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A Comperative Study of Environmental Awareness among Secondary School Students in Iran and India

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ABSTRACT: The study 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.

Key words: Environmental awareness, Causes of pollution, Conservation of soil, Forest, Energy , Human health, Wild life

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INTRODUCTION

It is our foremost duty to conserve our environmental resources. The ultimate goal of environmental education whether it is formal or non-formal is to create awareness among the citizens of a country. This can be understood by the quotation mentioned in the Belgrade Charter, which was issued in the environmental education workshop held at Belgrade, Yugoslavia in 1975 (Tanner,1980). It emphasizes the basic aim of environmental education as, "To develop a world population that is aware of and concerned about the environment, its associated problems, so that the population will have the knowledge, skill, attitudes, motivation and commitment to work individually and collectively towards the solutions of current problems and prevention of new ones" (UNESCO-UNEP IEEP Environmental Education Series 6, 1990).

Global concern regarding the steadily deteriorating state of the environment has emphasized the need for environmental education. Obviously a powerful vehicle bringing about change, a Panacea of all evils and a potent weapon for prevention plays a central role in the society. The need of the hour is to make people sensitive towards nature through a strong programme of environmental education (Nachimuthu and Vijayakumari, 1993). Environmental education is a way of creating knowledge, understanding, values, attitudes, skills, abilities and awareness among individuals and social groups towards the environment protection. Environmental education is an attempt to reorient education so that environmental competence is restored as one of its basic aims along with personal and social competence. It is not just a subject of education but an expansion of its whole philosophy recognizing our environment as continuous with ourselves and in need of the same case and understanding as we give to our personal and social well being (Smyth, 1995). 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 (Shukla, 2001). The existing curricula at primary, secondary and college levels provide a lot of opportunities to make the students aware of environment. The integration of environmental education is possible if teachers have a will to introduce it in a quite natural way while teaching different curricular areas at primary, secondary and higher education level. In this present context the need for studying the environment awareness of secondary school student is a must. It is very much

an essential need for each individual to develop an awareness of protection and preservation towards environment. Our environment is threatened due to many hazards. Air, water and soil pollution is on the increase. Degradation of environment results in many problems. Therefore, there is a great need to protect and preserve our environment. The role of students would go a long way in achieving such desired goals. In order to faster their awareness towards environment it is necessary to know what levels of awareness they possess in these areas, and as such there are limited number of researchers who have taken up research in the said field and hence the study. So, in this paper a comparative study of environmental awareness among secondary school students in Iran and India has been performed and state of awareness in this area is monitored.

MATERIALS & METHODS

The present study is an attempt to examine the environmental awareness of secondary school students in relation to residential background, sex and type of school. This section explains the hypotheses, sampling, instrument, procedure, scoring and statistical techniques used for the study.

Following null hypotheses were formulated for testing the assumptions:

Hypothesis 1 There will be no significant difference in the level of environment awareness among secondary school students in Tehran and. Mysore

Hypothesis 2 There will be no significant difference between boy and girl students in their level of environmental awareness in Tehran and Mysore.

Hypothesis 3 There will be no significant difference between students studying in different type of schools in their level of environmental awareness in Tehran and Mysore.

A sample of 991 secondary school students (476 boys and 515 girls) was selected from different schools in India (Mysore city) and Iran (Tehran city). The students were selected both from government and private schools. Stratified random sampling technique was used to select the sample (Shobeiri, 2005). The tool used in the present investigation was the Environment Awareness Ability Measure (EAAM) developed by Praveen Kumar Jha (1998), Mandal University, and Madhipura. This tool measures the extent and degree of awareness of students about environmental pollution and its protection, as consisting of five components, viz. (i) Causes of pollution, (ii) Conservation of soil forest, air, etc.,(iii) Energy conservation, (iv) Conservation of human health and (v) Conservation of wild life and animal husbandry. There are several items in each component ؛constituting the total of 51 items on the scale. For Indian students, the original English version and for Iranian students translated version in Persian was used. Initially, the Persian version was administered as a pre-test to 50 boys and 50 girls Iranian students to find out the suitability of the instruments. With a few minor revisions, (Shobeiri, 2005) the main study in Iran 491 (out of 991 students) was performed based on the suggestions given by the students on the pre-test. Three indices of reliability were determined. Split-half reliability was found 0.61; secondly it was calculated by test-retest method. Two test-retest reliabilities were determined; one after an interval of three months and other after six months and the values were found 0.74 and 0.71 respectively. Also the sale was found to have a validity of 0.83. In Iran and India, the Investigator personally visited all the selected schools and met the students for explaining the purpose of study and instructed them as how to respond to the questionnaire. Also, for students, whenever, they had doubt in understanding questions, investigator made those questions very clear to them.

