprecedented rate [4]. The World Health Organization estimates that approximately seven million people die annually due to air pollution [5], while the United Nations Convention to Combat Desertification projects that by 2050, 1.8 billion people will experience absolute water scarcity [6]. In India, NITI Aayog has

reported that nearly 600 million people face acute water shortages, and 21 major cities could exhaust their groundwater reserves by 2020 [7].

Against this alarming backdrop, the role of environmental awareness, ethics, and behavioural change has gained primacy in academic and policy discourse. Environmental awareness serves as the foundation for pro-environmental behaviour; it enables individuals to understand the ecological, economic, and aesthetic significance of the natural world [8]. Environmental ethics extends this understanding into a moral framework, guiding individuals towards responsible conduct vis-à-vis the environment [9]. Pro-environmental behaviour, in turn, represents the culmination of this awareness and ethical orientation in concrete, environmentally beneficial actions [10].

The state of Jharkhand, and its capital Ranchi in particular, presents a compelling context for such investigation. Once celebrated as the 'Scotland of the East' for its scenic beauty, Jharkhand has witnessed rapid environmental decline due to coal mining, deforestation, industrial expansion, and population growth [11]. Ranchi district, the most populated and urbanised district in the state, exemplifies these challenges acutely. Despite their importance, studies examining the intersection of environmental awareness, ethics, and behaviour among college students in this region remain sparse, pointing to a significant knowledge gap.

The present study therefore seeks to assess the level of environmental awareness and environmental ethics among college going students in Ranchi District, and to examine their relationships with pro-environmental behaviour. College students occupy a unique position—as educated young adults on the threshold of civic and professional life—making them ideal subjects through whom the effectiveness of environmental education can be evaluated and improved.

2. Literature Review

A substantial body of literature has examined environmental awareness, ethics, and behaviour across different educational levels and geographical contexts.

Kumar [12] highlighted that global warming and rising temperatures are direct consequences of unchecked environmental degradation, underscoring the urgent need for improved environmental awareness programmes. Similarly, Sai *et al.* [13] demonstrated that structured knowledge-awareness interventions among students significantly improve their understanding of critical environmental and public health issues—indicating a persistent knowledge-behaviour gap when awareness programmes are absent.

In the Indian context, Roy and Saha [14] found that the self-concept and academic orientation of postgraduate students are significantly shaped by the educational environment, influencing how environmental concerns are internalised. Hassan and Ratnakar [15] reported a significant positive relationship between environmental awareness and scientific attitudes among higher secondary students, affirming that awareness-building improves rational environmental thinking. Agarwal and Bhushan [16] similarly confirmed that environmental education, attitude, and awareness are closely interrelated among school-level students and that structured environmental education programmes can significantly improve student awareness.

Raiturcar [17] demonstrated through a knowledge-attitude-practice framework that students' awareness of important issues does not automatically translate into responsible practice, pointing to structural gaps between knowing and doing. Ghosh [18] found a strong positive correlation between environmental awareness and attitude towards environmental education among secondary students in Assam. Ghosh [19] further affirmed, in a study of school teachers in Ranchi, that the professional and educational environment of individuals shapes their broader values and responsibilities—including environmental ones.

Regarding pro-environmental behaviour, Kollmuss and Agyeman [20] identified a complex web of internal factors (values, motivation, knowledge) and external factors (economic, social, institutional) that mediate between awareness and action. Stern [21] defined pro-environmental behaviour as actions that alter the availability of resources from the environment or change ecosystem composition and dynamics.

Despite these contributions, studies specifically examining all three dimensions—awareness, ethics, and behaviour—in relation to college students in Jharkhand are notably absent, providing the justification for the present study.

3. Materials and Methods

3.1. Research Design

A descriptive survey method was adopted for the present study, as it aims to systematically describe the current status of environmental awareness, ethics, and pro-environmental behaviour among college going students [22].

3.2. Sample

The study was conducted in Ranchi District, Jharkhand, India. Using a stratified random sampling technique, a total of 82 students (40 male, 42 female) from the college in Ranchi, were selected as the sample. The sample was stratified on the basis of gender and locale (urban/rural).

