

ASSESSMENT OF ENVIRONMENTAL AWARENESS
AMONG SECONDARY SCHOOL TEACHERS IN
TIRUNELVELI DISTRICT OF TAMILNADU

C. Murugesan*

Dr. D. Packialakshmi**

Abstract

The study investigated secondary school teachers' environmental awareness in Tirunelveli district of Tamilnadu. Four hundred and fifty teachers were selected through the stratified random sampling technique from various secondary schools of Tirunelveli district of Tamilnadu. Subjects consisted of 351 female and 99 male teachers. They were assessed using the Environment Awareness Ability (EAT) measure. Results indicate that there is no significant difference between government and private school teachers in their level of environmental awareness. Also there are no significant differences between them in environmental awareness across and within two groups with regard to their gender. Also the specialization area (science and arts) is a factor, which can affect teachers' environmental awareness in Tirunelveli district of Tamilnadu.

Keywords:

Environmental awareness;
Secondary school
teachers;
Causes of pollution;
t-test;
Conservation of soil,
Forest, Energy, Human
health, Wild life.

***Research Scholar, Department of Education, Bharathiar University, Coimbatore, India.**

****Research Guide, Department of Education, Bharathiar University, Coimbatore, India**

1. Introduction

We are living in the earth in the solar system which is the only one planet having all sophistication for the living organism and non-living organism. But pupil deployed the natural resources for their own purpose without any limitation. This may lead to degradation of natural resources which may cause acid rain due to air pollution, ozone depletion, deforestation, soil corrosion, drought, sometimes heavy flood. Nowadays in Delhi, most of the vehicles are forbidden due to their air pollution and in the famous Indian River Ganga 55 tons of waste materials were disposed of. Therefore, there is a great need to protect and preserve our environment for our upcoming generation. So everyone should be pledged to save our environmental resources. The primary objective of environmental education is to create awareness among the citizens of a country. In the formal education system teachers play an important role to make every student environmental related issues so that they can get knowledge, attitude, and awareness toward the environment.

Our environment is threatened due to many hazards. Air, water and soil pollution is increasing rapidly day by day. Degradation of environment results in many problems. Environment protection starts by generating awareness among not only to the students but also to the societies so that it grows into part of their lifestyle. The key to achieving this goal lies in environmental education and its allied programmed. The major objective of environmental education is to give awareness; knowledge, skills, and participation of people in protect and preserve the environment [1, 2]. It explains the basic aim of environmental education is to develop world population that is aware of and concerned about the environment, and its associated problems, so that the pupil can get the knowledge, skill, attitudes, awareness, motivation and they will be ready to work individually and collectively towards the solutions of current problems and prevent the environment from the new problem arise” [3] studied awareness of teachers towards environmental education and they find out that the majority of teachers showed a favorable awareness towards environmental awareness.

It is an important thing for each individual as well as the society to develop awareness about environment and preservation towards the environment. The role of teachers will have to go a long way in achieving such desired goals. In order to create awareness towards environment, it is

necessary to know the level of awareness they possess in these areas. The curriculum of environmental education is possible if the teachers should have the courage to introduce it in their own way while teaching different curricular areas at primary, secondary and higher education level with the help of interdisciplinary approach, environment-related activities, seminar, field work and so on.

A number of research works have been undertaken to assess the level of environmental awareness among teachers in several states of the country. Sayed Mohammad Shobeiri [4] conducted a research on secondary school teachers to study their environmental awareness with respect to their residential background, subject specialization and teaching experience in India and Iran. Their level of environmental awareness were measured using the Environmental Awareness Test (EAT) developed in [5]. Results showed that there are significant differences between them in environmental awareness across and within two groups with regard to their subject specialization (science and arts). Also in overall lengths of teaching experience is not a factor, which can affect teacher's environmental awareness. A similar study was done by Sony Kumari [6] under “Assessment of Environmental Awareness and Attitude among the School Teachers in Bareilly City” which focuses on the junior and Senior Secondary teachers’ awareness, attitudes and practice of environmental education of the Bareilly city. The study revealed that teachers possessed positive attitudes towards both environmental issues and environmental education.

