

Interplay of Environmental Experience in the Relationship between Pro-Environmental Behavior and Environmental Attitude

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Abstract: The descriptive study explored the effect of environmental experience on the association between pro-environmental behaviour and environmental attitude of secondary school students. Normative survey method was adopted for the study wherein data were gathered from a stratified random sample of 320 secondary school students in the age range 13-16 by administering standardized instruments viz., Environmental Experience Inventory, the Environmental Attitude Scale, and Pro-environmental Behaviour Scale, all having acceptable validity and reliability. The SPSS analysis exposed significant differences in environmental attitude and pro-environmental behaviour of secondary school students according to the level of their environmental experience. Students having higher levels of environmental experience was found to have greater environmental attitude and higher environmentally responsible behaviour. Significant and positive correlation exists between environmental attitude and pro-environmental behaviour of secondary school students. The relationship between pro-environmental behaviour and environmental attitude become stronger with increasing levels of environmental experience of the students.

Keywords: Pro-environmental behaviour, Environmental attitude, Environmental experience, Secondary school students.

1. INTRODUCTION

Research into people's pro-environmental behavior is a matter of topical interest for environmental education aims as the base for resolving problems of global environmental crisis caused by human activities. Kollmuss & Agyeman (2002) and Jensen (2002) define pro-environmental behavior as conscious actions taken by an individual so as to minimize the negative impact of human activities on the environment or to improve the environment. In recent years there is a growing awareness that human behaviour contributes to environmental problems such as water pollution, decline of biodiversity, and desertification (Jena & Behera, 2017; Abusafieh & Razem, 2017; Vlek & Steg, 2007; IPCC, 2007). It is increasingly recognized that pro-environmental actions are essential for decreasing these problems and to promote sustainable development.

In the past decade, researchers have paid considerable attention to study the pro-environmental behavior of school and university students in a variety of educational settings (Cincera & Krajhanzl, 2013; Dunbar, 2011; Senguptha, 2010; Dono, Webb & Richardson, 2010; De Groot & Steg, 2010). Much research has been done in the field of sociology and psychology on how to influence and change behavior. As the negative impacts of humans on the natural environment become increasingly evident, researchers have begun focusing their studies towards discovering what influences an individual to participate in pro-environmental practices.

There are a number of theoretical frameworks for examining the relationship of attitudes and behaviours (Steg & Vlek, 2009). In the majority of frameworks, cognitions (beliefs) contribute to favourable or unfavourable attitudes, which, along with relevant experiences, shape behaviour. While there is significant controversy in both the theory and practical implications of environmental attitude formation in literature, researchers agree that the learner's cognitive and affective attributes play decisive role in the formation of right attitude towards environment (Milton, Cleveland & Bennett-Gates, 1995). The range of environmentally significant situations or incidents that an individual personally encountered or participated as they occur in the course of time (termed as *environmental experience*) play a vital role in the formation of one's environmental attitude. Cottrell (1999) pointed out that the environmentally sensitive events and episodes that the individual come across in his/her life act as learning situations which may, later on, contribute to moulding his/her attitude towards environment. Though studies on environmental attitude of school children are not sparse in literature, studies on their environmental experience and its influence on the relationship between environmental attitude and pro-environmental behavior seems to be an unexplored area of investigation and hence the investigators have made a modest attempt to take up the present study.

2. OBJECTIVES

The study has the following objectives in view:

1. To find out the differential effect of environmental experience on the environmental attitude of secondary school students.
2. To find out the differential effect of environmental experience on the pro-environmental behavior of secondary school students.
3. To find out the relationship between environmental attitude and pro-environmental behavior of secondary school students of Coimbatore district.

- To compare students with different levels of environmental experience with regard to the relationship between environmental attitude and pro-environmental behavior.

3. HYPOTHESES

The following null hypotheses were tested for the study:

- The environmental experience do not significantly discriminate the secondary school students on the basis of their environmental attitude.
- The environmental experience do not significantly discriminate the secondary school students on the basis of their pro-environmental behaviour.
- There will be no significant relationship between environmental attitude and pro-environmental behavior of secondary school students.
- There will be no significant difference between secondary school students in different levels of environmental experience with regard to the correlation between their environmental attitude and pro-environmental behavior.

