COMPARITIVE STUDY OF ENVIRONMENTAL AWARENESS AMONG THE SENIOR SECONDARY SCHOOL STUDENTS OF SCIENCE AND ARTS STREAM

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ABSTRACT

The present study aims at comparing the environmental awareness amongst the senior secondary students of science and arts stream of U.P. Board. The sample consists of 104 science and 90 arts stream students. Environmental Awareness Assessment Scale (EAAS) prepared by Saud, P.P. (1993) is used for this study. The Findings of the research study indicate a significant variation between the two groups (science and arts). The obtained t-value is 2.12 which is significant at the 0.05 level of significance. The mean value (3.61) of science students is higher than that of arts students (3.5). In a gender-wise comparison no significant difference is found between male and female respondents as the obtained t-value (0.34) is not significant either at 0.05 level of confidence. But when male respondents of science stream are compared with the male respondents of arts stream, significant
difference is observed as the obtained t-value (3.70) is found significant even at 0.05 level of confidence. Contradictory to this, no significant difference was found between female respondents of science and arts, as the obtained t-value (1.79) is not significant either at 0.05 level of confidence.

INTRODUCTION

Over recent decades, global problems relating to degradation of natural resources, and pollution have increased dramatically. Natural resources are depleted by excessive use. Fresh water scarcity on a global scale, deforestation, degradation of coastal and marine areas, melting of glaciers, rising temperature, soil depletion and loss of biodiversity, are some of the problems that have become a major concern. Air and water pollution have reached such levels that have already resulted in serious health problems, as well as negative impact on the environment, and inevitably influencing prospects for long-term economic growth. (Krishnamacharyulu and Reddy, 2005).

There is no one denying the fact that environment has to be protected and conserved so to make future life possible. Indeed, man's needs are increasing and accordingly the environment is also being altered, indeed, nature's capacity is too accommodating and too regenerative yet there is a limit to nature's capacity, especially when pressure of exploding population and technology keep mounting. What is required is the sustenance, conservation and improvement of the changing and fragile environment.

THE CONCEPT OF SUSTAINABLE DEVELOPMENT

The world commission on environment and development (the Brundtland commission) submitted its report entitled ‘Our common future’ in 1987. This report highlighted and
popularised the concept of 'sustainable development'. Sustainable development has been defined on meeting the needs of the present generation without compromising the need of future generations.

The concept of sustainable development is more about environment and less about development; more about stability and less about change; more about restricting one's wants and less about the continuing material development more about the non-exploitative attitude towards environment and less about harnessing it; more about small communities and less about the larger ones. It is not a concept of development with environment, but is environment without growth.

In India, the environmental awareness gained importance since 1970s after the UN sponsored conference on environment in Stockholm (1972). Indian government took many environment friendly activities. Ministry of environment and forest was established and laws were enacted on environment protection in 1986.

THE OBJECTIVE OF INDIA’S NATIONAL ENVIRONMENT POLICY, HERE, ARE WORTH STATING.

- Conserve and develop safe, healthy, productive, and aesthetically satisfying environment.
- Upgrade, develop and manage rural and urban settlement to enhance the quality of life.
- Plan development on sound ecological principles with environmental impact assessment and incorporating appropriate environmental safeguards.
- Promote environmental safety-technologies, recycling of resources and utilization of wastes.
Conserve the biotic diversity in the country by creating nature reserves and sanctuaries for specific habitats such as mountains, rain forests, pastures, deserts, wet lands, lakes, beaches, mangroves, estuaries, lagoons and island.

- Safeguard the environment within the national maritime Exclusive Economic Zone.
- Evolve environmental norms and establish effective mechanism for monitoring surveillance and collection and dissemination of information.
- Preserve science landscapes, as well as historic and cultural monuments and their environs.
- Promote environmental education at all level and create public awareness.
- Encourage research in environmental science and technological and social Investigation to conserve and improve the environment and
- Develop adequate manpower within the country, of ecologists, environmental scientists, planners and managers of the highest quality and recognize their work as an important component of national development.