There are 51 items in EAAM. Each agree item carries the value of 1 mark and each disagree item of zero mark, but the negative items are scored inversely. Thus, on the total scale the scores of 51 question ranged between 0-51 (Shobeiri, 2005). The total scale gives a composite score of environment awareness ability of the subject. Using SPSS statistical package (Kinnear, 2003), Two-way ANOVA (Analysis variance) was employed to find out the difference in various aspects from the

level of environmental awareness including gender, type of school and country in each aspect.

RESULTS & DISCUSSIONS

1. In this study the level of environmental awareness has been identified on the basis of their scores on the environment awareness ability measure under two levels using the criteria – average maximum weight and minimum weight for the total number of items in the scale +SD of the scores obtained on the scale. Table 1 shows number and percentage of Indian and Iranian students under different levels (Average and High) of environmental awareness.

Table 1. Number and percentage of students falling under different levels of environmental awareness

Level of score limit environmental awareness of students		Average (16-36)	High (37-51)	Total
India	No.	220	280	500
	%	44.0	56.0	100.0
Iran	No	73	418	491
	%	14.9	85.1	100.0
Total	No	293	698	991
	%	29.6	70.4	100.0

$\chi^2 = 70.94$, df = 1, $p < 0.001$

Result from Table 1 reveals that there is a highly significance association) χ^{2*}=70.94, p< 0.001) between two countries in levels of environmental awareness of students. It was found that the number of Indian students with average level of environmental awareness (44.00 per cent) is more than their counterparts in Iran (14.9 percent). Further, it is noticed that number of Iranian students with high level of environmental awareness (85.10 percent) is more than Indian students (56.00 percent).In addition, an attempt has been made to find the differences between students in two countries regarding the level of environmental awareness for each of the five sub factors of the student environmental awareness ability measure as mentioned before. Weight for each of the five sub factors were calculated based on the mean scores obtained and then ranked from the highest per cent to the lowest per cent. The details are made available in Tables 2, 3 and 4. The findings of Tables 2, 3 and 4 reveal that the three top ranking aspects of environmental awareness for Indian students are: 'Conservation of human health', 'Conservation of wild life and animal husbandry' and 'Conservation of soil, forest, air and etc.' Three top ranking aspects of environmental awareness for Iranian students are: 'Conservation of wild life and animal husbandry', 'Conservation of human health' and 'Conservation of soil, forest, air and etc.'. In both of the countries 'Conservation of human health' and 'Conservation of wild life and animal husbandry' are two aspects of environmental awareness, which have made students to be aware about their environment. The above Tables indicate that the students do not have adequate level of awareness in 'Energy conservation' sub factor. Also students are unaware about 'Cause of pollution' aspect of their environment. The above findings corroborated with findings of Sharma (1997) and Karimi (2002), which emphasizes that in both the countries, the need to reorient the school curriculum from a environmental perspectives in diverse subject areas environmental perspectives in diverse subject areas are necessary.However, findings of Table 1 clearly indicates that there is a significant difference(χ^2 = 70.94, $p < 0.001$) between two countries in terms of level of environmental awareness of students and therefore the null hypothesis 1 is rejected.

Table 2. Rank order of Environmental awareness of students (India)

Rank	Dimensions	Mean	SD	Weight age %
1	Conservation of human health	11.41	2.37	58.36
2	Conservation of wild life and animal usbandry	1.71	0.54	43.61
3	Conservation of soil, forest, air and etc.	9.86	2.32	38.68
4	Causes of pollution	9.76	2.02	35.55
5	Energy conservation	4.37	1.52	31.84

Table 3. Rank order of Environmental awareness of students (Iran)

Rank	Dimensions	Mean	SD	% weightage
1	Conservation of wild life and animal husbandry	1.78	0.45	45.39
2	Conservation of human health	12.94	1.61	43.99
3	Conservation of soil, forest, air and etc.	10.72	1.81	42.06
4	Causes of pollution	10.48	1.68	38.18
5	Energy conservation	4.89	1.00	34.97

Table 4.Rank order of Environmental awareness of students (Overall)

Rank	Dimensions	Mean	SD	weight age %
1	Conservation of human health	12.18	1.99	51.18
2	Conservation of wild life and animal husbandry	1.75	0.50	44.50
3	Conservation of soil, forest, air and etc.	10.29	2.07	40.37
4	Causes of pollution	10.12	1.85	36.87
5	Energy conservation	4.63	1.26	33.41

