ENVIRONMENTAL ATTITUDE OF PRE-SERVICE ELEMENTARY AND SECONDARY SCHOOL TEACHERS

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Abstract: The natural environment has been undergoing large scale degradation due to rapidly increasing urbanisation and industrialisation and some of it is irreversible in nature. It is being felt that environmental education through improving environmental awareness and developing environmental friendly attitude among society could be a possible way out to stop further degradation and improve on the existing conditions. Teachers play a vital role in such large scale initiatives as they train the young students in the class room as well as disseminate knowledge to the society.The purpose of this study is to study and compare the pre-service elementary and secondary school teachers on their attitude towards environment. The main objectives are to study and compare the pre-service elementary and secondary school teachers' attitude towards environment and to study the difference between the male and female Pre-service teachers' attitude towards environment.The sample consists of 200 pre-service elementary and secondary school teachers of Kolkata and South 24-Parganas. "Environmental Pollution Attitude Scale (EPAS)" was used. The total attitude toward environment scores of all individual teachers falling under each category i.e. pre-service elementary and secondary school were subjected to descriptive statistical analysis to find out the mean, median, mode, standard deviation, skewness, using SPSS software.Pre-service elementary and secondary school teachers differ significantly at $p < 0.05$ level in their attitude towards environment. This could be attributed to the fact that the basic qualification is different for elementary and secondary school teacher training course. Elementary and secondary school teacher training programme require 10+2 and bachelor degree

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respectively. Thus, the results indicate that levels of teacher education courses have an influence on their levels of environmental attitude. Therefore, the major recommendations are focused on improving the attitude towards environment, of both categories pre-service elementary as well as secondary school level. To meet this gap, it is mandatory that environmental education must be made as a compulsory subject at D. El. Ed, and B. Ed. level by incorporating environmental science or education as essential subject in the syllabi.

Key words: Environmental attitude, pre-service teachers, elementary and secondary school teachers.

Introduction:

As the environmental problems are growing in number and nature(quantity and quality) and becoming more difficult to manage and control, there is growing need for improvement in the public understanding of our natural environment. There has been sudden increase in the activities for environmental education during the last two decades. This has resulted in the development of different kinds of curriculum out of school activities and literature. The purpose is to regenerate man's interest in preservation, conservation and improvement of the environment before it is too late and reaches the point of no return. Environmental education is a process to promote the awareness and understanding of environment and its relationship with man and his activities. Realising the level of threat our environment has, government of India has introduced the Environmental education as compulsory part in the formal education system of the country. This is also very important to realise that developing environmental literacy is a major challenge for our school system. The effects of these curricular revisions will not be sustained unless they are coupled with appropriate changes in teacher education curricula. In order that teachers impart proper knowledge and share relevant information about our natural environment, its related problems and an attitude to care for environment, it is mandatory and pre-requisite that teachers must be trained with the subject content. The existing information on teachers, particularly primary and secondary school teachers, perception about environmental discipline, environmental awareness and attitude is very scarce. This has, therefore, become the concern to study Environmental Awareness and Environmental attitude of Pre-service elementary and secondary school teachers in the state.

Objectives:

•   To study and compare the pre-service elementary and secondary school teachers' attitude towards environment.

•   To study the difference between the male and female Pre-service teachers' attitude towards environment.

Research Method:

The present research work was designed to get a picture of the attitude toward environment of pre-service elementary and secondary school teachers. Pre-service teachers in this study were those who were perusing teachers' training courses like Diploma in Elementary Education (D. El. Ed) for teaching from class I to class VIII, and Bachelor of Education (B.Ed.) for teaching at secondary or higher secondary level. In this study the descriptive survey method was employed.