The growing awareness about environmental protection has resulted in new measures across the world. The late Prime Minister Mrs. Indira Gandhi was the only Head of Government, attending the 1972 Stockholm conference, which was called the “U.N. Conference on Human environment”. The Rio Conference 20 years later was called the “U.N. Conference on Environment and Development”. It was Mrs. Gandhi who first pointed out that poverty was the greatest polluter and unless it was eliminated through national and international efforts it was futile to talk about protecting the planet from environmental disaster. UNDP, the World Bank and other institutions of the U.N. system are now advocating the elimination of poverty as the central task in sustainable development. Indeed environmental and development policies are seen as complementing each other. The conflict between the requirement of long-term environmental interests
and the immediate compulsions of development is certainly to be resolved. But any world order cannot be sustainable if three-fourths of its population continues to live in poverty.

Thus, the importance and need for environmental education can hardly be stressed at present. In order to protect and conserve the environment, enabling people to lead quality life, emphasis has been given to environmental education in both formal and nonformal system of education. We have to create awareness about the environment and an attitude of caring and sharing of natural resources in the minds of those children who are the future citizen of our nation. The importance of sensitising students on environmental issues has led the Supreme Court to deliver a judgment on 18th December 2003 and direct NCERT to prepare a model syllabus for environmental education for different classes, which has been prepared under the title ‘Environmental Education in Schools, June 2004’. From the academic session 2004-2005, environment education has been introduced as a compulsory subject at all levels in the school curriculum.

Apart from this efforts are being made at the national and international level to protect our environment, it is also the responsibility of every citizen to use our environmental resources with care and protect them from degradation.

Thus, attention towards environmental issues is important because the absence of their solutions is more horrible. Unless environmental issues are not solved or not taken care of the coming generations may find earth worth not living. The need of the planet and the needs of the person have become one.
"Let every individual and institution now think and act as a responsible trustee of Earth, seeking choices in ecology, economics and ethics that will provide a sustainable future, eliminate pollution, poverty and violence, awaken the wonder of life and foster peaceful progress in the human adventure."

John McConnell, founder of International Earth Day

REVIEW OF RELATED LITERATURE

Rentas et al. (2007) investigated by integrating environmental education, science, technology and research in a fifth grade science curriculum in two elementary public suburban schools in Carolina, Puerto Rico. Results are presented of these collaborative teams between a graduate fellow and a fifth grade science teacher. The teams developed educational and scientific strategies using a constructivism approach that promoted cooperative learning, students' active participation and the integration of the school community. A month-long lesson on waste management and water resources was developed based on students' research on community environmental perceptions. Students' academic achievement in science was significantly improved by the implemented strategies, seen as a 50% increase in the number of excellent (A) and good (B) grades. Through this work, the students completed scientific research projects of environmental significance for their communities and presented them at the school's science fair and environmental day. The implementation of constructivism strategies along the integration of technology, and hands-on and minds-on activities promoted students' interest in environment and science.
Gadenne et al. (2008) examines how influence from various stakeholders is related to awareness of environmental issues, and how this awareness relates to actions taken within the businesses to reduce the environmental impact of their operations. The results indicate that legislation does result in general environmental awareness, and that organizations are then willing to change their business processes and environmental strategies. However, despite their actions they have little awareness of the benefits that might arise from cost reductions from their environmental-friendly practices. Those influenced by their suppliers act to reduce waste, but do not put into place formal environmental management systems, or use environmental messages to market their goods or services. Nevertheless, it can be argued that they have a real commitment to environmental issues, as evidenced by a willingness to voluntarily contribute to environmental organizations.

Shobeiri et al. (2007) investigated secondary school students' environmental awareness in India and Iran. Nine hundred and ninety-one students were selected through the stratified random sampling technique from 103 secondary schools of Mysore city (India) and Tehran city (Iran). Subjects consisted of 476 boys and 515 girls. They were assessed using the Environment Awareness Ability Measure (EAAM). Results indicate that there are significant differences between Indian and Iranian students in their level of environmental awareness. Also there are significant differences between them in environmental awareness across and within two groups with regard to their gender. Also type of school management (Government and private) is a factor, which can affect student’s environmental awareness in both countries.

Maryam (2010) made an attempt to study the environmental awareness of higher primary school teachers of Mysore City in India. A total of 300 teachers (136 male and 164 female) teaching in 6th and 7th standards were randomly selected for the present study. The
environmental awareness test was employed to assess the level of environmental awareness (EAW) among teachers. Chi-square test and contingency table analysis were employed to find out the significance of difference between the teachers with respect to their gender, age and school type. Results revealed that on the whole, majority of the teachers had moderate levels of environmental awareness. Female teachers had significantly higher levels of environmental awareness as compared to their male counterparts. Age-wise analysis also revealed that teachers with 31-50 years had higher levels of environmental awareness and lastly, teachers working in private schools found to have significantly higher environmental awareness than teachers working in government schools.