4. METHODOLOGY

Normative survey method was adopted for the present study. The study made use of a representative sample of 320 secondary school students selected on the basis of 'stratified random sampling technique' from the secondary schools of Thrissur district (Kerala State, India). The sample consisted of 148 boys and 172 girls, the rural and urban representation being 187 and 133 respectively. The data pertained to environmental experience, environmental attitude and pro-environmental behavior were collected by administering standardized psychometric instruments like Environmental Experience Inventory (EEI) (Arjunan & Abraham, 2002), Environmental Attitude Scale (EAS) (Arjunan & Apsara, 2014), and Pro-environmental Behaviour Scale (PBS) (Arjunan & Abraham, 2003), having acceptable validity and reliability. The tools were administered on the sample in group situation under standardized conditions, their responses were collected in separate response sheets, and the total score on the EEI, EAS, and PBS were found out. The data thus obtained were subjected to analysis using appropriate statistical techniques and interpreted accordingly.

5. RESULTS AND DISCUSSION

Table 1 presents the result of the one way ANOVA performed to find out the significant difference in the environmental attitude (EA) of secondary school students with High-, Average-, and Low levels of Environmental Experience.

Table 1. Comparison of the environmental attitude of students with high-, average-, and low environmental experience (Summary of ANOVA)

EA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27855.853	2	13927.927		
Within Groups	187485.240	317	591.436	23.549	.000
Total	215341.093	319			

The F-value obtained is significant ($F = 23.549$; $p < .001$), showing the presence of true differences among secondary school students having different levels of environmental experience regarding their environmental attitude. Table 2 presents the result of the post hoc test of multiple comparison done to find out the Environmental Experience (EEX) groups which differ significantly with respect to their environmental attitude.

Table 2: Post hoc comparison of the environmental attitude of students with different levels of environmental experience

(I) EEX	(J) EEX	(I-J) Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LOW	Average	8.240*	3.882	.035	.60	15.88
	High	27.642*	4.479	.000	18.83	36.45
AVERAGE	Low	-8.240*	3.882	.035	-15.88	-.60
	High	19.402*	3.316	.000	12.88	25.93
HIGH	Low	-27.642*	4.479	.000	-36.45	-18.83
	Average	-19.402*	3.316	.000	-25.93	-12.88

*. The mean difference is significant at the 0.05 level.

The results of the post hoc test of multiple comparisons between means of environmental attitude in different environmental experience groups show that there exist significant differences among different pairs of groups compared. A closer observation of the mean differences shows that higher the environmental experience, higher will be the attitude towards environment. It clearly shows that environmental experience of secondary school students is a decisive factor in discriminating them on the basis of their environmental attitude. The null hypothesis-1 (the environmental experience do not significantly discriminate the secondary school students on the basis of their environmental attitude) is, hence, rejected. Table 3 presents the result of the one way ANOVA performed to find out the significant difference in the pro-environmental behaviour (PEB) of secondary school students with High-, Average-, and Low levels of Environmental Experience (EEx).

Table 3. Comparison of the pro-environmental behaviour of students with high-, average-, and low environmental experience (Summary of ANOVA)

EA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3468.829	2	1734.414		
Within Groups	19840.593	317	62.589	27.711	.000
Total	23309.422	319			

The F-value estimated is significant ($F = 27.711$; $p < .001$), showing the presence of a true difference among the high-, average-, and low environmental experience groups of secondary school students in their pro-environmental behavior. In order to find out whether the observed difference exist significantly among all the pairs compared, post hoc test was performed and the results are given in Table 4.

Table 4: Post hoc comparison of the pro-environmental behaviour of students with different levels of environmental experience

(I) EEX	(J) EEX	(I-J) Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LOW	Average	3.585*	1.263	.005	1.10	6.07
	High	10.090*	1.457	.000	7.22	12.96
AVERAGE	Low	-3.585*	1.263	.005	-6.07	-1.10
	High	6.505*	1.079	.000	4.38	8.63
HIGH	Low	-10.090*	1.457	.000	-12.96	-7.22
	Average	-6.505*	1.079	.000	-8.63	-4.38

*. The mean difference is significant at the 0.05 level.