3.3. Tools

Three standardised tools were employed for data collection:

(i) Environmental Awareness Ability Measure (EAAM-J), constructed by Dr. Praveen Kumar Jha (2010) [32]. This 51-item instrument measures environmental awareness with split-half reliability of 0.61, KR reliability of 0.84, and test-retest reliability of 0.74 and 0.71 (at 3 and 6 months respectively). Content validity was established through correlation with the Tarniji Environmental Awareness Scale ($r = 0.83$).

(ii) Environmental Ethics Scale (EES), constructed by Dr. Haseen Taj (2001) [33]. This 45-item scale measures environmental ethics with split-half reliability coefficients of 0.71 and 0.75 (after Spearman-Brown correction). Content validity was established through expert review.

(iii) Pro-Environmental Behaviour Scale (PEBS-SA), constructed by Dr. A. Suhane (2012) [34]. This standardised instrument assesses environmentally responsible behavioural dispositions.

An interview schedule of 21 items, developed by the investigator, was used to gather qualitative insights from college principals.

3.4. Data Collection Procedure

The investigator obtained necessary permission from the institutional authorities. Students were briefed about the purpose of the study and assured of confidentiality. Questionnaires were individually administered. Interviews were conducted with 20 college principals to gather

institutional perspectives on environmental approaches.

3.5. Statistical Analysis

Data were analysed using descriptive statistics (mean, standard deviation, frequency, and percentage) and inferential statistics including Pearson's Correlation Coefficient (r). The level of significance was set at $p < 0.05$.

4. Results

4.1. Level of Environmental Awareness (Objective 1)

Table 1 presents the distribution of environmental awareness levels among the college going students in Ranchi District.

Table 1: Level of Environmental Awareness among College Going Students in Ranchi District

Level of Environmental Awareness	Range of Scores	Frequency	Percentage (%)
High	46 and above	54	66.99
Average	37–45	20	23.11
Low	36 and below	8	9.99
Total	—	82	100

As shown in Table 1, 66.99% of students demonstrated high environmental awareness, 23.11% average, and 9.99% low environmental awareness. On the basis of gender, 16.40% of male and 10.19% of female respondents exhibited high environmental awareness. With respect to locale, rural students demonstrated higher environmental awareness than urban students.

4.2. Level of Environmental Ethics (Objective 2)

Table 2 presents the distribution of environmental ethics levels.

Table 2: Level of Environmental Ethics among College Going Students in Ranchi District

Level of Environmental Ethics	Range of Scores	Frequency	Percentage (%)
High	36 and above	51	57.78
Average	27–45	15	19.22
Low	26 and below	16	20.00
Total	—	82	100

Table 2 reveals that 57.78% of students exhibited high environmental ethics, 19.22% average, and 20.00% low environmental ethics. Gender-wise analysis revealed no significant difference: 87.78% of females and 85.68% of males scored in the high category. Similarly, locale-based analysis showed no significant difference (urban: 86.72% high; rural: 87.17% high).

4.3. Relationship between Environmental Awareness and Environmental Ethics (Objective 3)

Pearson's Correlation Coefficient was computed to examine the relationship between environmental awareness and environmental ethics. The null hypothesis (H_1) tested was: There is no significant relationship between environmental awareness and environmental ethics among college going students.

Table 3: Relationship between Environmental Awareness and Environmental Ethics

Variables	N	df	Computed r	Table r (0.05)	Remarks
Environmental Awareness & Environmental Ethics	82	61	**0.522**	0.062	Significant at 0.05 level

The computed r value of 0.522 (df = 61) was found to be significant at the 0.05 level. This indicates a moderate positive significant relationship between environmental awareness and environmental ethics. The null hypothesis H_1 is therefore rejected. Students with higher environmental awareness tend to demonstrate stronger environmental ethics.

4.4. Relationship between Environmental Awareness and Pro-Environmental Behaviour (Objective 4)

Pearson's Correlation Coefficient was similarly computed to examine the relationship between environmental awareness and pro-environmental behaviour. The null hypothesis (H_2) tested was: There is no significant relationship between environmental awareness and pro-environmental behaviour among college going students.

