

PRELIMINARY STUDY ON ENVIRONMENTAL AWARENESS OF STUDENTS WITH THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION IN SCHOOLS IN INDIA

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Environmental education (EE) in India is implemented by infusing various environmental concerns through different subject areas in all stages of school education. In addition, there is a separate project-based syllabus compulsory for all students at the higher secondary stage. In spite of these efforts, it was felt that students in general had different notions about what constitutes 'environment'. Correct understanding of term environment is inevitable to achieving the objectives of EE. Besides, EE also envisages students to be familiar with the local environmental problems and provide the necessary skill to address such problems. Hence this study was undertaken as a preliminary research to find out students' basic understanding about the environment, their local environmental problems and their outlook towards such problems. The study revealed some basic issues for example, in their understanding about the term 'environment' and in their inability to connect their school curriculum and the environment outside their classroom.

Introduction

Environmental Education (EE) is a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively towards solutions of current problems and the prevention of new ones (UNESCO, 1976). It is a life-long process; interdisciplinary and holistic in nature and application; an approach to education as a whole, rather than a subject; and about the interrelationship and interconnectedness

between human and natural systems (UNESCO, 1978).

The first guiding principle of the Tbilisi Declaration (which still remains the guiding document for initiating actions in the area of EE, even today) says that Environmental education should consider the environment in its totality — natural and built, technological and social (economic, political, technological, cultural, historical, moral, aesthetic).

To sum up, EE is aimed at bringing about awareness, knowledge, attitudes, motivations, commitments, skills leading to new patterns of

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behaviour for solutions of current environmental problems and the prevention of new ones by considering the environment in totality.

EE is implemented in India for Classes I and II by infusing environmental concerns through the teaching of Languages and Mathematics, as Environmental Studies from Classes III to V, as infusion approach from Classes VI to X and at the Higher Secondary stage by adopting infusion approach as well as a project-based syllabus compulsory for all students irrespective of their stream (Position Paper of the Focus Group on Habitat and Learning, National Curriculum Framework 2005).

Proper understanding of the notion of human environment is essential for the attainment of the objectives of environmental education (EE), i.e. a better comprehension of environmental complexity and more efficient individual and collective action in coping with environmental problems (UNESCO-UNEP, 1986). This study was undertaken as a preliminary research to find out students' basic understanding about the environment with the implementation of EE in schools throughout the country.

For the study, some components of the above-mentioned elements of EE were considered such as students' understanding about the term environment itself and their awareness and understanding about local environmental concerns. To this end, a set of questions about the environment were prepared for students so as to obtain impromptu response which would reflect their understandings about environment and its related problems with honesty and sincerity.

METHODOLOGY

Data was collected through structured interview from students who represented their states/

UTs at the Jawaharlal Nehru National Science, Mathematics and Environment Exhibition for Children held in Gangtok, Sikkim in November 2013. Data also include information collected randomly from students who visited the exhibition.

Results and Discussions

A total of 68 students who had come from as many as 23 States and Union Territories of India were interviewed for the study (Annexure I). Most of the students were in their high school and higher secondary school. The results of the study are provided below.

I. Students' understanding of the environment

As mentioned earlier, the environment needs to be understood in totality. EE includes a human component in the exploration of environmental problems and solutions which implies that the environment includes not only plants and animals but also buildings, highways, and ocean tankers (Disinger & Monroe, 1994; Stapp et al., 1969). Some would call these human created environments as 'technological environments' (UNESCO-UNEP, 1986). In order to find out how much students have an understanding of the environment, students were asked to name any five components of the environment. The study revealed that barring one student (98.5%) all included the biophysical environment as they have studied in Science or Ecology chapters such as biotic and abiotic factors. However it was surprising that only 14.7% students mentioned buildings, houses, devices, etc., in their list,

which were otherwise thought to be very obvious examples. More surprising was the fact that only 33.8% mentioned people or human beings as a component of the environment (Fig.1). Another interesting observation of the study was that though students are very familiar with the term 'environment', many of them (35.3%) find it difficult to name just five components (Fig. 2). This indicates that the effectiveness of inclusion of chapters on environment related concerns is still doubtful. Similar observations were made with regard to chapters on conservation (Disinger, 1983).

