

A study of attitude of college students and professors towards environmental education

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Abstract: Environmental education is being viewed a sine qua non to educate students about environmental issues beginning from pre-school to higher education. The purpose of this study is to explore college students' and professors' attitudes towards their environment. In direction of this basic aim, environmental attitudes of undergraduate students and professors were examined according to the gender and faculty type factors. The research was applied at four colleges (two rural and two urban) during 2013-2014 session. An Attitude Scale towards Environment developed by (Ozkan, 2001), consisting of 22 items was utilized as the means of collecting data among professors while for students a separate self prepared questionnaire consisting of 10 items was utilized. As a result of the study, it could be concluded that undergraduate students and professors had positive attitudes towards the environment as regard to their gender and faculty types. It was emphasized that female were more sensitive towards environment than male students.

Keywords: Environment; environmental education; environmental attitudes; undergraduate students; gender.

1. Introduction

The world is now alarmed with various environmental problems such as climate change, ozone layer depletion, global warming and so on. Many of these problems are the result of irresponsible environmental behavior, which is highly influenced by the attitudes that people possess. The environmental problems may increase in a huge amount mainly due to some global negative activities or environmental policies of various countries rather than an individual activity. But, as an individual there are a lot of things that can be done to prevent the environmental pollution and the rapid destruction of environment. Only individuals who have environmental literacy, awareness, and sensibility contribute towards diminishing the environmental problems.

Since the environment sustains all of us, environmental education has been viewed as an important way to educate students about environmental issues in identifying and challenging environmental problems at all educational levels. In attaining this goal, one of the important outcomes of an effective environmental education is changing attitudes and behaviors of students and professors towards the environment.

In the Belgrade Charter, it was argued that: "The goal of environmental education is to develop a world population that is aware of, and concerned about the environment and its associated problems, and which has the knowledge, skills, *attitudes*, motivations, and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones" (UNESCO, 1976, p. 3, emphasis added). In this sense, it is important to explore the attitudes of students towards environment in understanding the environmental issues and providing need analysis for reconstructing environmental education starting from the pre-school to higher education. This paper reports a study examining undergraduate students' and college professors' environmental attitudes in district Kathua (Jammu and Kashmir).

Research shows that environmental attitudes continue to develop up to adolescence.

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By adolescence, many acquire some level of environmental understanding which is often important for environmental attitudes. So, adolescents may have a level of understanding to express their attitudes towards the environment. As undergraduate students and the college professors of varied streams determine the environmental health to an inevitable extent, thus they have been considered in this research. Findings of this study can be significant, because an understanding of students' environmental attitudes is important for responsive environmental management.

Purpose and Rationale

Given the importance of a strong sense of positive attitudes toward environment are related to desirable behaviors of sensibility, awareness and consciousness about environmental problems, it seems particularly important to examine university students' and professors' environmental attitudes. Therefore, the purpose of this study is to explore undergraduate students' and professors' attitudes toward environment. More specifically, based on the main problem, the research questions to be addressed in this study are (i) What are undergraduate students' attitudes toward environment?, (ii) Are there any differences in undergraduate students' attitudes toward environment in terms of their gender?, and Are there any differences in undergraduate students' attitudes toward environment in terms of their faculties?

2. Material and methodology

2.1 Study site

The target population of this study is undergraduate students and their professors in four colleges (Government Degree College Kathua, Government Degree College for Women Kathua, Government Girdhari Lal Dogra Memorial College, Hiranagar and Swami Vishwatamanand Sartaswati Degree College, Chhan Arorian) of Kathua district in Jammu and Kashmir.

2.2 Methodology

This quantitative study employs a causal-comparative method to measure students' environmental attitudes. A causal-comparative method "determine the cause or consequences that already exist between or among groups of

individuals" (Fraenkel & Wallen, 1996; p.341). In this study gender and different faculty types in which students would be enrolled were described as predefined groups.

Data in this study were collected from a total number of 866 students (out of which 56 were rejected) and 70 professors. The sample consisted of 491(60%) females and 319 (40%) males among students and 49(70%) females and 21(30%) males among professors. The sample included 349(43%) Science Faculty, 391 (48%) Arts Faculty, and 70 (9%) Other Faculties among students and 38(54%) Science Faculty, 27(39%) Arts Faculty and 5(7%) other faculties among professors.

