



A Study of the Relationship between Environmental Attitude and Environmental Education Awareness among B.Ed. Trainees

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Abstract

Whether a favourable disposition towards the environment travels with an informed understanding of environmental education is an open question in the Indian context. The present study examined the relationship between environmental attitude and environmental education awareness among B.Ed. trainees and tested whether the two vary with gender, locality, academic stream and year of study. A descriptive survey design was used with 320 trainees drawn through stratified random sampling from colleges of education affiliated to a state university in Madhya Pradesh, and data were analysed through the t test, one way ANOVA, Pearson correlation and simple linear regression. Trainees recorded a moderately favourable attitude ($M = 110.65$, $SD = 13.99$) and a moderate level of awareness ($M = 148.45$, $SD = 19.25$). Female trainees scored higher on attitude ($t = 2.86$, $p = .004$), while awareness was higher among urban trainees ($t = 3.13$, $p = .002$), second year trainees ($t = 3.02$, $p = .003$) and science stream trainees ($F = 12.88$, $p < .001$). The two variables were positively related ($r = .562$, $p < .001$), attitude accounting for 31.6 per cent of the variance in awareness. The weakest dimension in both instruments concerned laws, policy and civic action. **Keywords:** environmental attitude, environmental education awareness, B.Ed. trainees, teacher education, sustainability, correlational study

1. Introduction

The school has been identified repeatedly as the site where environmental sensitivity is built (Ivorra-Catala et al., 2024). In India the Supreme Court made environmental studies compulsory at every stage of school education through its directions in the 1990s, the National Education Policy 2020 placed environmental awareness and sustainable development among the outcomes expected of the school system (Ministry of Education, 2020), and the National Curriculum Framework treated environmental education as a concern running across subjects rather than a single examinable subject (NCERT, 2023). UNESCO (2024) recommends that such learning be built into teacher preparation rather than added later. If these expectations are to be met, the teacher entering the classroom must already carry a favourable disposition towards environmental protection together with a working understanding of what environmental education demands.

1.1 Environmental Attitude

Attitude refers to a learned predisposition to respond in a consistently favourable or unfavourable manner towards an object. Applied to the environment, it covers what a person believes about the natural world, how strongly the person feels about damage to it and how willing the person is to act. Ajzen (1991) placed attitude at the head of the chain leading to behavioural intention and then to behaviour, and Dunlap et al. (2000) showed that environmental attitudes are organised, stable and open to assessment. For a trainee, attitude shapes personal conduct and also the tone in which environmental content reaches children.

1.2 Environmental Education Awareness



Awareness of environmental education is a different construct, and the difference is often blurred in Indian research. Environmental awareness refers to knowledge of environmental problems, whereas awareness of environmental education refers to knowledge of the field itself: its objectives, its place in the curriculum, the legal framework behind it, the methods through which it is taught and the community activity through which it extends beyond the classroom. A trainee may be worried about pollution and still have no clear idea of how a lesson on pollution should be planned. Huoponen (2023) reported a gap between what students feel about the environment and what they know about acting on it.

1.3 B.Ed. Trainees as the Point of Intervention

The B.Ed. programme is the last stage at which a systematic intervention can reach a prospective teacher before entry into service. Trainees come from arts, science and commerce backgrounds and carry the environmental experience of the settlement in which they grew up, so a curriculum that assumes a uniform starting point will serve some groups better than others.

2. Review of Related Literature

2.1 Studies on Environmental Attitude

Nousheen et al. (2020) reported a significant improvement in pre service teachers attitude towards sustainable development after a semester long course, with female participants recording higher gains. Fyttopoulou et al. (2023) found that students from environmental and non environmental disciplines both held positive attitudes, although the former showed clearly higher awareness. Aguilar and Olayta (2024) reported positive attitudes alongside weak engagement in waste management among 392 students, and Arslan and Durmus (2025) traced the links between consumption habits, footprint awareness and behaviour.

2.2 Studies on Environmental Awareness and Environmental Education

Ivorra-Catala et al. (2024) interviewed in service and pre service teachers in Spain and found a lack of coherence between training received, attitudes held and practices actually followed, while Sikhosana (2024) pointed to thin teacher preparation as a recurring obstacle. Patel (2023) reported differences in environmental education awareness tied to teaching stage. Mudrikah and Pitaloka (2024) found significant differences in environmental behaviour across study programmes even where awareness was comparable, and Durkaya et al. (2025) observed that awareness of consumption patterns did not always match the ecological footprint recorded. In India, Sharma and Sharma (2021) reported that awareness and attitude were related but distributed differently across a sample of undergraduates.

