A STUDY OF ENVIRONMENTAL AWARENESS AMONG THE SCIENCE TEACHERS AT SECONDARY LEVEL IN GHAZIABAD DISTRICT

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Abstract

The degradation of the environment is the result of unmindful and thoughtless utilization of resources by human beings. Today there is a burning need to create environmental awareness among all human beings so as to conserve, protect and cherish our environmental resources. Thus environmental education is being included in school curriculum right from the very beginning. The present study was conducted to study the environmental awareness among the science teachers teaching in Ghaziabad district of Uttar Pradesh. In this study the investigator conducted the studies on science teachers of various secondary schools of Ghaziabad District and a sample of 100 teachers were taken.

Key words: Environment, Awareness, Science Teacher, Education

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Introduction

Environment is very important in every stage of life. All the living beings are depending upon the environment. All the components required for survival of living organisms are gained through environment. For standardise the quality of human life, man use the environment in different sectors of development activities. Therefore, all the process such as survival, reproduction, growth and development etc. of living organisms are done under the environment.

Environment is a global concept today and this concept is often misunderstood to represent only the physical world around us. But it includes physical, biological, social, cultural and economical factors which constitute the surroundings of man, who is both the creator and moulder of his environment. Today all academicians, intellectuals, scientists, policy makers and governments across the world are very much concerned about the environment and its related issues.

It will be true to quote that Education plays a very important role in this direction and Awareness is essential for actions. Education can make students aware and conscious about environmental problems as they are the future leader of any country. The existence of human depends on our future generation and their approach and activities ultimately affect our environment (Wong, 2003; Talay *et al*., 2004; Budak *et al*., 2005). Therefore if the students have complete knowledge about the environmental problems, they will be able to face and deal with the problems related to the environment. School is the place and the teachers are the makers of our society which develops the concern about environmental protection and conservation in the students. But according to Thapa 2001, the public concern for the environmental issues is drastically increased over last few decades. According to Council of Europe (1976), Environmental education is the process of recognizing values and the clarifying concepts in order to develop the skill and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings.

Need and Importance of the study:

The importance of environmental education (EE) and awareness in societies is recognised globally. Protection of environment is everyone's duty. So environment education is needed and is increasingly being promoted as a tool in managing our environment. Environmental awareness is very important because people need to be aware of what they are doing to the environment around them and around the world. They need to know what affect their actions have on this

planet and how to make it better. Conservation of environment is not taken seriously by people. Taking into consideration this situation, the investigators felt a need to conduct a study to know about the environmental awareness of secondary school science teachers in relation to environmental subjects. So, in this paper investigated the awareness of science teachers as a promoter of environmental subjects in class in Ghaziabad District.

Statement of the Problem

The problem selected for the present study is entitled as "A study of environmental awareness of Science teachers at higher secondary level in Ghaziabad District".

Objectives of the study

1. To study and compare environmental awareness of science teachers in private and government schools.
2. To study and compare environmental awareness and its dimensions of science teachers in private schools in relation to their gender.
3. To study and compare environmental awareness and its dimensions of science teachers in government schools in relation to their gender.

Hypothesis of the study: following hypotheses were formulated in null form:

1. There is no significant difference between science teachers of private and government schools in relation to their environmental awareness.
2. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about forest.
3. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about forest.
4. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about pollution.
5. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about pollution.
6. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about energy conservation.
7. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about energy conservation.

8. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about wild life and animals.
9. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about wild life and animals.
10. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about environmental related problems.
11. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about environmental related problems.
12. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about pollution.
13. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about pollution.
14. There is no significant difference between male and female science teachers of private schools in relation to their environmental awareness about teaching skill of environment education.
15. There is no significant difference between male and female science teachers of government schools in relation to their environmental awareness about teaching skill of environment education.

Operational Definitions

- **Study:** By this the investigator means to investigate the problem started in a detail manner.
- **Assessment of Environmental awareness** By this investigator means the score obtained on the Standardised Tool prepared by Dr. Seema Dhawan for accessing "Environmental awareness".
- **School Teacher** By this investigator means the Science teachers teaching in various schools in Ghaziabad district of Uttar Pradesh.

Methodology

The method used for the study was descriptive survey and the type of sampling followed was Cluster Random sampling technique. Five government and five private secondary schools were taken for carrying out the present investigation.

Population

The science teachers teaching in different private and government schools of Ghaziabad District constitute the target population.

Sample

In the present study, sample consisted of 100 science teachers, 55 from private and 45 from government through cluster sampling method.

Research Tool Employed

For data collection "Environmental Awareness Test for Teacher (EATT)" by Dr. Seema Dhawan (2009) was used to measure the awareness about the environment of science teachers. The test consists of 75 statements with 'Yes' and 'No' options. The Environmental awareness test for teachers is self-administrating questionnaire.

Data Collection

The investigators visited the selected 15 schools personally and administered the Environmental Awareness Test for Teacher (EATT) to a total of 100 school-teachers teaching in various secondary schools of Ghaziabad District of Uttar Pradesh.