In the present study, 200 samples were selected randomly from the teacher education institutions of D. El. Ed and B. Ed courses from Kolkata and South 24-PGRS districts of West Bengal of which 59.5 percent was female and 40.5 percent was male teachers (Table: 1) and 77.5 percent was D. El. Ed and 22.5 percent were B.Ed teachers (Table: 2). The collected data were analyzed with respect to the objectives and corresponding hypotheses through SPSS 22.0. The results are presented below.

Table 1: Frequency and percentage of teachers gender wise

		Frequency	Percent
Valid	Female	119	59.5
	Male	81	40.5
	Total	200	100.0

Table2: Frequency and percentage of teachers teaching courses wise

		Frequency	Percent
Valid	D. El Ed.	155	77.5
	B.Ed.	45	22.5
	Total	200	100.0

Results and analysis:

DESCRIPTIVE STATISTICALANALYSIS OF DATA: Measures of central tendency or averages are used to summarise the data. It specifies a single most representative value to describe the data set.

DESCRIPTIVE STATISTICS

Table 3:Report							
ATTITUDE TOWARDS ENVIRONMENT							
N	Mean	Std. Error of Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
200	105.20	.955	13.502	-.383	.172	-.804	.342

Table 4:Report								
ATTITUDE TOWARDS ENVIRONMENT								
Gender	N	Mean	Std. Error of Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
Female	119	108.97	1.150	12.548	-.842	.222	.036	.440
Male	81	99.65	1.444	12.995	.169	.267	-.707	.529
Total	200	105.20	.955	13.502	-.383	.172	-.804	.342

The table shows that mean of male is 99.65 and mean of female is 108.97.

Table 5:Report								
ATTITUDE TOWARDS ENVIRONMENT								
Teaching Section	N	Mean	Std. Error of Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
D.El Ed.	155	108.34	.997	12.418	-.747	.195	.033	.387
B.Ed.	45	94.40	1.705	11.438	.744	.354	.110	.695
Total	200	105.20	.955	13.502	-.383	.172	-.804	.342

Histogram

Attitude towards Environment

Normal Q-Q plot of attitude toward environment
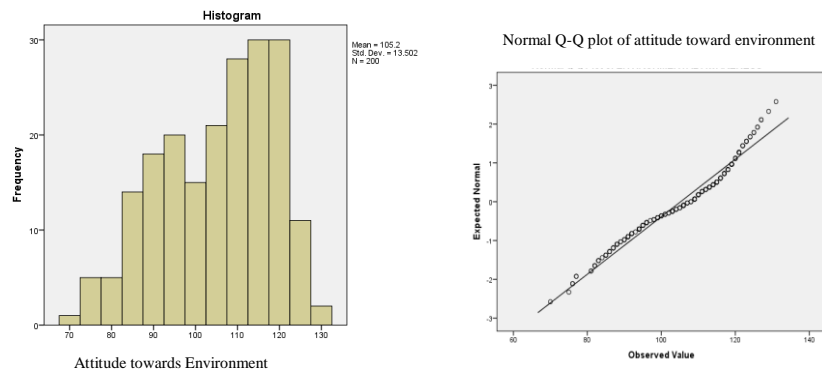
Figure 1: Histogram and q-q plot of the data showing the pattern of distribution.
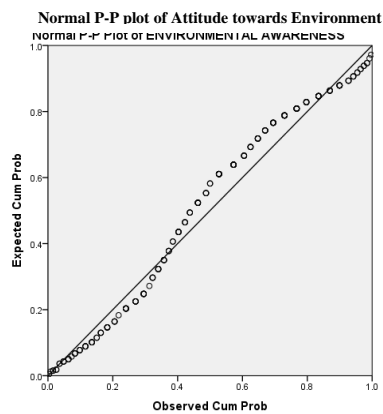

Normal P-P plot of Attitude towards Environment

Figure 2: The p-p plot of the data showing the pattern of distribution.

The above figures histogram (Figure1), the Q-Q plot (Figure 1) and the P-P plot (Figure 2) it is showed that the data is normally distributed.