2.3 Studies on the Relationship between Attitude and Awareness

Akaydin and Esme (2024) worked with 312 pre service teachers and established through regression that environmental ethics awareness predicted sustainable environmental attitude, with a gender difference in awareness favouring women and none in attitude. Hudha et al. (2024) reported a significant positive association between environmental ethics literacy and environmental awareness among 74 prospective biology teachers. Huoponen (2023) concluded that literacy and disposition develop together only when teaching is sustained.

Environmental attitude. The favourable or unfavourable disposition of a trainee towards the protection, conservation and sustainable use of the natural environment, measured as the total score on the Environmental Attitude Scale.

Environmental education awareness. The extent to which a trainee is conscious of the concepts, legal provisions, pedagogical requirements and community dimensions of environmental education as a field, measured on the Environmental Education Awareness Scale.

B.Ed. trainees. Students enrolled in the first or second year of the two year Bachelor of Education programme in colleges affiliated to the selected state university.

3. Method

3.1 Research Design

A descriptive survey design of the correlational type was adopted, since the variables were measured as they existed in the field and the study sought both group comparisons and an estimate of association.

3.2 Population and Sample

The population consisted of all students enrolled in the two year B.Ed. programme in colleges affiliated to the selected state university. A sample of 320 trainees was drawn through stratified random sampling, with gender, locality, academic stream and year of study as the strata, from eight colleges selected in the first stage.

Table 1: Distribution of the Sample of B.Ed. Trainees (N = 320)

Variable	Category	f	%
Gender	Male	146	45.62
	Female	174	54.38
Locality	Rural	155	48.44
	Urban	165	51.56
Academic stream	Arts	136	42.50
	Science	117	36.56
	Commerce	67	20.94
Year of study	First Year	167	52.19
	Second Year	153	47.81
Total		320	100.00

Note. f = frequency.

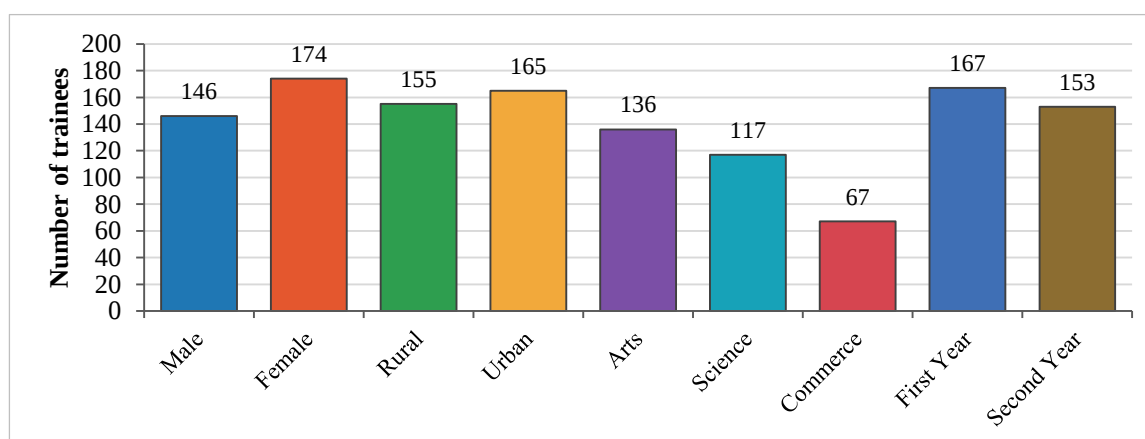


Figure 1: Composition of the Sample across Demographic Categories

6.3 Tools Used

Both instruments were prepared by the investigator and refined through expert judgement and a pilot study on 60 trainees outside the final sample. The Environmental Attitude Scale contains 30 statements on a five point Likert format, with negative statements scored in reverse, giving a range of 30 to 150; the Environmental Education Awareness Scale contains 40 statements on the same format with a range of 40 to 200. Content validity rested on the judgement of seven experts.