2.2.1 Data collection for professors

The participants completed the questionnaire of the Attitude Scale towards Environment developed by (Ozkan, 2001). The questionnaire consists of 22 items in a five- point Likert type scale and response categories were accomplished by assigning a score of 5 to "strongly agree", 4 to "agree", 3 to "uncertain", 2 to "disagree", and 1 to "strongly disagree". The questionnaire includes four negatively worded items. Negatively written items that were shown with asterisks in Table 2 were reversed at their scores at the beginning of the statistical analysis to provide consistent values between negatively and positively worded items.

2.2.2 Data collection for students

The participants completed the self-prepared questionnaire on environmental attitude. The questionnaire consists of 10 questions or statements which are to be rated out of 10 where 10 stands for strongly agree and 1 for strongly disagree.

2.3 Data analysis

Data of the present study were analyzed utilizing descriptive statistics (i.e., percentages, means and standard deviations) and inferential statistics by using Microsoft Excel 2007.

In the analysis of first research question of the study, descriptive statistics were utilized to determine students' environmental attitudes. Based on the respondents' scores on the scale, individual item means and standard deviations as well as mean scores and standard deviations for the whole scale were computed. A mean score was evaluated as medium level around

one point standard deviation according to the average level of the scale that someone would get from the scale. Because of the environmental scale consisting of 10 items and 22 items respectively for students and professors, the possible minimum score that a student would get from the scale is 10 (lowest attitudes) and the maximum score is 100 (highest attitudes). While for professors the possible minimum score would be 22 (lowest attitudes) and the maximum score would be 110 (highest attitudes). Thus for students the average value is around 55 and for professors it is around 66. The scores were measured around one point standard deviation which holds correct for 68% of the cases.

In the analysis of second and third research question, two-way ANOVA was used to determine whether students' environmental attitudes changed in terms of gender and faculty types.

3. Results

The problem under investigation is to explore college students' and professors' environmental attitudes. Further, some independent variables were considered to determine the differences between the perceptions of the undergraduate students' environmental attitudes (Tables 1 and 2). According to the descriptive result of this study, the undergraduate students indicated positive environmental attitudes.

Table 1. Total scale and item means of students' scores on the self prepared questionnaire on environment.

Statement	Mean
I take part in environment friendly activities (recycling papers etc.)	6.65
I read articles published on environmental issues.	6.41
I like to learn about environment	7.49
I contribute to the solutions of environmental problems.	6.46
I believe that environmental problems are the most priorities to solve.	7.30
I take part as a volunteer in the environment related projects.	6.59
I feel that introduction of environmental sciences in college course is effective.	7.40
I am aware of the environmental problems.	7.69
I have made a barren piece of land useful	6.15
I take initiatives to maintain a healthy environment.	7.26
	69.4

(Min 10-Max 100).

Table 2. Total scale and item means of professors' scores on the attitude scale towards environment

Statement	Mean
I like to learn something about the environment.	4.5
I would like to contribute to the solution of problems related to the environment.	4.55
I'm sick of hearing the word "Environmental protection".	3.98
I believe that the most important factor on environmental pollution is human.	4.22
I read articles published about the environment.	3.51
I prefer to buy products that do not harmful for the environment	4.2
I believe that environmental problems are the most priorities to solve	4.3
I do not prefer to use products which are sold in plastic bottles	3.47
I'm always very sad about forest fires.	3.97
I don't draw attention about "ozone layer".	3.54
I believe that garbage thrown by people doesn't damage the world	4.22
I believe that air pollution damage to the environment.	4.42
I believe that hunting is an activity needed to be banned.	4.27
I believe that environmental pollution is the most important problem in nature.	4.42
I always take care of throwing a used newspaper and paper to recycling bins.	3.74
I would like to have more environment-related courses at school to be more environmentally conscious.	4.24
I would like to work as a volunteer in the environment-related projects.	4.01
It doesn't bother me whether there is a nuclear power plant where I live in.	4.11
I believe that reduction of forests and destruction of plants doesn't mean only cutting trees. It means also destroying animals and the environment.	4.47
I believe that population growth is an environmental problem.	4.12
I believe that environmental pollution is the most important factor for the nature.	4.45
I'm especially interested in environmental and ecological issues in biology course.	3.57

In order to investigate the research question 2 and 3, college students' and professors' attitudes toward environment were evaluated by means of gender and faculty types. A two-way Analysis of Variance (ANOVA) was conducted on the Attitude Scale toward Environment to evaluate the main and

interaction effects of gender and faculty type at the significance level 0.05, as seen in Table 3 & 4. The null hypothesis for main effects of gender and faculty was neglected.

Table 3. ANOVA table of professors

Source of Variation	SS	df	MS	F	p-value
Gender	14.13	1	14.13	19.98	< 0.001
Faculty	3.85	2	1.93	2.72	0.069
Interaction	2.24	2	1.12	1.58	0.209
Within	89.13	126	0.71		
Total	109.35	131			

Table 4. ANOVA table of students.