The results of the ANOVA tests are presented in Tables 5, 6, 7 and 8. These Tables show F-value, significance and mean value of student's environmental awareness scores based on their country as well as gender and type of school. Tables 5 and 6 indicate that there is a significant difference between Indian and Iranian students in all the sub factors of environmental awareness. In sub factors like 'Cause of pollution' ($F=37.947$, $p<0.000$), 'Conservation of soil, forest, air and etc.' ($F=44.249$, $p<0.000$), 'Energy conservation' ($F=41.326$, $p<0.000$), Conservation of human health ($F=143.155$. $p<0.000$) and 'Conservation of wild life and animal husbandry' ($F=5.194$, $p<0.023$) Iranian students scored significantly higher than Indian students. There is a significant difference between boy and girl students in some sub factors of environmental awareness. In sub factors like 'Energy conservation' ($F=6.066$, $p<0.014$), boy students scored significantly higher than girl students whereas in 'Conservation of human health' ($F=4.253$, $p<0.039$) girl students scored significantly higher than counterparts. The significant interaction effects between countries and genders for three sub factors of environmental awareness indicate that in Iran boy students have more awareness about Conservation of soil, forest, air and etc.'

Table 5.Mean scores for various dimensions of students environmental awareness with reference to country and gender

Environmental awareness of students	Gender	India	Iran	Overall
Cause of pollution	Boys	9.64	10.49	10.04
	Girls	9.87	10.48	10.19
	Overall	9.76	10.48	10.12
Conservation of soil, forest, air and etc.	Boys	9.45	10.94	10.16
	Girls	10.28	10.53	10.41
	Overall	9.86	10.72	10.29
Energy conservation	Boys	4.46	5.00	4.72
	Girls	4.27	4.79	4.54
	Overall	4.37	4.89	4.62
Conservation of human health	Boys	11.04	13.05	12.00
	Girls	11.78	12.84	12.33
	Overall	11.41	12.94	12.17
Conservation of wild life and animal husbandry	Boys	1.68	1.82	1.75
	Girls	1.74	1.74	1.74
	Overall	1.71	1.78	1.74
Total	Boys	36.31	41.29	38.68
	Girls	37.91	40.38	39.18
	Overall	37.11	40.80	38.94

Table 6. Result of two-way ANOVA for mean students environmental awareness Score in various areas with reference to country and gender

Environmental awareness of students	Source of variation	F-value	Significance
Cause of pollution	Between countries (A)	37.947	0.000
	Between gender (B)	0.931	0.335
	Interaction (A x B)	0.992	0.319
Conservation of soil, forest, air and etc.	Between countries (A)	44.249	0.000
	Between gender (B)	2.646	0.104
	Interaction (A x B)	22.344	0.000
Energy conservation	Between countries (A)	41.326	0.000
	Between gender (B)	6.066	0.014
	Interaction (A x B)	0.014	0.906
Conservation of human health	Between countries (A)	143.155	0.000
	Between gender (B)	4.253	0.039
	Interaction (A x B)	14.008	0.000
Conservation of wild life and animal husbandry	Between countries (A)	5.194	0.023
	Between gender (B)	0.247	0.619
	Interaction (A x B)	5.216	0.023
Total	Between countries (A)	108.156	0.000
	Between gender (B)	0.935	0.334
	Interaction (A x B)	12.239	0.000

dfs: A (1.987), B (1.987) and AxB (1.987)

Table 7. Mean scores for various dimensions of students environmental awareness with reference to country and type of school

Environmental awareness of students	Type of school	India	Iran	Overall
Cause of pollution	Government	9.35	10.49	9.94
	Private	10.12	10.47	10.29
	Overall	9.76	10.48	10.12
Conservation of soil, forest, air and etc.	Government	9.26	10.96	10.14
	Private	10.40	10.46	10.43
	Overall	9.86	10.72	10.29
Energy conservation	Government	4.05	4.93	4.51
	Private	4.65	4.84	4.74
	Overall	4.37	4.89	4.62
Conservation of human health	Government	10.96	12.96	12.00
	Private	11.82	12.91	12.33
	Overall	11.41	12.94	12.17
Conservation of wild life and animal husbandry	Government	1.58	1.80	1.69
	Private	1.82	1.75	1.79
	Overall	1.71	1.78	1.74
Total	Government	35.25	41.15	38.31
	Private	38.78	40.43	39.56
	Overall	37.11	40.80	38.94

Table 8.Result of two-way ANOVA for mean students environmental awareness score in various areas with reference to country and type of school

Environmental awareness of students	Source of variation	F-value	Significance
Cause of pollution	Between countries (A)	41.033	0.000
	Between schools (B)	10.373	0.001
	Interaction (A x B)	11.476	0.001
Conservation of soil, forest, air and etc.	Between countries (A)	45.846	0.000
	Between schools (B)	6.020	0.014
	Interaction (A x B)	40.168	0.000
Energy conservation	Between countries (A)	43.372	0.000
	Between schools (B)	9.936	0.002
	Interaction (A x B)	18.228	0.000
Conservation of human health	Between countries (A)	146.643	0.000
	Between schools (B)	9.858	0.002
	Interaction (A x B)	12.909	0.000
Conservation of wild life and animal husbandry	Between countries (A)	5.668	0.017
	Between schools (B)	9.579	0.002
	Interaction (A x B)	19.773	0.000
Total	Between countries (A)	115.552	0.000
	Between schools (B)	16.134	0.000
	Interaction (A x B)	36.559	0.000

dfs: A (1.987), B (1.987) and AxB (1.987)

'Conservation of human health' (F=14.008, p< 0.000) and 'Conservation of wild life and husbandry' (F=5.216, p<0.023) in their environment, than their counterparts in India.