**Table 2:** Dimension-wise Composition and Reliability of the Two Instruments

Instrument	Dimension	Items	Range	α
Environmental Attitude	Conservation of Natural Resources	8	8-40	0.86
	Control of Pollution	8	8-40	0.83
	Sustainable Living Practices	7	7-35	0.81
	Environmental Protection and Policy	7	7-35	0.78
Environmental Education Awareness	Environmental Concepts and Issues	12	12-60	0.85
	Environmental Laws and Policies	9	9-45	0.74
	Pedagogical Awareness of EE	11	11-55	0.82
	Community Participation and Action	8	8-40	0.79

6.4 Procedure of Data Collection

Both instruments were administered in a single sitting of about 45 minutes in the trainees regular classrooms. Of 348 schedules distributed, 331 were returned and 320 were retained after incomplete and patterned responses were discarded.

6.5 Statistical Techniques

Normality was verified through skewness, kurtosis and the Kolmogorov-Smirnov statistic, and homogeneity of variance through Levene test. The t test was applied for two group comparisons, one way ANOVA for the three stream comparison, Pearson correlation for the relationship and simple linear regression for prediction, with Cohen d and eta squared as effect sizes at the .05 level.

6.6 Ethical Considerations

Participation was voluntary and written informed consent was taken. No identifying information was recorded and college names have been withheld.

7. Analysis and Interpretation of Data

7.1 Level of Environmental Attitude and Environmental Education Awareness

The first two objectives concerned the level of the two variables. Table 3 presents the descriptive statistics along with the indices used to test normality.

Table 3: Descriptive Statistics for Environmental Attitude and Environmental Education Awareness (N = 320)

Variable	M	SD	SEM	Mdn	Min	Max	Sk	Ku
Environmental attitude	110.65	13.99	0.78	110.5	69	148	0.015	-0.061
Environmental education awareness	148.45	19.25	1.08	151.0	86	200	-0.367	0.177

The mean attitude score of 110.65 against a range of 30 to 150 is 73.8 per cent of the maximum, and the mean awareness score of 148.45 against a range of 40 to 200 is 74.2 per cent. Both place the group in the moderate band.

Trainees were then classified using the mean plus or minus one standard deviation criterion.

Table 4: Level-wise Classification of B.Ed. Trainees on Both Variables

Level	Attitude f	Attitude %	Awareness f	Awareness %
High	50	15.62	44	13.75
Moderate	220	68.75	223	69.69
Low	50	15.62	53	16.56
Total	320	100.00	320	100.00

Note. Cut off scores were 96.66 and 124.64 for attitude, and 129.2 and 167.7 for awareness.

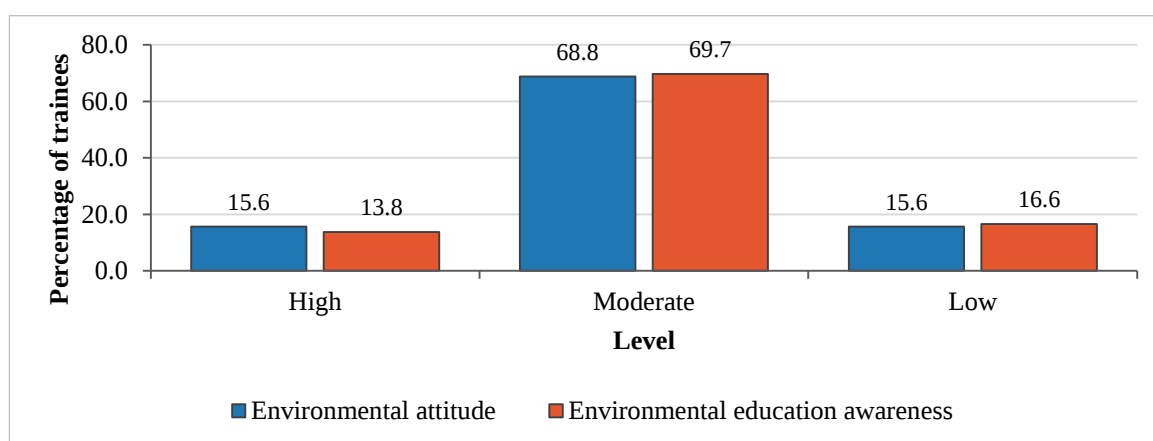


Figure 2: Percentage of Trainees at Each Level of Attitude and Awareness

7.2 Dimension-wise Performance

Because the two instruments carry different numbers of items in each dimension, dimension scores were converted to a percentage of the maximum possible score for comparison.