In controversy to that Dr. Vipinder Nagra [7] found out there is some significant variations in the environmental education awareness of secondary and elementary school teachers. Significant difference was also noted in the environmental education awareness of urban and rural school teachers with urban teachers scoring higher. This research having a relevancy with Olufemi C. Adejoke’s [8] “Environmental awareness and attitude of teachers and students in relation to some biographical data”, finding was teachers had higher scores with respect to environmental Awareness and Attitude compared with their students and Larijani, M [9] in his work “Assessment of Environment Awareness among Higher Primary School Teachers” concluded that female teacher has more awareness than male teachers of High primary school and Private school teachers are more aware than Government school teachers. Every researcher argues that

these findings are important because it is the teachers who will hopefully pass the proverbial baton to their students, for them to embrace environmental issues.

In this present context, the need for studying the environmental awareness of secondary school teachers is a must because Tirunelveli district of Tamilnadu is familiar for its traditional education system and so the district is known as the southern Oxford of education. In the month of October 2018 government celebrate “mahapuskarā” in order to make awareness among the peoples about the river Thamirabharani and more than 30 lakhs of peoples knows about the values and importance of water. In the nearby Tuticorin district pupil made a strong fight against the company Sterlite for its air pollution measures and now the MNC Company was closed by the Tamil Nadu government. From 1st January 2019 onwards 14 types of plastic products were banned by tamilnadu government to preserve the environment and alternative products were produced by giving proper training to the young folks by senior citizens organization of tirunelveli district. Even though compared with other education systems, only less amount of importance given to the environmental related studies and fewer amounts of research takes place in this area. So, this paper attempts to assess the environmental awareness of secondary school teachers in Tirunelveli District of Tamilnadu.

2. Methodology

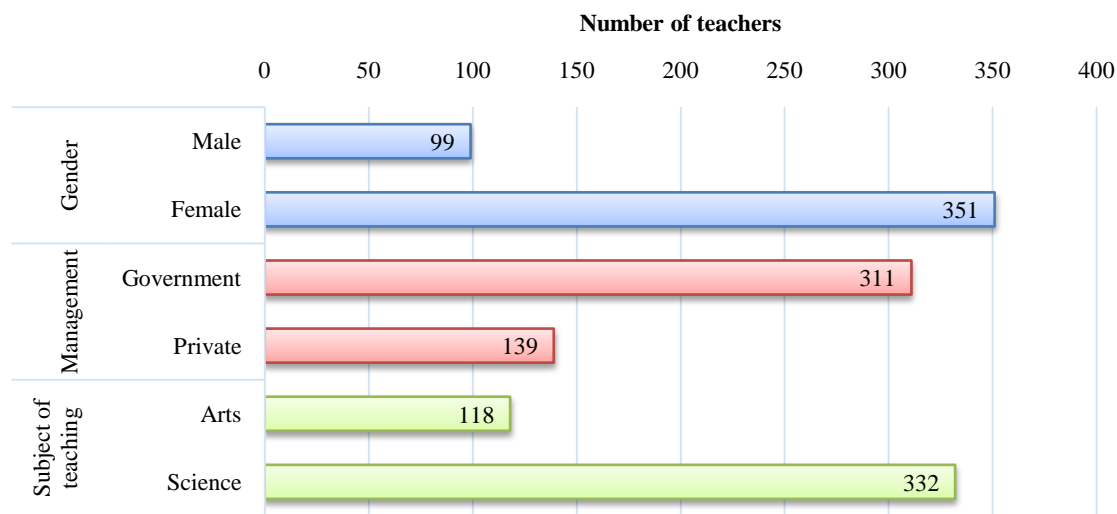
The major objectives of the present study are as follows:

1. To compare the male and female teachers of secondary level with regards to their level of environmental awareness.
2. To compare the teachers of government and private schools with respects to their level of environmental awareness.
3. To see the difference in science and arts teachers of secondary level with respects to their level of environmental awareness.