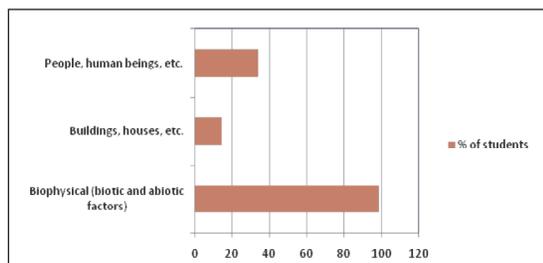


Fig. 1. General conception/idea of students about the environment

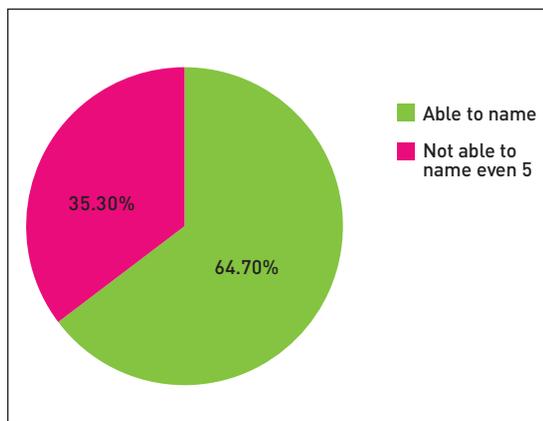


Fig. 2. Whether students were able to name any five components of the environment with ease

II. Students' understanding of environmental problems

Understanding of human habitat has to be locale specific, in the context of a global vision (Focus group paper on Habitat and Learning, 2006). And the first guiding principle of the National Curriculum Framework 2005 is 'connecting knowledge to life outside the school'. Keeping these in view, an attempt was made to find out how far students connect to their local environmental problems. For this, they were asked to name two environmental problems facing them. It was found that 23 students (33.8%) mentioned global warming or ozone layer depletion while 52 students (76.5%) mentioned problems related to pollution. While 25 students (36.8%) mentioned problems related to resources, it was interesting to find that nine (13.2%) students mentioned population related problems (Fig. 3). Though more than half of the students mentioned pollution-related problems, the number is quite lower than the expected as this problem is invariably faced by every student in their daily lives. The fact that a good number of students mentioned ozone layer depletion reveals a sort of disconnect with their daily life and more of a bookish knowledge. Students being aware about population-related problem are quite encouraging since it reveals that students are able to connect between biophysical environment and social environment.

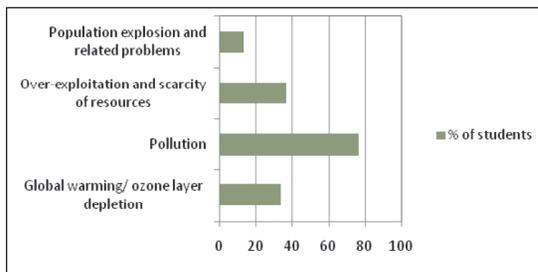


Fig. 3. Two most common environmental problems mentioned by students

An attempt was also made to find out if the students knew the reasons for the environmental problems they had mentioned. It was found that almost 80% of them knew the reasons while there were a few students who were not sure of the reasons or who did not respond (Fig.4).

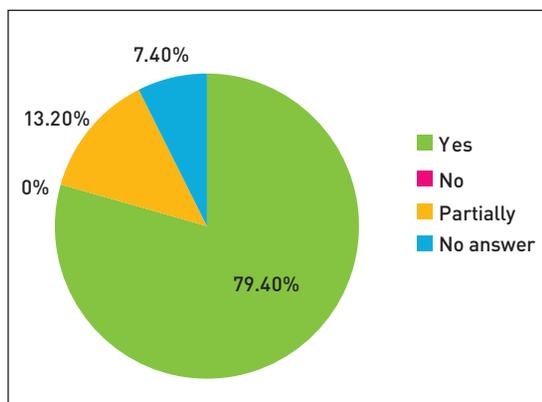


Fig. 4. Whether students actually know the cause of the problems they talked about.