Table 5: Dimension-wise Means, Standard Deviations and Percentage Scores

Scale	Dimension			Items	M	SD	Item M	% of max
Attitude	Conservation	of	Natural	8	32.17	4.00	4.02	80.43
	Resources							
Attitude	Control of Pollution			8	31.10	4.09	3.89	77.76
Attitude	Sustainable Living Practices			7	24.52	3.48	3.50	70.06
Attitude	Environmental Protection and Policy			7	22.85	3.63	3.26	65.29
Awareness	Environmental Concepts and Issues			12	48.92	5.98	4.08	81.54
Awareness	Environmental Laws and Policies			9	29.21	5.01	3.25	64.91
Awareness	Pedagogical Awareness of EE			11	42.28	5.68	3.84	76.88
Awareness	Community Participation and Action			8	28.03	4.32	3.50	70.08

Note. Item M = mean score per item on a five point scale. % of max = mean expressed as a percentage of the highest score possible on that dimension.

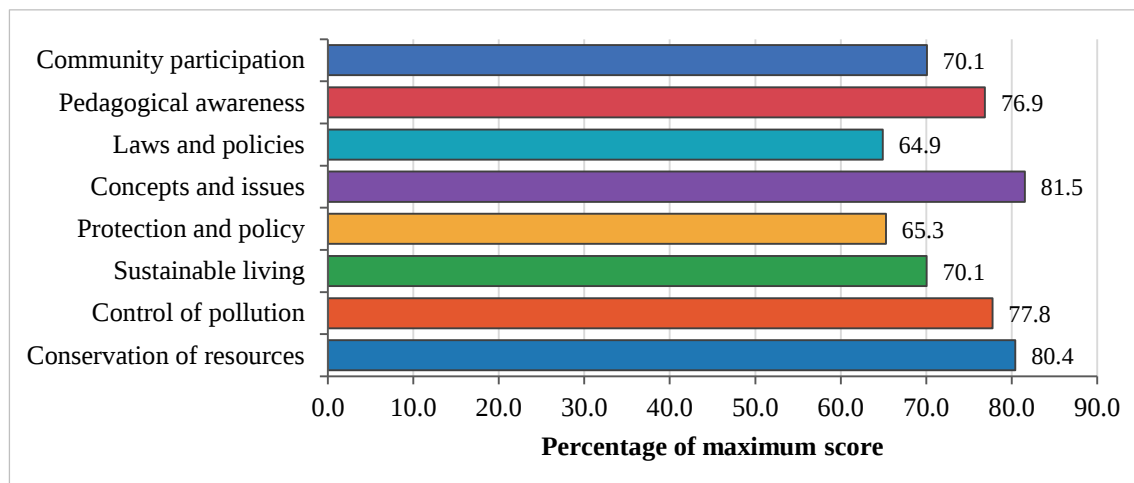


Figure 3: Dimension-wise Achievement Expressed as a Percentage of the Maximum Score

Note. The first four bars belong to the attitude scale, the last four to the awareness scale.

Two dimensions stand out at the lower end. Awareness of environmental laws and policies reached only 64.91 per cent of the maximum and attitude towards protection and policy 65.29 per cent, while conservation of natural resources and knowledge of environmental concepts crossed 80 per cent. Trainees are comfortable with the conservational side of the subject and much less comfortable with its legal and civic side.

7.3 Comparison by Gender

Objectives three and four were tested through the independent samples t test.

Table 6: Difference in Attitude and Awareness between Male and Female Trainees

Variable	Group	n	M	SD	df	t	p	d
Attitude	Male	146	108.23	14.54	318	2.862	0.004	0.32
	Female	174	112.68	13.22				
Awareness	Male	146	148.6	19.33	318	0.13	0.897	0.01
	Female	174	148.32	19.25				

Note. d = Cohen's d. Levene's test was not significant for either comparison (attitude $F = 2.201$, $p = 0.139$; awareness $F = 0.083$, $p = 0.774$), so equal variances were assumed.

