

A STUDY OF THE RELATIONSHIP BETWEEN ENVIRONMENTAL AWARENESS AND SCIENTIFIC ACHIEVEMENT LEVELS OF ADOLESCENT STUDENTS OF M.P. BOARD AND C.B.S.E SCHOOLS OF BHOPAL CITY.

Preeti Jose*
Rama Phani**

Abstract

In this study, the investigators attempted to investigate the environmental awareness in 'secondary students in relation to the type of course, gender, religion, socio-economic status (SES) and academic streams. For this study, the sample consisted of 300 secondary and higher secondary students from the State Board and C.B.S.E schools of Bhopal (M.P.), and all the aforesaid parameters were taken into consideration. The investigators selected Environment Awareness Ability Measure (EAAM), developed by Dr. Praveen Kumar Jha (1), as a tool to study the environmental awareness among the students. The tool comprised of sixty- one items. These specifically highlighted the following five components, to measure the extent of awareness among the students on environment and its protection: (a) cause of pollution; (b) conservation of soil, forest, air etc.; (c) energy conservation; (d) conservation of human health and, (e) conservation of wild life and animal husbandry. The data collected was processed for statistical analyses through student's t-test using SPSS (version:16.0). The study revealed that the students belonging to State board course are more cognizant than students from C.B.S.E course. Moreover, females are found more conscious and worried about the environmental problems. In conclusion, the present study shows that there is an influence of gender, religion, SES and academic stream on the level of students' environmental awareness.

KEYWORDS: *Environmental awareness; Environmental pollution; Environmental Awareness Ability Measure, Higher Secondary School Students, type of school.*

INTRODUCTION

Descending from the Middle French preposition environ "around," environment, in its most basic meaning, is "that which surrounds." When preceded by *the* and unmodified, it usually refers to the natural world ("please don't litter if you care about the environment").

Our environment or biosphere is self-sustained where every creature on the earth has the right to exist. We humans, the Homo sapiens, the crown creature of God on the earth indiscriminately used the limited resources without thinking the ill effects of it and come at the point of time to

*Faculty, Department of Education, Christ College of Education, Barkatullah University, Bhopal-46

wait and ponder on the environmental issues concerned to every life on the earth. Infact environmental awareness implies information and understanding of the environment, its creatures and simultaneously to solve the related environmental problems [(2),(3)]. For bio-sustenance, one should have enough knowledge about its environment. In order to achieve it, environmental education has been an important subject of understanding to identify the values and clarifying concepts in order to develop necessary skills to comprehend inter-relationships among biotic and abiotic factors [(4), (5)]. Based on the recommendations of Ministry of Environment and Forests (MOEF), MHRD, NCERT, UGC and various State Departments of Education, the environmental awareness program has been incorporated as the compulsory subject in the curriculum at undergraduate level to ensure covering of environmental components at various

disciplines. Recently, several educators have also showed varying levels of environmental awareness among secondary and senior secondary school students [(6),(7)].

According to Shukla (8), world educators and environmentalist have repeatedly pointed out that a solution to environmental crisis will require an environmental awareness which should be deeply rooted in the education system at all levels of school education. Today, environmental awareness is very important issue and that's why research and seminars are being held world over. These issues cannot be resolved until and unless we make our students, who are the mature citizens of tomorrow, aware about the environmental issues. In this study, the investigators examined environmental Nikhat & Shafeeq / International Journal of Advancement in Education and Social Science, Vol.2, No.1 12 awareness among undergraduate students in relation to type of course, gender, socio economic status (SES), religion and academic stream.

2. OBJECTIVES OF THE STUDY: The objectives of the present study are as follows:

- (1) To study the relationship between environmental awareness and scientific achievement levels of adolescent students of both M.P. Board and C.B.S.E schools of Bhopal city.
- 2) To study the relationship between environmental awareness and scientific achievement levels of adolescent students (boys and girls) of M.P. Board schools. of Bhopal city.
- (3) To study the relationship between environmental awareness and scientific achievement levels of adolescent students (boys and girls) of C.B.S.E schools of Bhopal city.
- (4) To find out the influence of the type of school on environmental awareness levels of adolescent boys of both M.P. Board and C.B.S.E schools of Bhopal city.
- (5) To find out the influence of the type of school on environmental awareness levels of adolescent girls of both M.P. Board and C.B.S.E schools of Bhopal city.