Aminuddin et al. (2009) aimed to investigate the philosophy of environmental education in Malaysian school system. The major contribution of this paper would be to help the respective agencies in the government in building up the environmental awareness among people starting from schools. It is part of the National Philosophy of Education to state the importance of this aspect. This paper embarks on the following objectives and expectations: (1) to identify the philosophy of environmental education in Malaysian school system from the perspective of the school management; (2) to determine the characteristics among schools members that are likely to influence the environmental awareness, (3) to determine the effectiveness of school-based environmental awareness programmes in order to enhance self-regulated strategies to school members; (4) to discover school members' attitudes towards the extensive environmental awareness programmes introduced by the respective authorities; and (5) to develop an environmental awareness suggestions. All these approaches will assist us in analyzing how far they impact on ‘the betterment of the personal well-being, family, society and the nation, as stated in the National Philosophy of Education by referring to the importance of having environmental awareness.
OBJECTIVES

1- To find out that whether the students differ in their environmental awareness according to the type of course i.e. arts or science.
2- To find out gender differences if any in students regarding the awareness of environmental issues.

HYPOTHESIS

1- There will be no significant difference between students of arts stream and science stream.
2- There will be no significant difference between males and females regarding their environmental awareness.

SAMPLE

The sample for the present study consisted of 194 higher secondary (XII class) school students of U.P. Board, amongst them 104 were from science stream and 90 were from arts stream. The data was collected from Aligarh city in India from 7 government schools. Students were randomly selected from the pre-selected schools as the sample for the study. Of the 194 students studied, 108 were males (46 from Arts and 62 from Science) and remaining 86 were females (41 from Arts and 45 from Science).
TOOLS EMPLOYED

Environmental Awareness Assessment Scale (EAAS). This scale was developed by Saud, P.P in the year 1993. The purpose of this scale is to measure the level of Environmental Awareness among students. This test consists of 25 statements of which eleven statements were negatively oriented and the remaining fourteen were positively oriented statements. All these statements were to be rated on a five point scale from strongly disagree (SD) to strongly agree (SA). The split half reliability has been found to be 0.75, which assures that the test is free from technical defects and can be used for research purpose.

PROCEDURE

The researcher personally visited all the selected schools in the year 2010, where students were consulted for explaining purpose of the study and were instructed how to respond to Environmental Awareness Assessment Scale. Further clarifications were offered on the questions/doubts raised by them and they were requested to cooperate with the investigator for successful completion of the research.

STATISTICAL TECHNIQUES EMPLOYED

Mean, Standard Deviation and t-test were employed in the present study. T-test was employed to find out the significance of difference between two groups.
Obj.1- Comparison of students environmental awareness according to the type of course they attend i.e. arts or science.

Ho-1- There will be no significant difference between students of Arts and Science stream in their environmental awareness.

To verify this hypothesis ‘t’-test was employed. The mean scores and S.D was found out and t-value was calculated. All these values are given in table-1.

<table>
<thead>
<tr>
<th>Table-1 Comparison of Environmental Awareness between the respondents of arts and science stream.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Course</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Arts</td>
</tr>
<tr>
<td>Science</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
* = significant at .05 level.
N.S = Not Significant.

The t-value in table-1 reveals that students of arts and science stream differ significantly in their environmental awareness. Hence the null hypothesis was rejected. The result of the above table shows that the students of science stream (M=3.61) possess higher environmental awareness than those of Arts stream (M=3.51).

Obj.2- Comparison of student environmental awareness according to gender differences.

Ho.2- There will be no significant difference between males and females regarding their environmental awareness.

To verify this hypothesis ‘t’-test was employed. The mean scores and S.D was found out and t-value was calculated. All these values are given in table-2.
Table 2: Comparison of Environmental Awareness between the male and female respondents.

