Examining environmental education and awareness among girls in higher secondary schools: A case study of Jhansi city, U.P., India

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doi: 10.6088/ijes.6076

ABSTRACT

The present study attempts to study the level of environmental education and awareness among higher secondary students of different colleges of Jhansi city. A questionnaire was distributed to 803 students constituted 295 of IX standard, 205 of X standard, 143 of XI standard and 160 of XII standard. The questionnaire was based on various elements of environment. The data was collected and analyzed statistically by using “One-way ANOVA.” Level of knowledge among different group of students was significant. The students of higher standard had more knowledge as compared to the preceding one. The status of environmental education and awareness was found not satisfactory as the student advances in next class, their age and mental level of understanding also improves and there is an immediate need to start awareness program for students and teachers as well.

Keywords: Awareness, environmental education, higher secondary, standard, students

1. Introduction

Education is a fundamental means to bring any desired change in society. This can be attained only if schools become real centers of learning. Education not only helps in the development of personality of the child but also determine his future (Gayatri, Reddy, and Reddy 2014). Environmental education means the educational process dealing with man's relationship with his natural and man-made surroundings and includes the relations of population, pollution resource allocation and depletion, conservation, transportation, technology, energy, urban and rural planning to total biosphere. Environmental awareness means to help social groups and individuals to acquire an awareness of and sensitivity to the total environment and its allied problems (Kant and Sharma 2013).

People must be aware about global warming, ozone depletion, waterborne diseases and other visible disturbances in environment. Without awareness it is not possible to enjoy a quality life on earth (Nastasi and Clements 1991). World educators and environment specialists have repeatedly pointed out that a solution to environmental crisis will require an environmental awareness and its proper understanding which should be deeply rooted in the education system at all levels of school education (Shobeiri, Omidvar, and Prahallada 2007). The objective of environmental education includes awareness, knowledge, attitudes, skills and participation of people in protecting the environment (Singh, Kumari, and Singh 2014; Soundararajan 2013; Kang and Chawla 2011). Education frequently takes place under the
guidance of others, but may also be autodidactic. Therefore, the school and educational system where formal educational inputs are received by the student, have a major and critical role to play in the environmental educational process of the next generation that has to live into the future (Gopinath 2014). The present study is a small step in this direction to investigate the awareness among different standard of students on various elements of environment. A number of research works have been done in this respect previously (Ghosh 2014; Nagra and Kaur 2014; Khan 2013; Haldar 2012).

2. Material and methods

The study was conducted at seven number of higher secondary girls schools during January 2012 to March 2012. Questionnaire with close-ended questions was used as a tool which was distributed to all the participants as shown in table 1. The questionnaire was both in English and Hindi language as per the desire of the student. The 803 participants constituted of 295 from IX standard, 205 from X standard, 143 from XI standard and 160 from XII standard students. The questionnaire consisted of 30 questions and was designed to extract the information about awareness of environmental education among students of higher secondary level. The questionnaire was based on relative legislations, waterborne diseases, recyclable and non-recyclable waste, global warming, deforestation and air pollution. Approval was taken from institution prior to the commencement of the study. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 20. The statistical techniques are widely used in research to analyze the results as it minimizes the error and maximize the computational efficiency. Many researchers have used these techniques to analyze their results (Yadav et al. 2012; Gupta et al. 2013; Tiwari and Singh 2014; Yadav et al. 2014; Kanchan et al. 2015).

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of College</th>
<th>No. of Participants at Different Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IX</td>
</tr>
<tr>
<td>1.</td>
<td>Lok Manya Tilak Kanya Inter College</td>
<td>40</td>
</tr>
<tr>
<td>2.</td>
<td>Rajendra Prasad Inter College</td>
<td>77</td>
</tr>
<tr>
<td>3.</td>
<td>Pt. Krishna Chand Sharma Inter College</td>
<td>58</td>
</tr>
<tr>
<td>4.</td>
<td>Sanatan Dharma Inter College</td>
<td>9</td>
</tr>
<tr>
<td>5.</td>
<td>Saraswati Balika Vidya Mandir</td>
<td>38</td>
</tr>
<tr>
<td>6.</td>
<td>Suraj Prasad Government Girls Inter College</td>
<td>35</td>
</tr>
<tr>
<td>7.</td>
<td>Pt. Vasudev Tiwari Girls Inter College</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>295</td>
</tr>
</tbody>
</table>

3. Result and discussion

Table 2 shows the knowledge score and percentage obtained by students of different standards on various aspects of environment. Statistical results obtained in table 3 were determined by one-way ANOVA. One-way ANOVA was used to determine the difference of knowledge on various aspects of environment between the different standard of students. The test reveals that the calculated value of F is 3.73 which is more than the table value of 3.10 at 5% level with degree of freedom being 3 and 20 and hence the difference among different class of students is significant not due to chance. This analysis rejects the null hypothesis that
there is no significant difference in knowledge about environment among different standards of students.