The t value of 2.862 for attitude is significant ($p = 0.004$), so H_{01} is rejected: female trainees hold a more favourable attitude, with a mean difference of 4.45 points and a small effect size ($d = 0.32$). For awareness the t value of 0.13 is not significant ($p = 0.897$) and H_{02} is retained.

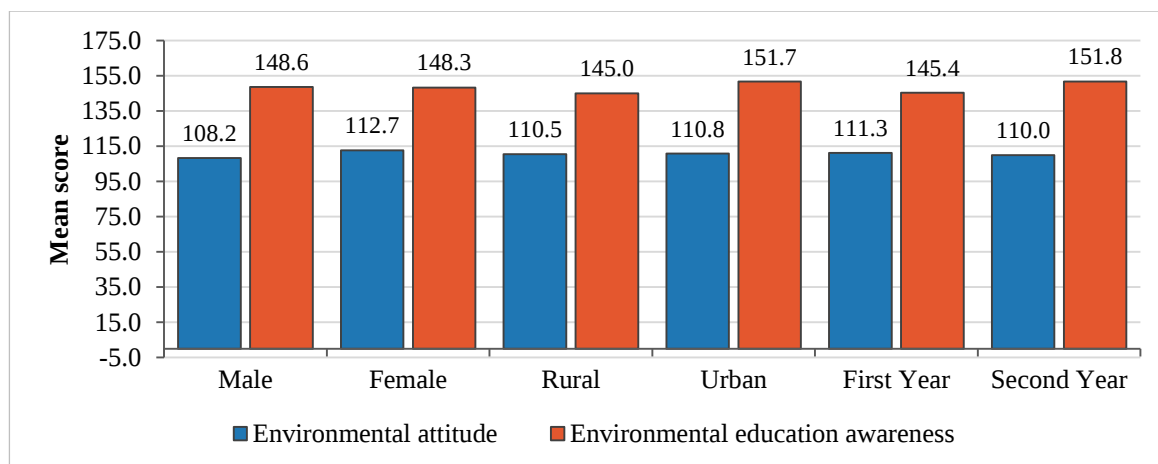


Figure 4: Mean Scores on Both Variables across Gender, Locality and Year of Study

7.4 Comparison by Locality

Table 7: Difference in Attitude and Awareness between Rural and Urban Trainees

Variable	Group	n	M	SD	df	t	p	d
Attitude	Rural	155	110.52	14.94	318	0.158	0.875	0.02
	Urban	165	110.77	13.09				
Awareness	Rural	155	145.02	19.76	318	3.132	0.002	0.35
	Urban	165	151.67	18.24				

Note. df = 318 in both comparisons.

Attitude does not vary with locality ($t = 0.158$, $p = 0.875$), so H_{03} is retained, while awareness does ($t = 3.132$, $p = 0.002$), so H_{04} is rejected. Urban trainees scored 6.65 points higher on average ($d = 0.35$). Access to reference material and exposure to environmental campaigns are the likeliest explanations.

7.5 Comparison by Year of Study

Table 8: Difference in Attitude and Awareness between First Year and Second Year Trainees

Variable	Group	n	M	SD	df	t	p	d
Attitude	First year	167	111.26	13.4	318	0.811	0.418	0.09
	Second year	153	109.99	14.63				
Awareness	First year	167	145.38	18.09	318	3.021	0.003	0.34
	Second year	153	151.8	19.97				

Note. Year of study is a proxy for exposure to the environmental education component of the curriculum.

H_{05} is retained ($t = 0.811$, $p = 0.418$) and H_{06} is rejected ($t = 3.021$, $p = 0.003$). Second year trainees are more aware by 6.42 points while their attitude is no different, which is the pattern expected when a curriculum delivers information without changing disposition.

7.6 Comparison by Academic Stream

Since academic stream has three categories, one way analysis of variance was used.

Table 9: Summary of One-Way ANOVA for Attitude and Awareness across Academic Streams

Variable	Source	SS	df	MS	F	p	η^2
Attitude	Between groups	624.12	2	312.06	1.6	0.204	0.01
	Within groups	61842.68	317	195.09			
Awareness	Between groups	8883.6	2	4441.8	12.875	< .001	0.075
	Within groups	109359.6	317	344.98			

Note. η^2 = eta squared. Values of .01, .06 and .14 are conventionally read as small, medium and large.