From Table 6, it is found that the overall environmental awareness scores indicates that there is no significant difference between boy and girl students (F=0.935, p<0.334), therefore the hypothesis 2 is accepted. Tables 7 and 8 indicate that there was a significant difference between two countries. In all the sub factors of students environmental awareness, namely, 'Cause of pollution' (F = 41.033, p<0.000), 'Conservation of soil, forest, air and etc.' (F= 45.846, p<0.000), 'Energy conservation' (F=43.372, p< 0.000), 'Conservation of human health (F=146.643 p <0.000) and 'Conservation of wild life and animal husbandry' (F=5.668, p<0.017), Iranian students scored significantly higher than Indian students.

There was a significant difference between Government and private schools on all the sub factors of students environmental awareness, namely, 'Cause of pollution' (F=10.373, p<0.001), 'Conservation of soil, forest, air and etc.' (F=6.020, p<0.014), 'Energy conservation' (F=9.936, p<0.002), 'Conservation of human health' (F=9.858, p<0.002) and 'Conservation of wild life and animal husbandry' (F=9.579, p<0.002), in private school students scored significantly higher than government school students.

The significant interaction effects between countries and type of school reveals in all the sub factors of students environmental awareness, namely, 'Cause of pollution' (F=11.476, p<0.001), 'Conservation of soil, forest, air and etc.' (F=40.168, p<0.000), 'Energy conservation' (F=18.228, p<0.000), 'Conservation of human health' (F=12.909, p<0.000) and 'Conservation of wild life and animal husbandry' (F=19.773, p<0.000), there was a significant difference between students in both countries. In all the sub factors Iranian Government school students scored significantly higher than their counterparts in India. From Table 8, it is found that the overall environmental awareness scores indicates that there is significant difference with respect to Government and private school students (F=16.134, p<0.000). Hence it could be concluded that the type of school is significantly related to students' environmental awareness. Therefore the hypothesis 3 is rejected.

CONCLUSION

In the study 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). The main findings of the present study are:

- In this study it was found that there is a significant difference in the level of students' environmental awareness between two countries. The study found that the number of Indian students with average level of environmental awareness (44.00 percent) is more than their counterparts in Iran (14.9 percent). Further, it is noticed that number of Iranian students with high level of environmental awareness (85.10 percent) is more than Indian students (56.00 percent).

- Result indicated that in total there is no significant difference between boy and girl students and their level of environmental awareness. This finding of the study contradicted with the finding of Shahnawaj (1990), Rou, Sabhlok (1995), Patel (1995), Szagun and Pavlov (1995) and Tripathi (2000) who reported sex has affect on level of students environmental awareness.
- The present study highlighted that in total there is influence of type of school management on level of student's environmental awareness. This finding of the study corroborated with the finding of Rou (1995), Prajapat (1996) who reported that there is significant difference between students of Government and private schools in the level of environmental awareness. Whereas this contradicted with the finding of a study by Tripathi (2000) who reported type of school management has no effect on student's environmental awareness. Results from this study revealed that:
- More than 70 percent of students in both the countries informed that their level of environmental awareness is high.
- Indian students with average level of environmental awareness (44.00 percent) are more than their counterparts in Iran (14.90 percent).
- Number of Iranian students with high level of environmental awareness (85.10 per cent) is more than Indian students (56.00 percent).
- Boy and girl students in this study have the same level of environmental awareness and gender is not a factor, which affects their environmental awareness.
- Boy students in Iran have more awareness about conservation of soil, forest, air and etc.', conservation of human health' and 'conservation of wild life and animal husbandry' of their environment than other students.
- Type of school management has impact on environmental awareness of students in both countries. In the all sub factors of student's environmental awareness, Iranian Government school students scored significantly higher than their counterparts in India.

Teachers can play an important role in educating their students about environment which is possible only when the teachers themselves have the necessary level of environmental awareness, for this purpose, the government should introduce and enrich environmental education programmers in both in service and pre service teacher programmers.

Various co-curricular activities in schools may be encouraged to help in developing student's environmental awareness.

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