3. METHODOLOGY: The methodology adopted in the present study is descriptive in nature. This study used quantitative methods to collect the data on awareness of respondents towards environment.

3.1. SAMPLE SIZE: The sample consists of 157 students from both the State and C.B.S.E Board, Bhopal city. The sample was collected from various State, C.B.S.E, Government and Private schools of all streams of Bhopal city.

3.2. VARIABLES USED IN THE STUDY: This study involves three variables:

Independent variable: Environmental Awareness

Dependent variable: Scientific Achievement

Demographic variable: Gender, Occupation of parents, Socio-economic status of parents

3.3. TOOL USED IN THE STUDY: The investigators' aim was to study the attitude of students towards environmental awareness. For this purpose, Environment Awareness Ability Measure (EAAM), a standard tool was selected.

3.3.1. DESCRIPTION OF THE TOOL: The tool used in the present work was the Environment Awareness Ability Measure (EAAM) developed by Praveen Kumar Jha (1), Mandal University, Madhipura. This tool measures the extent and degree of awareness of students about environmental pollution and its protection. The EAAM consisted of five components, viz. (a) Causes of pollution, (b) Conservation of soil, forest, air, etc., (c) Energy conservation, (d) Conservation of human health and, (e) Conservation of wild life and animal husbandry. There are several items in each component constituting in all 51 items on the scale. Each agree item carries the value of 1 mark and each disagree item carries zero mark, but the negative items are scored inversely.

3.3.2. STATISTICAL ANALYSIS OF THE STUDY

Descriptive statistical technique was used to analyze data from the questionnaire. These descriptive statistical techniques described the

entire variable according to tabulation. Independent samples t-test was used as a test of statistical significance. The procedure was applied to compare means of the two independent groups of variables (male and female).

Following statistical tests were used to analyze the collected data and achieve the objectives of study:-

- Mean and standard deviation were computed to know the nature of distribution.
- In order to find out the relationship between environmental awareness and scientific achievement, Karl Pearson’s coefficient of correlation was computed.
- ‘t’ test was computed to find out the significant difference.

t-test and standard deviation helped to compare means of the two independent groups of variables.

4. RESULT AND DISCUSSION:

4.1.1 Hypothesis 4.1.1The first null hypothesis stating “there is no significant relationship between environmental awareness and scientific achievement levels of adolescent students of both M.P. Board and C.B.S.E schools of Bhopal city” is tested and tabulated in Table No.4.1.1

<i>Variables</i>	<i>N</i>	<i>Df</i>	<i>r</i>
<i>Anxiety</i>	157	156	0.1724
<i>Academic Achievement</i>			

Table 4.1.1. Significance of ‘r’ between environmental awareness and scientific achievement levels of adolescent students of both M.P. Board and C.B.S.E schools of Bhopal city.

The value of ‘r’ (0.1724)is found to be significant at 0.01 and 0.05 levels of significance. Hence, null hypothesis is rejected. This shows that, there is

a positive and significant relationship between environmental awareness and scientific achievement levels of adolescent students of M.P. Board and C.B.S.E schools of Bhopal city. It indicates that there is positive relationship between both variables.If scientific achievement is more, environmental awareness is also more.

4.1.2 Hypothesis No.2The second null hypothesis stating that “there is no significant relationship between environmental awareness and scientific achievement levels of adolescent students of M.P Board schools of Bhopal city.” is tested and reported in Table No.4.1.2

<i>Variables</i>	<i>N</i>	<i>MEAN</i>	<i>r</i>
<i>Environmental awareness</i>	94	93	0.5273
<i>Scientific achievement</i>			

Table No.4.1.2 Significance of ‘r’ between environmental awareness and scientific achievement levels of adolescent students of M.P. Board schools of Bhopal city

The value of ‘r’ (0.573) is found to be significant at 0.01 and 0.05 levels of significance. Hence, null hypothesis is rejected, This shows that, there is a positive and significant relationship between environmental awareness and scientific achievement levels of adolescent students of M.P. Board schools of Bhopal city. It indicates that there is positive relationship between both variables. If scientific achievement is more, environmental awareness is also more.