The tool used in the present study is the Environmental Awareness Test (EAT) developed by ShabinaJinarajan [5]. This tool measures environmental awareness of teachers as consisting of the following five components.

1. Causes of pollution. (14)
2. Conservation of soil, forest, air, etc. (12)
3. Energy conservation. (7)
4. Conservation of human health. (15)
5. Conservation of wild-life and animal husbandry. (2)

Figure 1: Distribution of survey data for teachers



The numbers shown in parenthesis are the number of questions in the corresponding component of the EAT, all summing up to 50 questions in the questionnaire. All the questions are of Yes or No types and carry equal marks. There is no negative mark for any wrong answer. A total of 450 (99 male and 351 female) teachers teaching 9th and 10th standards were randomly selected for the present study. The teachers were selected both from government and private schools. The data distribution of the survey is presented in Figure 1 and Table 1. The environmental awareness test was employed to assess the level of environmental awareness among the teachers of Tirunelveli district of Tamil Nadu state. We personally visited all the selected schools and met the teachers for explaining the purpose of study and instructed them, how to respond to the questionnaire. Also, whenever, they had doubt in understanding questions, we made those questions understandable and clear. Using mean, standard deviation and t-test analysis it was

possible to find out the significance of difference between the teachers with respect to their gender, subject specialization and school type.

Following null hypothesis (H_0) have been formulated in accordance with the objectives under the five dimensions of environmental awareness:

1. There is no significant difference between the male and female secondary school teachers.
2. There is no significant difference between the secondary school teachers of government and private schools.
3. There is no significant difference between the secondary school teachers of science and arts.

Figure 2: Comparison of mean score for different environmental awareness dimensions of teachers in relation to their gender.

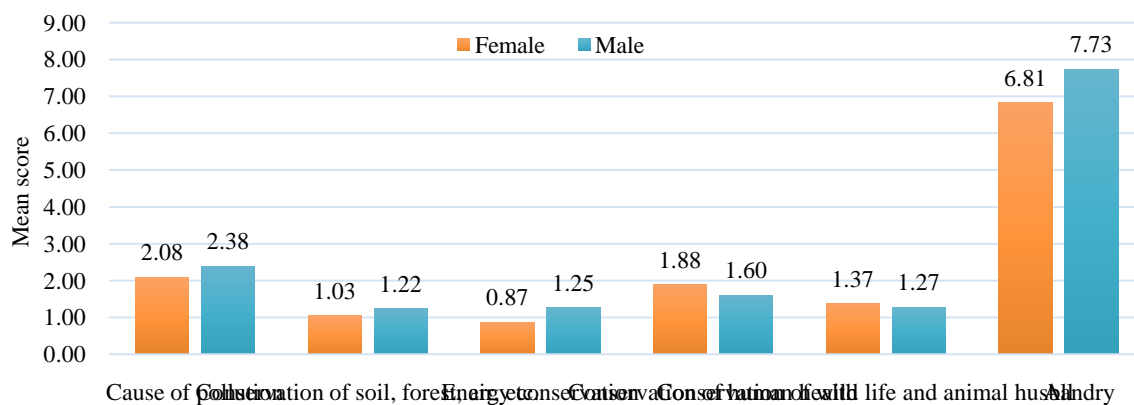


Table 1: Results of t-test for various environmental awareness dimensions of secondary school teachers in relation to their gender.

