BVG Trust

J. Sci. Trans. Environ. Technov. 2012, 5(4) : 174-178

Scientific Transactions in Environment and Technovation

Impact of Environmental Education on Male and Female School Students in Tiruchirappalli, South India.

A. Daisy Caroline Mary[1] and A. Relton[2]

[1] Lecturer, Department of Environmental Sciences, Bishop Heber College, Tiruchirappalli - 620017, Tamil Nadu, India.
[2] Reader and Head, Department of Social Work, Bishop Heber College, Tiruchirappalli - 620017, Tamil Nadu, India.

Abstract

The present day environmental scenario emphasizes that environmental awareness is the need of the hour, to sustain equilibrium between man and his environment and to avert further environmental crisis. The present study is undertaken as a first step towards the preparation of an environmental awareness package. The prerequisite for the development of environmental awareness package is a prior knowledge of the existing awareness level among the target group for whom environmental awareness' creation is envisioned. In this regard the present study attempts to assess the level of environmental awareness among the student community and focuses to find out the impact of environmental education on their levels of environmental awareness, with special reference to their gender. The universe for the present study comprises of the male and female class XI students of selected schools at Tiruchirappalli , South India. The findings of the study reveal that there is no significant difference between the student's gender and their perceived levels of environmental awareness before the environmental education. However there existed a significant difference between the gender of the respondents and their perceived levels of environmental awareness after the environmental education had been imparted, the females perceiving higher levels of environmental awareness than the males. The findings of the study adds credence to the cry of environmentalists that environmental education would make a world of difference in safeguarding the environment and the findings of the present study would in no doubt facilitate the environmental policy planners, education planners and educators to incorporate environmental education as an informal education, thereby enabling the people in their endeavor to have a sustainable livelihood in harmony with their environment.

Keywords: awareness, education, environment, perception, sustainable living

INTRODUCTION

In the recent past, almost all of the conventions, conferences and meetings do not proceed without environment being one of their focal themes. Even trade and other economic affair meets don't fail to include environmental aspect in their agenda. The environmental crisis, which was once considered by many as not related to them and seen as somebody's concern, has started to take its toll, affecting even the day to day life of people, thereby contributing to the awakened spirit of environmental conservation initiatives among the different sections of the society.

The evolution of environment preceded that of man and it would be only wise if human beings realize that they need to keep the elements of environment in place for their own prosperity. Though the common masses do understand environmental problems, their initiatives and knowledge to technically resolve the crisis is still at a very primitive level. They are quite ignorant about their inter relationship with the environment and how their action of manipulating the environment for their selfish motives in turn can be harmful for their own survival in the near future. It is for this reason that understanding the interface between man and his environment assumes significance.

An insight about environment and environmental concerns among the community is needed for enabling them to arrive at solutions to the environmental problems, caused by them, and to avert further crisis. This can only be achieved by sensitizing the public, on understanding the environment, the problems of environment, identifying the problems and finding solutions. The envisioned environmental education would enable the community to understand the impact of environmental degradation and the importance of natural resources, and help them to devise and implement solutions for safeguarding their environment. This realization has sowed the seed for the emergence of the concept of environmental education.

Towards this initiative of implementing environmental education a multitude of workshops, seminars and meetings have been conducted, for instance, a workshop on environmental education was held in Belgrade in 1975 and the first intergovernmental conference on environmental education was held in Tbilisi, former U.S.S.R. in 1977. It recommended that the member states

*Corresponding Author
email: *daisybfly@yahoo.com*

should encourage acceptance of the fact that besides subject oriented environmental education, inter-disciplinary treatment of the basic problems of the inter-relationships between people and their environment is necessary for students in all fields, not only natural and technical sciences but also social sciences and arts, because the relationship between nature, technology and society mark and determine the development of society.

Formal education in environmental science is available in India up to the highest possible level. The need of the hour is the restructuring of environmental studies programme, for a majority of the Indian population still does not have adequate access to formal education. Hence environmental education and awareness can be imparted to different sections of the population by programs that fall beyond the purview of the formal education system.

The best strategy that could yield the optimum result in any sensitization initiative is to target the children and youth as they are more open to learning. Moreover they are going to be the future beneficiaries who will be reaping the fruits for their bid to save the environment.

Many of the previous research findings also support this view. The best approach in any awareness programme is to propagate the awareness through children and youth as they quickly take to new ideas and are the future activists (Dhameja, 2000). The findings of Sanera (1998) show that the students do not receive information which lives up to the promise or intent of environmental education through regular classroom teaching based on curriculum. A research by Hernandez *et al.*, (2001) revealed the knowledge and attitude scores increased significantly from pretest to the post test except for attitudes among third and fourth graders. The Center for Environment Education (2002) reports that non-formal environmental education has paved way from Awareness to Action after an awareness program.