Investigators also gave full freedom to the science teachers to ask the meaning of words/sentences which were beyond their understanding. Respondents were given enough time. Partially filled inventories were discarded. Finally investigators could get data from100 respondents.

Statistical Techniques used

The investigator used a well standardized tool for measuring the awareness of science teachers about the environment. Mean, Standard deviation and 't' test were the statistical techniques used for carrying out the analysis and interpretation of the data collected.

Analysis, results and discussion

The collected data was scored, tabulated and analyze in the light of the objectives of the study.

Table 1: Comparison of Environmental Awareness among the Science Teachers in Private and Government Schools

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government (Male & Female)	50	66.2	8.12	3.52	2.56	S*
Private (Male & Female)	50	70.54	3.17			

S – Significant

As the ***calculated t value is greater than the table value*** (2.56) at 5% level of significance at 98 degrees of freedom for environmental awareness among the science teachers in private & government schools, the stated null hypothesis is **rejected.** This indicates that male and female respondents of private and government group have dissimilar awareness about environmental subjects. This is similar to the findings of **Maryam (2010) who** also reported that the science teachers of private school have more environmental awareness when compared to government school science teachers.

Table 2: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Forest

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Private Male Teachers	25	9.4	1.2	0.85	2.01	NS**
Private Female Teachers	25	9.64	0.74			

NS– Not Significant

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about forest among the male and female science teacher in private schools, the stated null hypothesis is **accepted.**

Table 3: Comparison of Male and Female Science Teachers of Government Schools in Relation To Their Environmental Awareness about Forest

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	9.2	0.94	3.03	2.01	S*
Government Female Teachers	25	8.24	1.27			

S – Significant

Table No. 3 reveals that the ***calculated t value is greater than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about forest among the male and female science teachers in government schools, the stated null hypothesis is **rejected.**

Table 4: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Pollution

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Private Male Teachers	25	21.76	1.56	1.87	2.01	NS**
Private Female Teachers	25	20.88	1.77			

***NS– Not Significant*

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about pollution among the male and female science teachers in private schools, the stated null hypothesis is **accepted.**

Table 5: Comparison of Male and Female Science Teachers of Government Schools in Relation to their Environmental Awareness about Pollution

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	20.68	2.49	1.25	2.01	NS**
Government Female Teachers	25	19.84	2.27			

***NS– Not Significant*

Table No. 5 reveals that the as the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about pollution among the male and female science teachers in government schools, the stated null hypothesis is **accepted.**

Table 6: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Energy Conservation

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Private Male Teachers	25	6.68	0.48	2.62	2.01	S*
Private Female Teachers	25	5.84	1.53			

S– Significant

Table No. 6 shows that the ***calculated t value is greater than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about energy conservation among the male and female science teachers in private schools, the stated null hypothesis is **rejected.**

Table 7: Comparison of Male and Female Science Teachers of Government Schools in Relation to their Environmental Awareness about Energy Conservation

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	6.52	0.94	3.35	2.01	S*
Government Female Teachers	25	5.48	1.23			

S –Significant

As the ***calculated t value is greater than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about energy conservation among the male and female science teachers in government schools, the stated null hypothesis is **rejected.**

Table 8: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Wildlife & Animal

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Private Male Teachers	25	4.8	0.44	0.81	2.01	NS**
Private Female Teachers	25	4.64	0.89			

NS– Not Significant

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about wildlife & animal among the male and female science teachers in private schools, the stated null hypothesis is **accepted.**

Table 9: Comparison of Male and Female Science Teachers of Government Schools in Relation to their Environmental Awareness about Wildlife & Animal

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	4.84	0.61	2.43	2.01	S*
Government Female Teachers	25	4.82	1.00			

S –Significant

As the ***calculated t value is greater than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about wildlife & animal among the male and female science teachers in government schools, the stated null hypothesis is **rejected.**

Table 10: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Environment & Related Problems

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Private Male Teachers	25	22.08	1.42	2.69	2.01	S*
Private Female Teachers	25	21.08	1.13			

S –Significant

As the ***calculated t value is greater than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about environment & related problems among the male and female science teachers in private schools, the stated null hypothesis is **rejected.**

Table 11: Comparison of Male and Female Science Teachers of Government Schools in Relation to their Environmental Awareness about Environment & Related Problems

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	19.96	2.57	0.96	2.01	NS**
Government Female Teachers	25	19.28	2.46			

NS– Not Significant

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about environment & related problems among

the male and female science teachers in government schools, the stated null hypothesis is **accepted.**

Table 12: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Population

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Private Male Teachers	25	6.44	1.06	0.96	2.01	NS**
Private Female Teachers	25	6.68	0.68			

NS– Not Significant

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about population among the male and female science teachers in private schools, the stated null hypothesis is **accepted.**

Table 13: Comparison of Male and Female Science Teachers of Government Schools in Relation to their Environmental Awareness about Population

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	6.36	0.94	1.06	2.01	NS**
Government Female Teachers	25	6.04	1.18			

NS– Not Significant

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degree of freedom for environmental awareness about population among the male and female science teachers in government schools, the stated null hypothesis is **accepted.**