Dimensions	Gender	Count	Mean	Standard deviation	t-value	p-value	Accept H0
Cause of pollution	Female	351	2.08	1.78	-1.35	0.18	Yes
	Male	99	2.38	2.00			
Conservation of soil, forest, air, etc.	Female	351	1.03	1.39	-1.38	0.17	Yes
	Male	99	1.22	1.14			
Energy conservation	Female	351	0.87	1.09	-2.69	0.01	No
	Male	99	1.25	1.09			
Conservation of human health	Female	351	1.88	1.88	-0.64	0.53	Yes
	Male	99	1.60	1.80			
Conservation of wild life and animal husbandry	Female	351	1.37	0.68	1.34	0.18	Yes
	Male	99	1.27	0.60			
Total	Female	351	6.81	4.35	-1.87	0.051	Yes
	Male	99	7.73	4.28			

**Significant at 0.05 level

3. Results and Analysis

The first objective of the study was to compare secondary level teacher's environmental awareness regarding their gender. Hypothesis of this objective was that there is no significant difference between the male and female teachers regarding to their Environmental awareness. Results are presented in Figure 2 and Table 1. From the table it was observed that male teachers got the mean environmental awareness score of 7.73 and standard deviation 4.28 for (N= 99), and female teachers got the mean environmental awareness score of 6.81 and standard deviation value 4.35 for (N= 351).

When comparing the environmental awareness between male and female teachers using t-test,

we got a t-value of -1.87 and p-value of 0.051. Since the p-value is greater than 0.05 (95% confidence level) we fail to reject the null hypothesis. So there is no significant difference exists between male and female teachers regarding to their Environmental awareness level. This result is in line with the environmental awareness study conducted by Dr. Vipinder Nagra, Sandeep Singh (2013) that there is no significant difference between male and female teachers. Studies conducted by Arcury et al., (1987), Mohai, (1991), Pardhan (2002), Shaila (2003), Lavega (2004) and Dhillon and Sandhu (2005) also concluded similar result.

Figure 3: Comparison of mean score for different environmental awareness dimensions of teachers in relation to type of school.

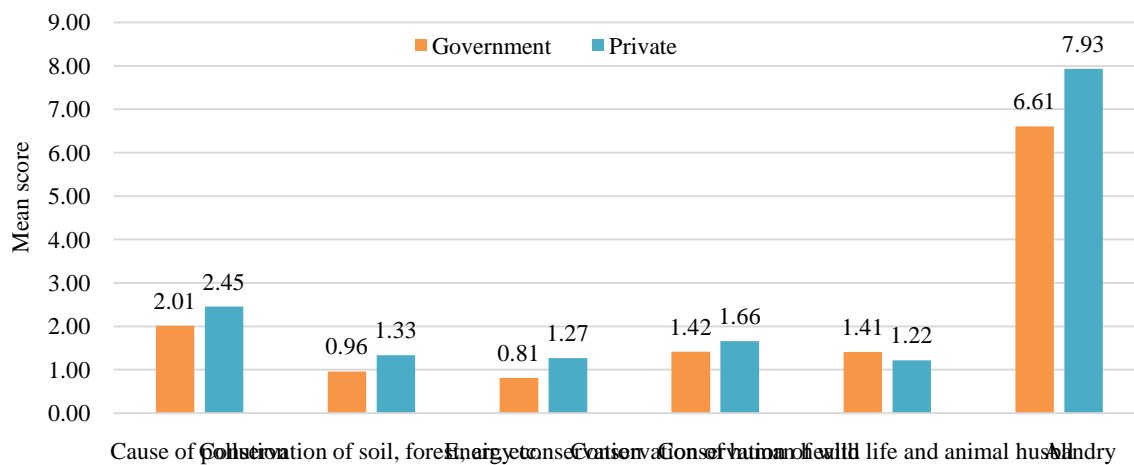


Table 2: Results of t-test for various environmental awareness dimensions of secondary school teachers in relation to type of school.