Hypothesis testing:

H_01: Female pre-service teachers and male pre-service teachers do not differ significantly on their attitude toward environment

Table 6a:- Gender wise-Attitude towards environment

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Attitude towards environment	Female	119	108.97	12.548	1.150
	Male	81	99.65	12.995	1.444

From the **Table 6a** it is observed that, there is a difference in the mean scores of attitude towards environment of female pre-service teachers (M = 108.97, SD = 12.548, N = 119) and male pre-service teachers (M = 99.65, SD = 12.995, N = 81). Whether this difference is statistically significant or not, further independent samples t-test was done. The result is presented in the following table;

Table 6b: Independent Sample 't'- test of Attitude towards environment in respect of gender of pre-service teachers

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Attitude towards environment	Equal variances assumed	.431	.512	5.083	198	.000	9.320	1.834

(#Significant at 0.05 level)

The analysis (**Table 6b**) shows that, in case of Levene's Test for Equality of Variance the *F* value is 0.431and corresponding *p* value is .512 (*p* >0.05) for the variations in respect of gender. Here, for attitude towards environment, the variability is same in gender, thus equal variances can be assumed.

This **Table 6b**also shows in case of comparing the mean score of attitude towards environment female and male pre-service teachers, the calculated *t* **(198)** value is 5.083and *p* is **0.000**(*p* <0 .05). Hence it is significant at 0.05 level. So, **H01**is rejected and it can be said that, the female pre-service teachers are significantly different from male pre-service teachers with respect to their attitude toward environment.

H$_0$2: Pre-service elementary (D. El Ed.) and secondary (B.Ed.) school teachers do not differ significantly on their attitude toward environment

Table 7a: Teaching Section wise Group Statistics					
	Teaching Section	N	Mean	Std. Deviation	Std. Error Mean
Attitude towards environment	D. El Ed.	155	108.34	12.418	.997
	B.Ed.	45	94.40	11.438	1.705

From the **Table 7a** it is observed that, there is a difference in the mean scores of attitude towards environment of D. El. Ed. students (*M* = **108.34**, *SD* = **12.418**, *N* = **155**) and B.Ed. students (*M* = **94.40**, *SD* = **11.438**, *N* = **45**). Whether this difference is statistically significant or not, further independent samples t-test was done. The result is presented in the following table;

Table 7b: Independent Samples 't'- test of Attitude towards environment in respect of teacher education courses of students							
		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Attitude towards environment (D. El. Ed. and B.Ed.)	Equal variances assumed	.680	.410	6.742	198	.000	13.935	2.067

(#Significant at 0.05 level)

The analysis (**Table 7b**) shows that, in case of Levene's Test for Equality of Variance the *F* value is **.680** and corresponding *p* value is **.410**($p > .05$) for the variations in respect of qualification. Here, for Attitude towards environment, the variability is same in teacher education courses, thus equal variances can be assumed.

This **Table 7b** also shows in case of comparing the mean score of Attitude towards environment D. El. Ed. and B.Ed. pre-service teachers, the calculated *t* **(198)** value is **6.742**and *p* is **0.000**($p < 0$ .05). Hence,'t' is significant at 0.05 level. So, **H02**is rejected and it can be said that, the pre-service elementary teachers are significantly different from secondary school teachers with respect to their attitude toward environment.

It was further decided to analyse the scores of the sample considering both the variables together (i.e. gender and teaching sections) thus formed four groups which are Female D. El. Ed., Male D. El. Ed., Female B. Ed., Male B.Ed. teachers. On testing the null hypothesis as against the alternative hypothesis that there exist no significant differences among the groups, one way ANOVA and further post hoc analysis was done and the results are presented below in following tables.