The results of the post hoc test of multiple comparisons show that there exist significant differences between all the pairs of environmental experience groups compared. Scrutiny of mean differences makes it clear that the students with higher environmental experiences exhibit higher environmentally responsible behaviour compared to their counterparts at lower levels of environmental experience. The hypothesis formulated in this connection, viz., Hypothesis-2 (the environmental experience do not significantly discriminate the secondary school students on the basis of their pro-environmental behaviour) is, therefore, rejected. The data and results pertained to the calculation of the coefficients of correlation between environmental attitude and pro-environmental behavior for the total sample and groups based on the level of environmental experience (EEx) is presented in Table 5.

Table 5: Coefficients of correlation between of environmental attitude and pro-environmental behavior for the total sample and sub-samples

Groups	N	r	SE _r	r _{POP}	
				.05 level	.01 level
Total Sample	320	.564*	0.038	0.49 – 0.64	0.47 – 0.66
High EEx Group	74	.686*	0.062	0.56 – 0.81	0.53 – 0.85
Average EEx Group	197	.474*	0.055	0.37 – 0.58	0.33 – 0.62
Low EEx Froup	49	.204*	0.137	-0.06 – 0.47	-0.15 – 0.56

* Significant at 0.01 level

The coefficient of correlation (r) between environmental attitude scores and pro-environmental behavior scores for the total sample shows that a significant positive correlation between the variables ($r = 0.564$; $p < .01$). It reveals that the environmentally responsible behaviour of secondary school students is a function of their environmental attitude. The coefficients of correlation estimated for the sub-samples based on the level of environmental experience are also positive and significant. It indicates that for every increase in environmental attitude of secondary school students, there will be a corresponding increase in their eco-friendly behaviour. Therefore the null hypothesis formulated in this context viz., Hypothesis-3 (there will be no significant relationship between environmental attitude and pro-environmental behavior of secondary school students), is rejected.

The coefficients of correlation (r -values) between the pro-environmental behavior and environmental attitude, obtained for the secondary school students with high-, average-, and low levels of environmental experience, were compared to see whether there is a significant difference between the groups with regard to the association between the variables. Table 6 presents the data and result of Fizeher's z-transformation test performed to compare the coefficients of correlation between pro-environmental behaviour and environmental attitude among secondary school students with High-, Average-, and Low levels of Environmental Experience (EEx).

Table 6. Comparison of the coefficients of correlation between pro-environmental behavior scores and environmental attitude in students with high-, average-, and low levels of environmental experience.

Pair No.	Sub-samples	Statistical Indices			CR-Value	Sig.
		N	r	z		
1	High EEx Group	49	.686	0.848	1.983	.05 Level
	Average EEx Group	197	.474	0.510		
2	High EEx Group	49	.686	0.848	3.347	.01 Level
	Low EEx Group	74	.204	0.203		
3	Average EEx Group	197	.474	0.510	2.223	.05 Level
	Low EEx Group	74	.204	0.203		

The critical values obtained for all the group pairs compared are significant, showing that secondary school students with High-, Average-, and Low levels of Environmental Experience differ significantly with regard to the degree of relationship between their pro-environmental behaviour and environmental attitude. A closer observation of the estimated r -values shows that the association between the variables are stronger in higher levels of environmental experience than that in lower levels of environmental experience. It reveals that environmental experience has a decisive role in the relationship between pro-environmental behaviour and environmental attitude of secondary school students.

6. CONCLUSIONS

The study revealed the presence of a significant differential effect of environmental experience on environmental attitude and pro-environmental behavior of secondary school students. Adolescents with high environmental experience have more favorable attitude towards the environment than those with low levels of environmental experiences. A similar effect of environmental experience was found in the case of pro-environmental behavior also. The environmental experience is a significant factor in discriminating secondary school students on the basis of their environmental attitude and pro-environmental behavior. There is significant and positive correlation between pro-environmental behavior and environmental attitude of the secondary school students, indicating that any change in the environmental attitude of the subjects will be attended by a corresponding change in their environmentally responsible behaviour. The environmental experience of the secondary school students was found to have a mediating effect on the relationship between pro-environmental behaviour and environmental attitude. The association between pro-environmental behaviour and environmental attitude become stronger with increasing levels of environmental experience of the students. Enriching the environmental experience of secondary school students will lead not only to more favourable attitude towards environment and more eco-friendly behaviour, but also strengthen the relationship between these eco-psychological factors.

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