For attitude, $F(2, 317) = 1.6$, $p = 0.204$, so H_{07} is retained. For awareness, $F(2, 317) = 12.875$, $p < .001$, so H_{08} is rejected, and eta squared of 0.075 shows that stream accounts for about 7.5 per cent of the variance in awareness. Group means and pairwise comparisons appear in Table 10.

Table 10: Stream-wise Means for Awareness and Post Hoc Pairwise Comparisons

Stream	n	M	SD
Arts	136	145.5	18.72
Science	117	155.24	17.84
Commerce	67	142.58	19.51

Note. Pairwise comparisons using the pooled error term showed that science trainees scored significantly higher than arts trainees (mean difference = 9.74, $t = 4.158$, $p < .001$) and than commerce trainees (mean difference = 12.66, $t = 4.448$, $p < .001$). Arts and commerce trainees did not differ significantly (mean difference = 2.92, $t = 1.053$, $p = 0.293$).

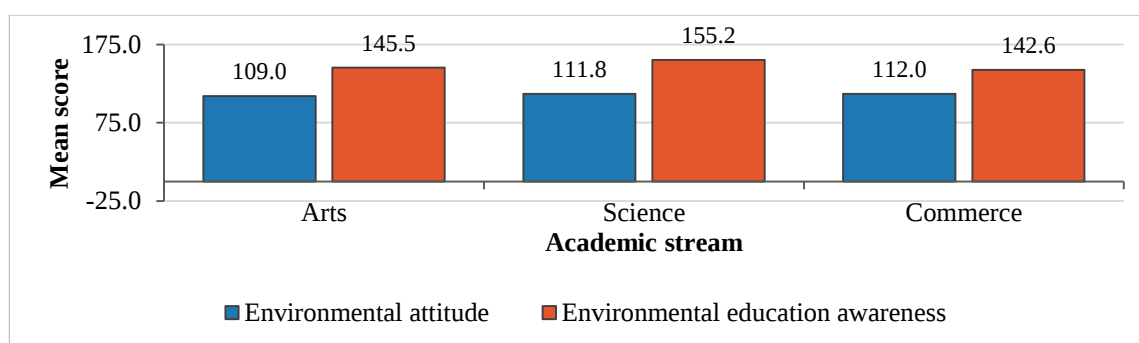


Figure 5: Mean Attitude and Awareness Scores across Academic Streams

7.7 Relationship between Attitude and Awareness

The eighth objective was tested using the Pearson product moment coefficient. Table 11 reports the coefficient for the whole sample and for each sub group.

Table 11: Coefficient of Correlation between Environmental Attitude and Environmental Education Awareness

Group	n	r	p	Remark
Whole sample	320	0.562	< .001	Significant
Male	146	0.523	< .001	Significant
Female	174	0.616	< .001	Significant

Rural	155	0.611	< .001	Significant
Urban	165	0.521	< .001	Significant
Arts	136	0.542	< .001	Significant
Science	117	0.649	< .001	Significant
Commerce	67	0.522	< .001	Significant
First Year	167	0.562	< .001	Significant
Second Year	153	0.593	< .001	Significant

Note. All coefficients are significant at the .01 level. The relationship holds in every sub group, which indicates that it is not an artefact of any one category.

For the whole sample $r = 0.562$ with $N = 320$, so H_0 is rejected: trainees who hold a more favourable attitude also tend to be more aware of environmental education as a field. The coefficient of determination ($r^2 = 0.316$) shows that 31.6 per cent of the variance is shared, leaving 68.4 per cent to other factors, so a favourable attitude by itself does not guarantee informed practice.