Dimensions	Type of school	Count	Mean	Standard deviation	t-value	p-value	Accept H0
Cause of pollution	Government	311	2.01	1.72	-2.22	0.03	No
	Private	139	2.45	2.04			

Conservation of soil, forest, air, etc.	Government	311	0.96	1.20	-2.45	0.02	No
	Private	139	1.33	1.59			
Energy conservation	Government	311	0.81	1.07	-3.72	0.00	No
	Private	139	1.27	1.25			
Conservation of human health	Government	311	1.42	1.73	-1.19	0.24	Yes
	Private	139	1.66	2.12			
Conservation of wild life and animal husbandry	Government	311	1.41	0.64	2.72	0.01	No
	Private	139	1.22	0.70			
Total	Government	311	6.61	3.83	-2.68	0.01	No
	Private	139	7.93	5.21			

**Significant at 0.05 level

The second objective of the study was to compare secondary level teachers' environmental awareness regarding their type of school. Hypothesis of this objective was that there is no significant difference between the government and private school teachers regarding to their Environmental awareness. Results are presented in Figure 3 and Table 2. From the table it was observed that government teachers got the mean environmental awareness score of 6.61 and standard deviation of 3.83 for (N= 311) and private school teachers got the mean environmental awareness score of 7.93 and standard deviation of 5.21 for (N= 139).

When comparing the environmental awareness levels between government and private school teachers using t-test, we got a t-value of -2.68 and p-value of 0.01. Since the p-value is less than 0.05 (95% confidence level) we reject the null hypothesis. So there is a significant difference exists between government and private school teachers regarding to their level of environmental awareness. Sine mean score of private school teachers (7.93) are higher than government school teachers (6.61), we can conclude that the environmental awareness level of private school teachers are higher than government school teachers.

Figure 4: Comparison of mean score for different environmental awareness dimensions of teachers in relation to subject of specialization.

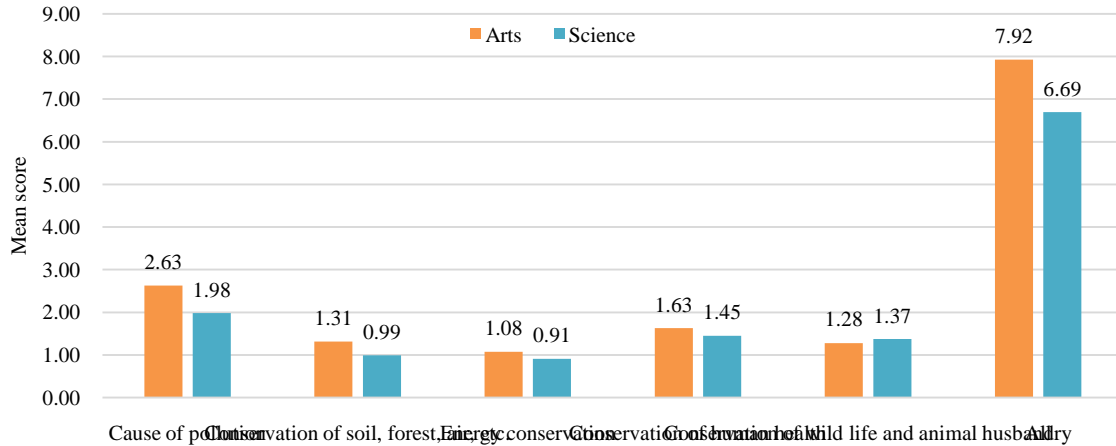


Table 3: Results of t-test for various environmental awareness dimensions of secondary school teachers in relation to subject of specialization.

Dimensions	Subject	Count	Mean	Standard deviation	t-value	p-value	Accept H0
Cause of pollution	Science	332	1.99	1.64	-2.89	0.00	No
	Arts	118	2.63	2.23			
Conservation of soil, forest, air, etc.	Science	332	0.99	1.26	-2.05	0.04	No
	Arts	118	1.31	1.53			
Energy conservation	Science	332	0.91	1.15	-1.38	0.17	Yes
	Arts	118	1.08	1.15			
Conservation of human health	Science	332	1.44	1.79	-0.85	1.97	Yes
	Arts	118	1.63	2.07			
Conservation of wild life and animal husbandry	Science	332	1.37	0.65	1.24	0.21	Yes
	Arts	118	1.28	0.69			
Total	Science	332	6.69	4.02	-2.39	0.02	No
	Arts	118	7.92	5.06			

**Significant at 0.05 level

The third objective of the study was to compare secondary level teachers' environmental awareness regarding their subject of specialization. Hypothesis of this objective was that there is no significant difference between the science and arts teachers regarding to their environmental awareness level. Results are presented in Figure 4 and Table 3. From the table it was observed that science subject handling teachers got the mean environmental awareness score of 6.69 and standard deviation value 4.02 for (N= 332) and arts subject teachers are having environmental awareness mean value of 7.92 and standard deviation value 5.06 for (N= 118).