Table 8: Descriptive statistics

ATTITUDE TOWARDS ENVIRONMENT

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Female D.El.Ed.	98	111.82	10.456	1.056	109.72	113.91	70	131
Male D.El.Ed.	21	95.71	13.210	2.883	89.70	101.73	81	126
Female B.Ed.	57	102.35	13.305	1.762	98.82	105.88	75	127
Male B.Ed.	24	93.25	9.777	1.996	89.12	97.38	76	115
Total	200	105.20	13.502	.955	103.32	107.08	70	131

Table 9: One way ANOVA

ATTITUDE TOWARDS ENVIRONMENT

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10069.538	3	3356.513	25.104	.000
Within Groups	26206.462	196	133.706		
Total	36276.000	199			

Table10: Post Hoc analysis for Multiple Comparisons

Dependent Variable:	ATTITUDE TOWARDS ENVIRONMENT			
(I) GENDER*TEACHING SECTION		Mean Difference (I-J)	Std. Error	Sig.
Female D. El. Ed.	Male D. El. Ed.	16.102^*	2.781	.000
	Female B.Ed.	9.465^*	1.926	.000
	Male B.Ed.	18.566^*	2.634	.000
Male D. El. Ed.	Female D. El. Ed.	-16.102^*	2.781	.000
	Female B.Ed.	-6.637^*	2.952	.026
	Male B.Ed.	2.464	3.455	.477
Female B.Ed.	Female D. El. Ed.	-9.465^*	1.926	.000
	Male D. El. Ed.	6.637^*	2.952	.026
	Male B.Ed.	9.101^*	2.814	.001
Male B.Ed.	Female D. El. Ed.	-18.566^*	2.634	.000
	Male D. El. Ed.	-2.464	3.455	.477
	Female B.Ed.	-9.101^*	2.814	.001
*. The mean difference is significant at the 0.05 level.				

The results show that (Table.9) there exist significant differences among the groups of teachers considering gender and teaching section together (as calculated F=25.104 and p=0.000). Further

post hoc analysis show that Female D. El. Ed teachers are significantly different from all other groups in their attitude, Male D. El. Ed teachers are significantly different from Female B.Ed. teachers and Female B.Ed. teachers are significantly different from Male B.Ed. teachers in their attitude towards environment.

Discussion:

The results of the present study on attitude toward environment of two different classes of teachers i.e. pre service elementary teachers and pre-service service secondary school teachers of Kolkata and south 24-PGRS districts of West Bengal, selected and participated in the present study are discussed here. Attitude towards environment is a crucial construct in environmental education psychology [1][2]. Environmental attitude has been defined as a psychological tendency expresses by evaluating the natural environment with some degree of favour or disfavour [1]. The observed closeness between the attitude towards environment scores of pre-service elementary and secondary school teachers and the scores that will mark them in moderately favourable category suggest that they might improve on it during the training programme. Thus, this implies that the imparting environmental education to the trainee teachers of both levels can change their attitude towards environment from neutral to moderately favourable. Teachers play a key role in advancing environmental education efforts and environmental literacy of future generation [4]. A teacher having high environmental awareness but poor/neutral attitude towards environment is least likely to impart good environmental education/skill in the children. Ozden (2008)[3] in his study on attitude towards environment of teachers in Turkey concluded if the student teachers have positive attitude towards environment, their students will have positive attitude towards environment. Unless they have highly favourable environmental attitude towards environment, it is doubtful that they can inculcate the same in children.

Implications of the study

Some of the findings obtained in the present study are partially in accordance with similar studies done earlier and others differ with previous studies. The time gap between the present study and previous studies could be possible reason for such differences in the observations as the nature of exposure by present day teachers is different compared to old ones, and the syllabi of teacher training institute as well as of schools have been modified in last decade. Therefore, it

is required that we may think and devise alternative methods and means towards development of favourable attitude towards environment among teachers, which may ultimately help in creating environmentally aware students and citizens.

Here we felt that environmental education practiced with regard to its take- up in primary and secondary school is inadequate and it does not achieve the outcome communicated in the policy documents. The implications of the study also fall on the syllabi of pre-service teacher training colleges/ institutions.

Reference:

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