Source of Variation	SS	df	MS	F	p-value
Gender	5.77	1	5.77	14.76	0.0003
Faculty	2.39	2	1.20	3.06	0.05
Interaction	0.73	2	0.37	0.94	0.397
Within	21.09	54	0.39		
Total	29.98	59			

A statistically significant mean difference was found between boys' and girls' students attitudes toward environment [F (1, 54) = 14.76; p = .0003]. When the mean scores given in Table 5 were examined, it was found that girls hold higher attitudes toward environment than boys. However in case of professors the null hypothesis could not be rejected [F (1, 126) = 19.98; p = 1.72].

Table 5. Descriptive characteristics of students

		Total number	Mean
Gender	Male	319	65.94
	Female	491	71.61
Faculty	Arts	391	71.65
	Science	349	66.72
	Others	70	69.94

As regard to main effect of faculty types, statistically significant mean differences were found amongst Arts Faculty, Science Faculty, and other Faculties on the Attitude Scale toward Environment [F (2, 54) = 3.06, p = 0.05]. The comparison of mean scores according to the faculty type indicated that Arts faculty students expressed more positive environmental attitudes than Science faculty

followed by other faculties (Table 6). In this case too, the null hypothesis for professors could not be neglected [F (2, 126) = 2.72; p = 0.06].

Table 6. Descriptive characteristics of professors

		Total number	Mean
Gender	Male	21	83.52
	Female	49	92.89
Faculty	Arts	27	90.14
	Science	38	93.13
	Others	5	88.25

The null hypothesis for interaction effects of gender and faculty could not be neglected for students [F (2, 54) = 0.937; p = 0.397] as well as professors [F (2, 126) = 1.581; p = 0.20].

Discussion and Conclusion

According to the descriptive result of this study, the undergraduate Students and Professors indicated positive environmental attitudes. The respondents' scores on the environmental scale were analyzed by utilizing descriptive statistics. The mean score for the students was 69.4, which was above the average value (55). The mean score for the professors was 90.28, which was also above the average value (66). Therefore, we can conclude that college students and professors in this context indicated positive attitudes toward environment. This was supported by other studies utilizing the Scale of Attitude towards Environment for different samples (Gezer, et al., 2006a; Cetin, 2003) in which they obtained higher scores on the scale. However, the total scale score and item scores were clustered just above the mid-point in case of students. It would be expected near to the higher points after they enrolled in the environmental course. It was the limitation of the study to relate the effect of the course on the environmental attitudes of students; therefore an experimental design would be suggested to see the relations more clearly

In our education system, beginning from the pre-school to secondary school in some extent to which the curriculum may cover environmental science education as a main subject or integrated in a related domain. In higher education, not all Universities include environmental science course at undergraduate

level. Therefore, it is a good sign for Jammu University to integrate a course related to environment during 2nd year of undergraduate courses. The university students' views indicated that an environmental course should be included in university education as well as primary and secondary education. For the future implications, the content and delivering of the environmental course would be restructured to obtain more interests of university students from a wide range faculties and different backgrounds in handling environmental issues and improving their environmental attitudes.

A two-way ANOVA revealed main and interaction effects of gender and faculty types. The results revealed significant differences in the perceptions of male and female students' as well as professors' environmental attitudes. This finding is consistent with the literature that many other studies found females were more aware of environmental problems and individual responsibilities as well as having more positive attitudes than boys. The consistent attitude differences between males and females also have been supported by across country studies. Also, girls seem to be socially responsible and make a significant contribution to environmental. For future implications, environmental education activities or courses at any level of education system would be adjusted to account for boys' and girls' different interests.

The comparison of mean scores according to the faculties indicated that arts students expressed more positive environmental attitudes than other Faculties. This finding is consistent with the literature that many other studies found differences among the different academic programs. This can be because of the reason that the science students study environmental characteristics only as a part of their course but not as a part of their life.

Nowadays, environmental problems have increased rapidly. Then, educating people is the main way to reduce environmental problems by creating consciousness and sensibility toward environment. Education is a long-life process, so it is crucial to teach subjects about environment beginning from pre-school and continue to the university education and so on. Within the context of higher education it seems to be more important because students at the universities today will drive our life in the future.

Some of them may be engineers in large factories or administrative staff in private and public places in the future as directly policy makers or applying pressure on policy makers in diminishing the environmental problems. Therefore, universities for all programs should provide an education program covering environmental science to nurture conscious and sensitive graduate students toward environment.

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