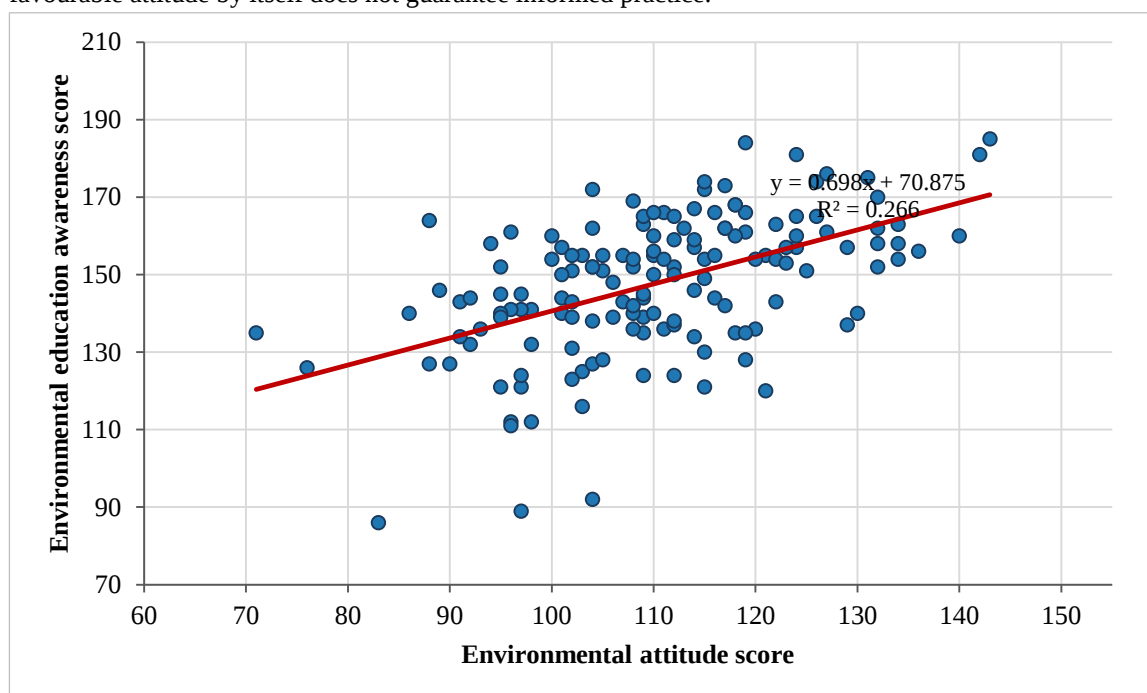


Figure 6: Scatterplot of Environmental Education Awareness against Environmental Attitude

Note. A random sub sample of 150 cases is plotted for legibility; the line is the least squares fit.

Dimension wise coefficients were computed to locate the source of the overall relationship.

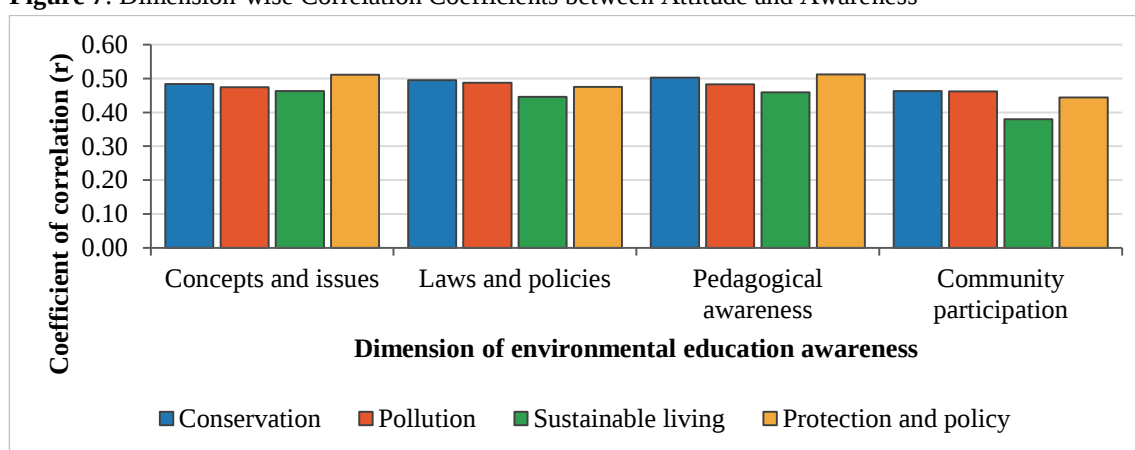
Table 12: Correlations between Dimensions of Attitude and Dimensions of Awareness

Awareness dimension		Conservation	Pollution	Sustainable living	Protection and policy	Total attitude
Environmental and Issues	Concepts	0.484	0.474	0.463	0.511	0.525

Environmental Laws and Policies	0.495	0.488	0.446	0.475	0.518
Pedagogical Awareness of EE	0.503	0.483	0.459	0.512	0.532
Community Participation and Action	0.463	0.462	0.380	0.444	0.478

Note. All coefficients are significant at the .01 level (N = 320). Column headings refer to the four dimensions of the Environmental Attitude Scale.