Table 4: Relationship between Environmental Awareness and Pro-Environmental Behaviour

Variables	N	df	Computed r	Table r (0.05)	Remarks
Environmental Awareness & Pro-Environmental Behaviour	82	61	0.306	0.062	Significant at 0.05 level

The computed r value of 0.306 (df = 61) was found to be significant at the 0.05 level, indicating a low but significant positive relationship between environmental awareness and pro-environmental behaviour. The null hypothesis H_2 is therefore rejected. These findings confirm that while awareness positively influences behaviour, the relationship is not strongly deterministic, suggesting that other mediating factors play a role.

5. Discussion

The findings of this study offer several significant insights into the environmental consciousness of college going

students in Ranchi District, Jharkhand.

The high level of environmental awareness observed among the majority of students (66.99%) is a positive indicator of the cumulative impact of school-based environmental education. This finding aligns with Cederqvist, Chaker, and Hajj-Hassan [26], who found that higher education students demonstrate generational differences in environmental awareness and sustainability perspectives, and with Hassan and Ratnakar [15], who noted substantial awareness among higher secondary students. However, the persistence of a segment with low awareness (9.99%) underscores the need for continuous, improved environmental education efforts.

The gender difference in environmental awareness—with male students outperforming females—contradicts several earlier studies. Roy and Saha [14], Alam [27], and Oliveira [28] found females to be more environmentally oriented in their self-concept and behavioural dispositions. The present finding concurs more closely with Bhat [29] and Hassan and Ratnakar [15]. This discrepancy may be attributed to contextual socio-cultural factors specific to Jharkhand, where male students may have greater exposure to outdoor environmental activities, particularly in connection with the region's natural resource economy.

The finding that rural students demonstrated higher environmental awareness than urban students is noteworthy and somewhat divergent from earlier studies such as those by Agarwal and Bhushan [16], Kaur [30], and Oliveira [28], which suggested urban students tend to score higher on structured awareness measures. This may reflect the direct, lived experience rural students in Jharkhand have with environmental issues such as deforestation, coal mining impacts, and water scarcity—issues that are tangible and immediate rather than abstract.

The high level of environmental ethics observed (57.78% in the high category) is encouraging and consistent with findings by Bhat [29] and Geng *et al.* [31], who demonstrated that prior pro-environmental behaviour and strong ethical orientation positively reinforce subsequent environmental actions. The absence of significant gender or locale differences in environmental ethics suggests that ethical values towards the environment are relatively uniformly distributed in this population, transcending demographic boundaries.

The moderate positive correlation between environmental awareness and environmental ethics ($r = 0.522$) is consistent with Raiturcar [17] and Ghosh [18], who also found positive relationships between knowledge-awareness and attitudes/practices in student populations. The relatively weaker correlation between environmental awareness and pro-environmental behaviour ($r = 0.306$), however, reinforces the well-documented 'value-action gap' in environmental psychology [20, 31]. This gap suggests that awareness and ethical conviction alone are insufficient drivers of behaviour change; structural, institutional, and socio-economic factors also mediate the relationship [21].

The qualitative findings from principal interviews support these conclusions. Principals consistently emphasised the need for a more practical, activity-based environmental education curriculum and called for greater integration of environmental themes across all subjects and grade levels. Institutional approaches such as eco-clubs, composting, segregation of waste, and outdoor learning were found to positively reinforce environmental values and behaviour.

6. Conclusion

This study demonstrates that while college going students in Ranchi District exhibit commendable levels of environmental awareness and ethics, a meaningful gap persists between these cognitive and affective dimensions and actual pro-environmental behaviour. Environmental awareness and ethics are positively and significantly correlated with each other and with pro-environmental behaviour, confirming that they are interrelated constructs. However, the moderate-to-weak strength of these correlations highlights that awareness and ethics alone cannot guarantee behavioural change.

Male and rural students exhibited significantly higher environmental awareness, while no significant gender or locale differences were found in environmental ethics or pro-environmental behaviour (except for locale in behaviour, where urban students scored higher). These findings call for targeted, inclusive, and differentiated approaches to environmental education.

For effective environmental outcomes, educational policy must move beyond content-heavy theoretical instruction towards experiential, value-based, and community-embedded environmental education. Teachers, school administrators, parents, NGOs, and policymakers must collectively cultivate and sustain pro-environmental behaviour among youth—for they are the stewards of our environmental future.

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