4.1.3 Hypothesis No.3The third null hypothesis stating that “there is no significant relationship between environmental awareness and scientific achievement levels of adolescent students (boys and girls) of C.B.S.E schools of Bhopal city” is reported in Table No. 4.1.3.

<i>Variables</i>	<i>N</i>	<i>MEAN</i>	<i>r</i>
<i>Environmental awareness</i>	63	62	0.4497
<i>Scientific achievement</i>			

Table No. 4.1.3 Significance of 'r' between environmental awareness and scientific achievement levels of adolescent students of C.B.S.E. schools of Bhopal city.

The value of 'r' (0.4497) is found to be significant at 0.01 and 0.05 levels of significance. Hence, null hypothesis is rejected. This shows that, there is a positive and significant relationship between environmental awareness and scientific achievement levels of adolescent students of

<i>GROUPS</i>	<i>N</i>	<i>MEAN</i>	<i>S.D</i>	<i>t</i>
<i>GIRLS</i>	35	43	3.652	0.3918
<i>BOYS</i>	39	42	0.320	

C.B.S.E schools of Bhopal city. It indicates that there is positive relationship between both variables. If scientific achievement is more, environmental awareness is also more.

RESULTS PERTAINING TO DEMOGRAPHIC VARIABLES:-

The demographic variable considered in this study is gender.

Hypothesis No.4:The fourth hypothesis stating that "there is no significant difference between environmental awareness levels of adolescent boys and girls of M.P. Board schools. of Bhopal city" is tested and reported in Table No.4.2.1.

<i>Groups</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>
<i>Girls</i>	55	40	4.025
<i>Boys</i>	39	39.71	4.386

Table 4.2.1 Significance of 't' between environmental awareness levels of adolescent boys and girls of M.P. Board schools. of Bhopal city.

The statistical t-test in this survey between male and female groups shows the mean of 39.71 and 40 with \pm SD 4.025 and \pm SD 4.386 respectively, which indicates no significant difference of mean between two groups in environmental awareness[t=0.07904]. This is indicating that male and female respondents have similar attitudes towards the environment. The t(cal)=0.07904 and t(0.01) and t(0.05)=2.63 and 1.99, which means that t(cal) t(0.01) and t(0.05), therefore hypothesis No. 4 is accepted. It is thus concluded that there is no significant difference between environmental awareness levels of adolescent boys and girls of M.P. Board schools. of Bhopal city.

4.2.2 Hypothesis No.5The fifth hypothesis stating that "there is no significant difference between environmental awareness levels of adolescent boys and girls of C.B.S.E schools. of Bhopal city" is tested and reported in Table No.4.2.2.

Table No.4.2.2 Significance of 't' between environmental awareness levels of adolescent boys and girls of C.B.S.E schools. of Bhopal city.

The statistical t-test in this survey between male and female groups shows the mean of 39 and 35 with S.D values of 0.320 and 3.652 respectively, which indicates no significant difference of mean between two groups in environmental awareness[t=0.3918]. This indicates that male and female respondents have similar attitudes towards the environment. The t(cal)=0.3918 and t(0.01) and t(0.05)=2.65 and 2.00, which means that t(cal) t(0.01) and t(0.05), therefore hypothesis No.5 is accepted. It is thus concluded

that there is no significant difference between environmental awareness levels of adolescent boys and girls of C.B.S.E schools. of Bhopal city.

4.2.3 Hypothesis No.6 stating that" there is no significant difference between environmental awareness levels of adolescent boys of both M.P. Board C.B.S.E schools. of Bhopal city" is being tested and reported in Table and figure

4.2.3.

BOARD	N	MEAN	S.D	t
C.B.S.E	39	42	0.320	0.8828
M.P.	39	39.71	4.025	

Table No.4.2.3Significance of 't' between environmental awareness levels of adolescent boys of M.P Board and C.B.S.E Schools of Bhopal city.