Figure 7: Dimension-wise Correlation Coefficients between Attitude and Awareness



Note. The conservation dimension of attitude is the strongest correlate of every awareness dimension.

7.8 Prediction of Awareness from Attitude

The ninth objective called for regression analysis, with environmental attitude entered as the predictor and environmental education awareness as the criterion. Table 13 reports the model.

Table 13: Simple Linear Regression Predicting Environmental Education Awareness from Environmental Attitude

Statistic	Value	Statistic	Value
R	0.562	Constant (a)	62.895
R ²	0.316	Slope (b)	0.773
Adjusted R ²	0.314	SE of b	0.064
SE of estimate	15.950	β	0.562
F (1, 318)	146.799	t	12.116
p	< .001	95% CI for b	[0.648, 0.899]

Note. Regression sum of squares = 37345.15, residual sum of squares = 80898.05, total sum of squares = 118243.2.

The model is significant, $F(1, 318) = 146.80$, $p < .001$, so H_{010} is rejected. The regression equation is $Y = 62.895 + 0.773X$, where Y is the predicted awareness score and X the attitude score. A rise of one point on attitude is associated with a rise of 0.773 points on awareness, and the confidence interval for the slope excludes zero. A trainee scoring 120 on attitude would be predicted to score 155.7 on awareness.

7.9 Summary of Hypothesis Testing

Table 14: Summary of Decisions on the Null Hypotheses

Hypothesis	Comparison or relationship	Test value	p	Decision
H01	Attitude by gender	t = 2.862	0.004	Rejected
H02	Awareness by gender	t = 0.13	0.897	Retained
H03	Attitude by locality	t = 0.158	0.875	Retained
H04	Awareness by locality	t = 3.132	0.002	Rejected
H05	Attitude by year	t = 0.811	0.418	Retained
H06	Awareness by year	t = 3.021	0.003	Rejected
H07	Attitude by stream	F = 1.6	0.204	Retained
H08	Awareness by stream	F = 12.875	< .001	Rejected
H09	Attitude and awareness	r = 0.562	< .001	Rejected
H010	Attitude predicts awareness	F = 146.799	< .001	Rejected

Note. Decisions were taken at the .05 level of significance.

8. Discussion

The central finding is the positive association between environmental attitude and environmental education awareness ($r = 0.562$). It agrees with Akaydin and Esme (2024), who found that environmental ethics awareness predicted sustainable environmental attitude among 312 pre service teachers, with Hudha et al. (2024), and with Sharma and Sharma (2021) in the Indian setting, so the link appears more general than local curriculum arrangements.

The shared variance of about a third nevertheless leaves the larger part unexplained. Trainees can care about the environment without knowing how environmental education works, and the dimension wise results locate that gap in the legal and policy components of both scales. Aguilar and Olayta (2024) reported the same disconnection in a different population, while Fytopoulou et al. (2023) found that curricular exposure rather than general goodwill was what separated groups on awareness.

The gender result runs partly against expectation. Female trainees held a more favourable attitude ($t = 2.862$, $p = 0.004$) but were no more aware of environmental education ($p = 0.897$), whereas Akaydin and Esme (2024) reported the mirror image. Locality, stream and year point the same way: urban and science stream trainees scored higher on awareness but not on attitude, and a second year of the programme added 6.42 points of awareness with nothing measurable added to attitude. Awareness responds to information supply, which is unequal between a district headquarters and a village. Sikhosana (2024) and Mudrikah and Pitaloka (2024) both noted that programmes deliver content while leaving disposition to develop on its own.

9. Conclusion

B.Ed. trainees in the sample hold a moderately favourable attitude towards the environment and a moderate level of awareness of environmental education, with about seven in ten in the middle band on both variables. The two constructs are positively and significantly related ($r = 0.562$, $p < .001$), and attitude predicts about 32 per cent of the variance in awareness. Attitude varies with gender and with nothing else measured here, while awareness varies with locality, year of study and academic stream and not with gender. That contrast is the most useful result: the affective side of environmental concern is held widely and evenly, while the informational side follows the opportunities each trainee has had, and opportunity is what a teacher education programme controls.



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