Against the backdrop of the above stated reasons the present study aims at finding the environmental awareness level among the student community. It is within the scope of the present study to provide environmental education to the same group of students for whom their level of environmental awareness was assessed and study the impact of the environment education, with special reference to their gender.

MATERIALS AND METHODS

The present research initiative intends to study the impact of environmental education on various dimensions namely, components of environment, balance among the components, problems and impact of the environment, biodiversity of South India and the overall environmental awareness. The study focuses on the above said dimensions and ensures precision in the measurement of the perceived levels of environmental awareness through a well designed Questionnaire. To facilitate effective non formal environmental education, the audio visual aid, was adopted. The power point presentations, with voice over, highlighted environment under the five components as mentioned above. The data was collected by administering questionnaire before and after the environmental education and were analyzed to enable the researcher to make statistical inferences.

Participants of the Study

The universe of the study comprised of 165 school children (Class XI of Tamil Nadu State Board of Secondary Education) belonging to 8 selected schools who attended National Service Scheme Workshop at Tiruchirappalli, South India. The researchers collected data before and after the environmental education programme from 87 males and 78 females totaling to 165 respondents.

Tools of Data Collection

The researchers used a self prepared questionnaire to data pertaining to their level of environmental awareness. The first part of the questionnaire comprised of socio-demographic characteristics.

The second part of the questionnaire covered questions pertaining to environmental awareness under five dimensions namely:

1. Components of the environment
2. Balance among the components
3. Problems of the environment and impact
4. Solution to the problems
5. Biodiversity of south India.

The student respondents filled up the questionnaire before and after the environment education programme. The collected data was subjected to statistical analysis and the perceived difference between the gender of the respondents and their environmental awareness before and after the environmental programme was elicited using a student's 't' test.

RESULTS AND DISCUSSION

Distribution of the Respondents by their Gender

The Fig. 1 reveals that there is a more or less equal representation of both the genders, in the samples with the males representing a slightly higher number (52.7 %) than the females (47.3 %).

It is evident from the table 1 that there is a significant difference between the respondents' gender with regard to their perceived levels of environmental awareness

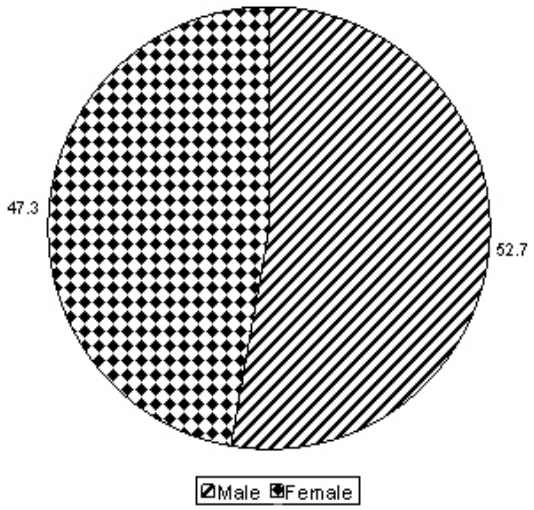

Figure 1. Representation (%) of genders in the sample

Table 1. Difference between the respondents' Gender and their perceived levels of Environmental Awareness before the Environemental Education Programme

S. No.	Various Dimensions	Mean	S.D	Statistical Inference
1	Components of Environment			t =0.497
	Male(n:87)	4.03	1.333	df : 163
	Female(n:78)	3.92	1.544	P > 0.05
2	Balance among the components			Not Significant
	Male(n:87)	5.05	1.380	t =2.091
	Female(n:78)	5.47	1.235	df : 163
3	Problems of the Environment and Impact			P < 0.05
	Male(n:87)	6.32	1.521	Significant
	Female(n:78)	7.03	1.238	t =3.237
4	Solution to the Problems			df : 163
	Male(n:87)	5.76	1.131	P < 0.05
	Female(n:78)	5.76	1.388	Significant
5	Biodiversity of South India			t =0.011
	Male(n:87)	4.02	1.397	df : 163
	Female(n:78)	3.56	1.383	P > 0.05
6	Overall Environmental Awareness scores			Not Significant
	Male(n:87)	25.01	4.569	t =2.116
	Female(n:78)	25.54	4.139	df : 163
				P < 0.05
				Significant
				t =0.773
				df : 163
				P > 0.05
				Not Significant

pertaining to the dimensions of Balance among the components, Problems of the Environment and Impact and biodiversity of south India, before the environmental education programme. Further from the mean scores it is evident that females have e better level of awareness than the males except with regard to biodiversity of south India.

However there is no significant difference between the respondents' gender and their perceived levels of overall environmental awareness and with regard to the sub dimensions namely components of the environment and solution to problems.