III. Students' knowledge of impact of human activities on the environment

In order to find out students' knowledge of the impact of human activities on the environment, the reasons cited by students for environmental problems were analysed. It was found that 48 students (70.6%) mentioned industrialization and related problems, 32 students (47.1%) and 14 students (20.6%) mentioned improper disposal of waste as the reasons for environmental problems (Fig. 5).

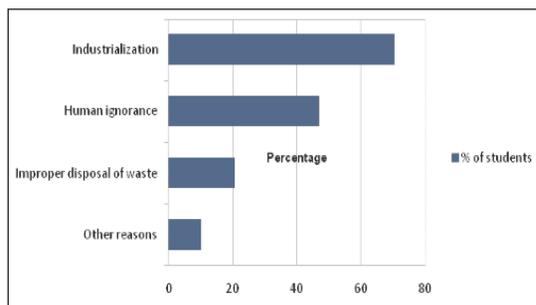


Fig. 5. Human activities mentioned by students to be the cause of environmental problems

Solutions to solve environmental problems

Knowledge of action strategies is a critical component for an individual to act on a particular environmental problem (Hungerford and Volk, 1990). An attempt was therefore made through this study to find out the solutions that students think which could solve environmental problems. It was found that 61 students (89.7%) mentioned education and awareness to be a good way to solve environmental problems. While 35 students (51.5%) mentioned judicious use of resources, 12 students (17.6%) mentioned various other solutions, such as use of solar rickshaw, biodiesel, reuse plastics, etc., and seven students (10.3%) mentioned enactment of laws would solve environmental problems (Fig. 6).

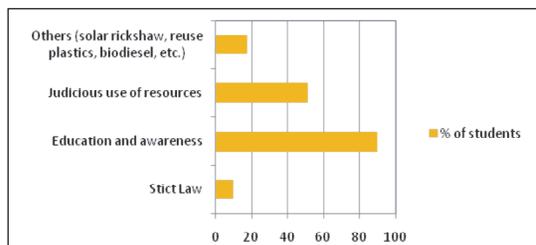


Fig. 6. Solutions for environmental problems suggested by students

Students in general did not mention the action strategies which they could actually take up. This could be due to their lack of awareness about the action strategies or it could be because they were not asked specifically about the actions that they could take up. Whatever the reason, it suggests that students do not consider themselves to be effective advocates to curb environmental problems.

Conclusion

The study can be concluded with the following observations:

1. Though students are familiar with the 'biotic' (plants and animals) and 'abiotic' (soil, water, air, light, temperature) components as they have been taught in different textbooks, students seem not to be very clear with the term 'environment' in totality. This is evident from the fact that houses, buildings, flyovers, vehicles, furniture or human beings did not figure in the response of many students. Unless students are able to consider the environment in its totality – natural and built, technological and social (economic, political, cultural-historical, moral, aesthetic), they will not be able to deal with environmental problems effectively.
2. Lack of understanding of the term environment is also evident from the fact that a good number of students found it difficult to name even five components of the environment.
3. Many students are not able to relate with the immediate environmental problems that they face in their daily lives, which becomes apparent from their bookish answers about the environmental problems, such as ozone layer depletion. As a result, they will not be able to contribute in solving their local environmental problems. It is essential to understand our habitat (immediate environment) so as to be able to take good care of it.
4. Students seem to lack adequate knowledge as to how they themselves can be active participants in solving environmental problems.
5. The study indicates that serious efforts need to be made in the teaching-learning of environment and its related concerns so as to bridge the gap between school curriculum and the environment outside classroom. This will serve as the first step in our efforts to achieve the goals of EE.

Annexure I

S.No.	State	No. of Students
1.	Andaman & Nicobar Islands	1
2.	Andhra Pradesh	3
3.	Bihar	2
4.	Dadra and Nagar Haveli	3

5.	Daman and Diu	1
6.	Delhi	2
7.	Goa	1
8.	Gujarat	4
9.	Haryana	1
10.	Himachal Pradesh	1
11.	Karnataka	3
12.	Kerala	2
13.	Maharashtra	6
14.	Manipur	2
15.	Meghalaya	1
16.	Odisha	3
17.	Punjab	4
18.	Rajasthan	4
19.	Sikkim	17
20.	Tamil Nadu	2
21.	Uttarakhand	3
22.	Uttar Pradesh	1
23.	West Bengal	1
Total		68

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