The statistical t-test in this survey between male groups in the two types of schools(M.P Board and C.B.S.E) shows the mean of 42 and 39 with S.D values of 0.320 and 4.025 respectively, which indicates no significant difference of mean between two groups in environmental awareness[t=0.8828]. This indicates that male respondents of both types of schools have similar attitudes towards the environment. The t(cal)=0.8828 and t(0.01) and t(0.05)=2.64 and 1.99, which means that t(cal)<t(0.01) and t(0.05), therefore hypothesis No6 is accepted. It is thus concluded that there is no significant difference between environmental awareness levels of adolescent boys of M.P. Board and C.B.S.E schools. of Bhopal city.

4.2.4 Hypothesis No. 7 stating that " there is no significant difference between environmental awareness levels of adolescent girls of both M.P. Board C.B.S.E schools. of Bhopal city" is being tested and reported in Table 4.2.4.

BOARD	N	MEAN	S.D	t
CBSE	25	42	3.742	0.5221
M.P	55	40	4.386	

Table.4.2.4.Significance of 't' between environmental awareness levels of adolescent girls of M.P Board and C.B.S.E Schools of Bhopal city.

The statistical t-test in this survey between female groups in the two types of schools(M.P Board and C.B.S.E) shows the mean of 40 and 42 with S.D values of 4.386 and 3.742 respectively, which indicates no significant difference of mean between two groups in environmental awareness[t=0.5221]. This indicates that female respondents of both types of schools have similar attitudes towards the environment. The t(cal)=0.5221 and t(0.01) and t(0.05)=2.64 and 1.99, which means that t(cal)<t(0.01) and t(0.05), therefore hypothesis No7 is accepted. It is thus concluded that there is no significant difference between environmental awareness levels of adolescent girls of M.P. Board and C.B.S.E schools. of Bhopal city.

4.2.5 Hypothesis No.8 stating that "there is no significant impact of economic background of parents of adolescent students on their environmental awareness levels" is tested and reported in Table 4.2.5.

INCOME	N	MEAN	S.D	t
LOW	64	39.468	6.4031	0.14
HIGH	93	36.537	13.970	

Table 4.2.5 Significance of impact of economic background of parents of adolescent students on their environmental awareness.

The statistical t-test in this survey for impact of parental income on environmental awareness levels of adolescent students in the two types of schools(M.P Board and C.B.S.E) shows the mean of 64 and 93 with S.D values of 6.4031 and 13.970 respectively, which indicates no significant

difference of mean between two groups in environmental awareness[t=0.14]. This indicates that respondents of both types of schools with different occupational background of parents (employed and self-employed) have similar attitudes towards the environment. The $t(\text{cal})=0.14$ and $t(0.01)$ and $t(0.05)=2.61$ and 1.98 , which means that $t(\text{cal}) < t(0.01)$ and $t(0.05)$, therefore hypothesis No8 is accepted. It is thus concluded that there is no significant difference between environmental awareness levels of adolescents of M.P. Board and C.B.S.E school of Bhopal city whose parental incomes are different.

4.2.6 Hypothesis No.9 stating that, "there is no significant impact of occupational background of parents of adolescent students on their environmental awareness levels" is tested and reported in Table 4.2.6

OCCUPATION	N	MEAN	S.D	t
EMPLOYED	73	38.7260	5.5856	0.6394
SELF-EMPLOYED	84	38.2142	8.5775	

Table 4.2.6 Significance of 't' for impact of occupational background of parents on environmental awareness levels of adolescent students of M.P Board and C.B.S.E Schools of Bhopal city.