Table 2. Difference between the respondents' Gender and their perceived levels of Environmental Awareness after the Environemental Education Programme

S. No.	Various Dimensions	Mean	S.D	Statistical Inference
1	Components of Environment			t =0.447
	Male(n:87)	6.51	1.066	P > 0.05
	Female(n:78)	6.59	1.343	Not Significant
2	Balance among the components			t =5.307
	Male(n:87)	5.56	1.118	P < 0.01
	Female(n:78)	6.50	1.148	Significant
3	Problems of the Environment and Impact			t =3.294
	Male(n:87)	6.90	1.347	P < 0.01
	Female(n:78)	7.49	.879	Significant
4	Solution to the Problems			t =0.42
	Male(n:87)	6.92	1.269	P > 0.05
	Female(n:78)	7.00	1.184	Not Significant
5	Biodiversity of South India			t =0.71
	Male(n:87)	6.29	1.430	P > 0.05
	Female(n:78)	6.12	1.682	Not Significant
6	Overall Environmental Awareness Scores			t =2.17
	Male(n:87)	32.17	3.995	P < 0.05
	Female(n:78)	33.62	4.548	Significant

It is evident from table 2 that there is a significant difference between the respondents' gender with regard to their perceived levels of environmental awareness pertaining to the dimensions namely Balance among the components, Problems of the Environment and Impact after the environmental awareness programme with females having a better level of awareness than the males. Further there is a significant difference between the gender of the respondents with regard to their over all understanding of the environment. However there is no significant difference between the respondents' gender and their perceived levels of environmental awareness pertaining to the dimensions namely components of the environment, solution to the problems, and biodiversity of south Asia.

Table 3. Distribution of the Respondents by their perceived levels of environmental awareness before and after environmental education.

S. No	Various Dimensions	Before Environment Education		After Environment Education	
		Frequency (n:165)	%	Frequency (n:165)	%
1	**Components of Environment**				
	Low score	66	40.0	10	6.06
	High score	99	60.0	155	93.94
2	**Balance among the components**				
	Low score	91	55.2	54	32.73
	High score	74	44.8	111	67.27
3	**Problems of the Environment and Impact**				
	Low score	62	37.6	37	22.42
	High score	103	62.4	128	77.58
4	**Solution to the Problems**				
	Low score	57	34.5	37	22.42
	High score	108	65.5	128	77.58
5	**Biodiversity of South India**				
	Low score	70	42.4	21	12.73
	High score	95	57.6	144	87.27
6	**Overall Scores**				
	Low score	81	49.1	14	8.48
	High score	84	50.9	151	91.52

From table 3 it is evident that a vast majority of the respondents have scored high scores with regard to their level of environmental awareness after the environmental education than before.

Table 4. Difference in mean scores between the respondents' Gender and their perceived levels of environmental awareness before and after environmental education.

S. No.	Various Dimensions	Mean Scores before Environmental education	Mean scores after Environmental education
1	**Components of Environment**		
	Male(n:87)	4.03	6.51
	Female(n:78)	3.92	6.59
2	**Balance among the components**		
	Male(n:87)	5.05	5.56
	Female(n:78)	5.47	6.50
3	**Problems of the Environment and Impact**		
	Male(n:87)	6.32	6.90
	Female(n:78)	7.03	7.49
4	**Solution to the Problems**		
	Male(n:87)	5.76	6.92
	Female(n:78)	5.76	7.00
5	**Biodiversity of South India**		
	Male(n:87)	4.02	6.29
	Female(n:78)	3.56	6.12
6	**Overall Environmental Awareness Scores**		
	Male(n:87)	25.01	32.17
	Female(n:78)	25.54	33.62

The table 4 shows that there is a positive impact of the environmental education among the students pertaining to each dimension and on the overall environmental awareness. It is evident that the informal environmental education provided has had a definite impact on the student community and has enabled them to understand their environment better.

DISCUSSION

The findings of the study revealing a significant increase in the environmental awareness after the environmental education, adds credence to the teaching methodology adopted to impart the environmental education. This is in line with the research findings of Hernandez *et al.*, (2001) who revealed that the knowledge and attitude scores increased significantly from pretest to the post test.

The female students perceive a higher level of environmental awareness than the male students. This further highlights the need to include the females in the environmental protection drive as they are found to be better perceivers of the environmental concerns. A research by Hernandez *et al.*, (2001) revealed that sthe knowledge and attitude scores increased significantly from pretest to the post test. This supports the impact of education.

The research findings of the present study significantly portrays the impact of nonformal environmental education measures, wherein a larger target group, comprising of a wider sections of the community, including those who do not come under the umbrella of formal education, can also be reached.

CONCLUSION

It is evident from the study that informal environmental education serves the purpose of sensitizing the student community on environmental issues, rather than relying only on formal education, that is imparted in the class room setting. Field exposures and experiential learning would definitely have a better impact as well. Further the gender differences in the perception of environment can be tapped to the benefit of environmental conservation initiatives.

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