<table>
<thead>
<tr>
<th>Gender</th>
<th>No. of Students</th>
<th>Mean</th>
<th>S.D</th>
<th>'t'-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>108</td>
<td>3.31</td>
<td>.504</td>
<td>0.34</td>
</tr>
<tr>
<td>Female</td>
<td>86</td>
<td>3.33</td>
<td>.502</td>
<td></td>
</tr>
</tbody>
</table>

** = significant at .01 level.
* = significant at .05 level.
N.S = Not Significant.

The t-value (0.34) in the table 2 reveals that there is no significant difference between males and females regarding their environmental awareness. Thus the null hypothesis is accepted.

Obj.2.1- Comparison of environmental awareness of females of arts stream with females of science stream.

A t-test comparison of environmental awareness of females of arts stream with females of science stream.

Table 3: Comparison of Environmental Awareness between female respondents of arts and science stream.

<table>
<thead>
<tr>
<th>Females</th>
<th>No. of Students</th>
<th>Mean</th>
<th>S.D</th>
<th>'t'-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>41</td>
<td>4.11</td>
<td>.48</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>45</td>
<td>4.25</td>
<td>.40</td>
<td>3.69**</td>
</tr>
</tbody>
</table>

** = significant at .01 level.
* = significant at .05 level.
N.S = Not Significant.
The t-value (3.69) of the table-3 reveals that females of arts and science stream differ significantly in their environmental awareness. Hence the null hypothesis was rejected. The result of the above table shows that the females of science stream (M=4.25) possess higher environmental awareness than those of females of arts stream (M=4.11).

**Obj. 2.2- Comparison of environmental awareness of males of arts stream with males of science stream.**

A t-test comparison of environmental awareness of arts stream males with males of science stream.

**Table-4 Comparison of Environmental Awareness between the male respondents of arts and science stream.**

<table>
<thead>
<tr>
<th>Males</th>
<th>No.of Students</th>
<th>Mean</th>
<th>S.D</th>
<th>‘t’-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>46</td>
<td>4.03</td>
<td>.48</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>62</td>
<td>4.11</td>
<td>.39</td>
<td>1.79\textsuperscript{NS}</td>
</tr>
</tbody>
</table>

\textsuperscript{**} = significant at .01 level.
\textsuperscript{*} = significant at .05 level.
N.S = Not Significant.

The t-value (1.79) in the table-4 reveals that there is no significant difference between males of arts stream and males of science stream regarding their environmental awareness. Thus the null hypothesis is accepted.
CONCLUSION

In the quest to find out the difference in the Environmental Awareness of senior secondary school respondents of U.P. Board (both males and females) of arts and science stream, the investigator has carried out the following conclusions.

- A significant difference was found in the Environmental Awareness of arts and science stream students. Science stream students are found to have more awareness about the environment and its related issues as compared to arts stream students.
- No significant difference was found between male and female respondents with respect to environmental awareness. Both have same or equal level of environmental awareness.
- A significant difference was found in the Environmental Awareness of females of arts and females of science stream. Females of science stream have greater awareness about the environment as compared to females of arts stream.
- No significant difference was found between male respondents of arts stream and science stream with respect to environmental awareness. Both have same or equal level of environmental awareness.

SUGGESTIONS FOR FURTHER RESEARCH

Present study was conducted using a small sample; even then interesting results were obtained which motivated the investigator to recommend some ideas for further researches in the field of environmental awareness.
1- This study is confined only to govt. U.P. Board senior secondary school students; its findings cannot be applied to all the stages of education. Thus there is a need to generalize this study by taking a sample from all level of schooling to corroborate the findings of the study.

2- This study is conducted on a very small sample of the students of secondary schools of U.P. Board. Hence its findings cannot be generalized to all India level because India is a big country. Thus there is need to conduct this study by taking a sample of students studying in other boards i.e. C.B.S.E, I.C.S.E, A.M.U, etc.

3- This study is conducted by taking into account only two factors of students i.e. gender and type of course. There are various other factors which can be undertaken like – religion, marital status, socio-economic status etc. Hence, there is a need of study to be conducted in future by taking other important factors into account, to make the study more significant and more informative.

REFERENCES


**WEBSITES**


- [http://www.springerlink.com/content/f353n31t8ng076t1/](http://www.springerlink.com/content/f353n31t8ng076t1/)


- [http://www.eurojournals.com/ajsr_5_06.pdf](http://www.eurojournals.com/ajsr_5_06.pdf)