The statistical t-test in this survey for impact of parental occupation on environmental awareness levels of adolescent students in the two types of schools (M.P Board and C.B.S.E) shows the mean of 73 and 84 with S.D values of 5.5856 and 8.5775 respectively, which indicates no significant difference of mean between two groups in environmental awareness[t=0.6394]. This indicates that respondents of both types of schools with different occupational background of parents (employed and self-employed) have similar attitudes towards the environment. The $t(\text{cal})=0.6394$ and $t(0.01)$ and $t(0.05)=2.61$ and 1.98 , which means that $t(\text{cal}) < t(0.01)$ and $t(0.05)$, therefore hypothesis No9 is accepted. It is thus concluded that there is no significant difference

between environmental awareness levels of adolescents of M.P. Board and C.B.S.E schools of Bhopal city whose parental occupations are different.

5. CONCLUSIONS: Based on the analyses of the data obtained in the present study, following conclusions are drawn:

there is a significant positive relationship in the level of students' environmental awareness and scientific achievement scores of adolescents of both type of schools. Hence it may be presumed that students with good scientific knowledge also scored better on environmental awareness.

- There is no significant difference in environmental awareness levels of adolescent students (boys and girls) of M.P. Board schools of Bhopal city.
- There is no significant difference in environmental awareness levels of adolescent students (boys and girls) of C.B.S.E schools of Bhopal city.
- There is no significant difference in environmental awareness levels of adolescent boys of both M.P. Board and C.B.S.E schools of Bhopal city.
- There is no significant difference in environmental awareness levels of adolescent girls of both M.P. Board and C.B.S.E schools of Bhopal city.
- There is no significant impact of economic background of parents of adolescent students on their environmental awareness levels.
- There is no significant impact of occupational background of parents of adolescent students on their environmental awareness levels

6. EDUCATIONAL IMPLICATIONS: No doubt, education is a strong means of overall development of personality and quality of behavior and life of individual as well. Education connects the entire world as it may solve the problems faced by human being globally. Generally, it is observed that concern for the environment is gradually decreasing or

diminishing, which otherwise should not. Education is the only powerful instrument which stimulates awareness in human beings towards environment. It enhances the concern of people towards their environment, their immediate surroundings as well as towards the entire world. It is evident from the results that all students have a positive effect on environmental awareness. Thus, including topics related to environment in the curriculum at every level will surely help in developing environmental awareness.

- In this study, it was found that there is a significant positive relationship in the level of students' environmental awareness and scientific achievement scores of adolescents of both type of schools. Hence it may be presumed that students with good scientific knowledge also scored better on environmental awareness.
- Results indicated that in total there is no significant difference between boy and girl students and their level of environmental awareness.
- The present study highlighted that in total there is no influence of type of school management on level of adolescents' environmental awareness.
- The study also concludes that there is no significant impact of economic and occupational background of parents of adolescent students on their environmental awareness levels.

To conclude, this study provides empirical support for the relationship between aspects of environmental awareness and scientific achievement and the finding that this relationship appears to have no differences, depending on whether it is between males or females. Further research is needed to verify the nature of this relationship using other measures of environmental awareness and scientific achievement, and across different programs of study, in order to establish if similar findings hold in other settings and contexts.

7. SUGGESTIONS FOR FURTHER STUDIES:

The present study confined to environmental awareness relation to some select variables like

scientific achievement and some demographic variables and as such the full implication of the study, can be understood only if it is supplemented by other studies which would make its meaning more clear. The research on the following problems would broaden the perspective of the present study.

1. Replication of the present study with more cognitive, affective, social, and environmental variables.

2. Extension of this study to other streams like arts, commerce, mathematics etc..

- Developing and testing a series of instructional strategies and experimental projects for developing skills and achievements in different areas of environment..

- Standardizing a comprehensive battery of tests for measuring the different aspects of environment and related issues.

5. Role of teachers in imparting environmental education and use of various instructional methods and aids to be emphasized.

6. Media to be used more intensively to facilitate the transmission of environmental information and promote more positive environmental attitudes

7. Environmental education should feature a hands-on contact with nature such as hiking, field-trips and stream cleanups.

8. A similar study can be conducted on a larger sample in schools of M.P.

9. To verify these findings interstate and cross cultural studies can be carried out.

8. ACKNOWLEDGEMENT: The authors are thankful to the Principal, Father John Ollukaran, Christ college of Education, for providing necessary facilities. We also acknowledge the cooperation of all the respondents who constituted the sample for the present study.

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