In the findings, the overall mean percentage score for environmental education among girls of different standard of different schools of Jhansi was 58.6%. Group wise, the results were found in chronological order. XII standard students scored highest (69.9%) followed by XI standard (64.3%), X standard (54.6%) and IX standard students (52.4%). This may be due to the improvement of mental level with increasing age. This may also be due to the tough education and more syllabus at highest level. The higher level students study deep and more topics in their curriculum as compared to the preceding level of student. IX standard students answered very frequently of basic questions like “Is CO₂ creates suffocation if present in excess amount in the environment.”

According to the category of environmental elements, the students of all groups were very clear about water contaminated diseases. About 90% students of each group correctly answered “Drinking of open water (not covered) can cause diseases” whereas only 25% students gave correct response on “Is cholera waterborne disease.” There was no significant difference in the knowledge of IX, X and XI standard students on air pollution.

The students of all groups had minimum knowledge on legislations. It was ranged from 28.8% to 41.2% and overall only 31.7%. Approximately 50% students were aware on global warming. More positive responses were obtained by XII standard students on air pollution (80.6%) among all categories of environmental elements and group of students.

<table>
<thead>
<tr>
<th>Knowledge on Environmental Education Elements</th>
<th>IX Standard (N=295)</th>
<th>X Standard (N=205)</th>
<th>XI Standard (N=143)</th>
<th>XII Standard (N=160)</th>
<th>Total (N=803)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant legislation</td>
<td>Correct Respondents (%)</td>
<td>28.8</td>
<td>29.7</td>
<td>30.0</td>
<td>41.2</td>
</tr>
<tr>
<td>Waterborne diseases</td>
<td>Correct Respondents (%)</td>
<td>69.4</td>
<td>73.6</td>
<td>74.8</td>
<td>78.1</td>
</tr>
<tr>
<td>Difference between recyclable and non-recyclable solid waste</td>
<td>Correct Respondents (%)</td>
<td>51.1</td>
<td>59.5</td>
<td>86.0</td>
<td>79.3</td>
</tr>
<tr>
<td>Global warming</td>
<td>Correct Respondents (%)</td>
<td>45.7</td>
<td>35.6</td>
<td>51.7</td>
<td>65.6</td>
</tr>
<tr>
<td>Deforestation</td>
<td>Correct Respondents (%)</td>
<td>56.2</td>
<td>65.8</td>
<td>74.1</td>
<td>75.0</td>
</tr>
<tr>
<td>Air Pollutants like NOₓ, SO₂ and CO₂ etc.</td>
<td>Correct Respondents (%)</td>
<td>63.7</td>
<td>63.4</td>
<td>69.2</td>
<td>80.6</td>
</tr>
<tr>
<td>Total Average</td>
<td>Correct Respondents (%)</td>
<td>52.4</td>
<td>54.6</td>
<td>64.3</td>
<td>69.9</td>
</tr>
</tbody>
</table>

One-way ANOVA test rejects null hypothesis and states that there is significant difference between the knowledge of different standards. It may be due to the environmental science
subject is not included in their curriculum. They study it as a part of a science and science teachers are unable to clarify the concepts of environment to the student.

4. Conclusion

The level of knowledge is actually low especially regarding relevant legislations among all the groups. The basic concept is clear as they study it as a part of science curriculum but they don’t have clear idea on technical issues of environment due to the lack of the subject in their curriculum. The null hypothesis was rejected after using ANOVA and states that there is a significant difference in the knowledge of different groups.

4.1 Suggestions

1. Government should make environment education compulsory in every school.
2. Awareness program should come into practice at small town as well as remote places.
3. Advertisement on environment education should be there to catch the concern of people.
4. Books related to environment must be distributed to students as well as concern teachers.
5. Parents are needed to be aware in order to let their child know about environment.
6. Environment awareness should be spread through television, radio and print media.

5. References