Table 14: Comparison of Male and Female Science Teachers of Private Schools in Relation to their Environmental Awareness about Teaching Skills

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result

Private Male Teachers	25	0.92	0.27	0.57	2.01	NS**
Private Female Teachers	25	0.96	0.19			

***NS– Not Significant*

As the ***calculated t value is less than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about teaching skills among the male and female science teachers in private schools, the stated null hypothesis is **accepted.**

Table 15: Comparison of Male and Female Science Teachers of Government Schools in Relation to their Environmental Awareness about Teaching Skills

School Science teachers	Number	Mean	SD	Calculated 't' value	Table 't' value	Result
Government Male Teachers	25	0.72	0.45	2.44	2.01	S*
Government Female Teachers	25	0.96	0.19			

**S–Significant*

As the ***calculated t value is greater than the table value*** (2.01) at 5% level of significance at 48 degrees of freedom for environmental awareness about teaching skills among the male and female science teachers in government schools, the stated null hypothesis is **rejected.**

Finding

On the basis of analysis of data, the following finding may be drawn:

1. Private science teachers of secondary schools are significantly more aware in relation to their environmental awareness in comparison to teachers of government schools.
2. There is no significant difference between private male and female science teacher at secondary schools in relation to their environmental awareness about forest.
3. Government male science teachers are significantly more aware in their environmental awareness about forest in comparison to female teachers,
4. There is no significant difference between private male and female science teacher at secondary schools in relation to their environmental awareness about pollution.
5. There is no significant difference between government male and female science teacher at secondary schools in relation to their environmental awareness about pollution.

6. Private male science teachers of secondary schools are significantly more aware in relation to their environmental awareness about energy conservation in comparison to female teachers.
7. Government male science teachers of secondary schools are significantly more aware in relation to their environmental awareness about energy conservation in comparison to female teachers.
8. There is no significant difference between private male and female science teacher at secondary schools in relation to their environmental awareness about wildlife and animal.
9. Government male science teachers of secondary schools are significantly more aware in relation to their environmental awareness about wildlife and animal in comparison to female teachers.
10. Private male science teachers of secondary schools are significantly more aware in relation to their environmental awareness about environmental and related problems in comparison to female teachers.
11. There is no significant difference between government male and female science teacher at secondary schools in relation to their environmental awareness about environmental and related problems.
12. There is no significant difference between private male and female science teacher at secondary schools in relation to their environmental awareness about population.
13. There is no significant difference between government male and female science teacher at secondary schools in relation to their environmental awareness about population.
14. There is no significant difference between private male and female science teacher at secondary schools in relation to their environmental awareness about teaching skills.
15. Government female science teachers of secondary schools are significantly more aware in relation to their environmental awareness about teaching skills in comparison to male teachers.

Recommendations:

From the light of the findings of the present study, the investigator would like to recommend the following.

- It is very essential to bring environmental education to make awareness of environmental concerns and legislations to the teachers.
- Seminars, workshops, debates, booster programs, interactive programmes, organizing may be conduct about environmental awareness of the teachers
- This study is helpful to give directions in the field of teachers accountability, code of conduct related with environmental awareness to the policy makers.

- Camp activities like cleaning; planting trees, making awareness to urban and illiterate people through teacher will increase aptitude and attitude towards environment.
- World earth day, world population day, world wild life day may be conducted by the teachers in the schools.

Suggestions for further research:

The investigator would like to suggest the following topics for further researchers

- The similar study can be conducted at the college levels
- The same study may be undertaken with other sample, more dimensions and variables
- Studies may be done to find out the attitude of environmental awareness in high school in relation to their achievement in science
- Studies may be done to find out the attitude of environmental awareness in students teacher of B.Ed, B.T.C, N.T.T etc.
- This similar study can be conducted on a large sample.

Conclusion:

On the basis of analysis and interpretation of data, it may be concluded that there is no significant difference in male and female science teachers of private school in some dimensions like forest, pollution, population, teaching skills and wildlife and animals whereas the male science teachers of the same are more aware in relation to the environmental issues like energy conservation and environmental related problems. On the other hand in government secondary schools

References

- Budak D.B., Budak F, Zaimoğlu Z., Kekeç S. and Sucu M.Y (2005) Behavior and Attitudes of Students towards Environmental Issues at Faculty of Agriculture Turkey. *Journal of Applied Sciences*, **5,** 1224-1227.
- Maryam Larijani (2010) Assessment of Environmental Awareness among Higher Primary School Teachers, *J Hum Ecol*, 31(2): 121-124.
- Talay İ, Gündüz S, Akpınar N, (2004) The Determination of Environmental Awareness of University Students. A Case Study: Ankara University, Turkey. *Int. J. of Environment and Pollution*, **21,** 293-308.
- Thapa B ,(2001) Environmental concern: A comparative analysis between students in Recreation and park management and other department., *Environment education research*, 7, 39-53.
- Wong KK, (2003) The Environmental Awareness of University Students in Beijing, China. *Journal of Contemporary China*, **12,** 519-536.