When comparing the environmental awareness levels between science and arts subject teaching teachers using t-test, we got a t value of -2.39 and p value of 0.02. Since the p-value is less than 0.05 (95% confidence level) we reject the null hypothesis. So there is a significant difference exists between arts and science teachers regarding to their level of environmental awareness. Sine mean score of arts subject teachers (7.92) are higher than science subject teachers (6.69), we can conclude that the environmental awareness level of arts teachers are higher than science teachers. This result matches with other similar studies conducted by Pardhan (2002), Dhillon and Sandhu (2005), and Nagra (2010) that the subject of teaching does have significant effect upon environmental education awareness.

4. Conclusion

Environmental awareness is the stepping stone towards changes in the participation of protecting environment. Hence, we felt a need to study the teachers environmental awareness of secondary education since, the teachers play a vital role in imparting knowledge, values and skills in students, towards environmental protection and conservation. The study revealed that

1. No Significance difference is seen between genders.
2. Significance difference exists between government and private school teachers.
3. Significance difference exists between science and arts subject handling teachers.

Media and personal reading were found to be the most important sources of information for teachers. It was observed that heavy workload, lack of teaching resource materials, lack of training and time constraints are the major obstruction that hindered environmental education. To rectify this,

- Both governments, NGO'S as well public should pay greater attention towards teachers teaching at secondary school levels through formal and informal education.
- The reconstructed syllabus of the tamilnadu government in all the levels drive through the grassroots of environmental education which covered enriches syllabus, programs as well.
- Through Both in-service and pre- service teacher education programs, more effort has to be implemented to encourage secondary teachers for performing and participating in environmental activities and actions.
- Every secondary teacher can acts as a bridge between the government and society to establish the environmental awareness related issues (i.e. Plastic properties banned).
- Once in a year all the secondary school teachers especially science teachers must attend geological related conference.

References

- [1] Soundararajan .M., Environmental Awareness of Higher Secondary School Students. (2013) Indian Streams Res J. 3(8): 3081.
- [2] Kant, S and Sharma, Y.: The Environmental Awareness of Secondary School Students With Reference To Their Intelligence. (2013) BPR Technologia: A J. Sci. Tech. & Management, 2(1), 33-39.
- [3] Saha, B. and Maji, S.: Building the sustainable development through environmental education: (2013)a conceptual study. Review of Res., 2(4): 1-3.
- [4] Sayed Mohammad Shobeiri : Environmental Awareness among Secondary School Teachers in Iran and India. (2017)Journal of Environmental Science and Technology
- [5] ShabinaJinarajan, A.K.. A study of environmental awareness and attitude towards environmental education of student teachers of Bangalore city. M.Phil. Dissertation,Department of Education, Bangalore University, (1999)p.97-118
- [6] Sony kumara: assessment of environmental awareness and attitude among the school teachers in bareilly city (2012)international journal of innovative research & development october, 2012 vol 1 issue 8
- [7] Dr. vipindernagra:environmental education awareness among school teachers in relation to level and residential background” International Journal of Advanced Research in Management and Social Sciences (2015) Vol. 4 | No. 4 | April 2015

- [8] Olufemi C. Adejoke, Students' and Teachers' Awareness of and Attitude towards Environmental Pollution: A Multivariate Analysis Using Biographical Variables J Hum Ecol, (2014)45(2): 167-175
- [9] Larijani, M :Assessment of Environment Awareness among Higher Primary School Teachers, (2010)Journal of Human Ecology, 31(2): 121-124.