

**STUDY OF KNOWLEDGE AND AWARENESS ABOUT ENVIRONMENTAL
DISASTER AMONG THE GRADUATE STUDENTS OF UDHAM SINGH NAGAR
DISTRICT OF UTTARAKHAND**

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Abstract

The present study is focused on the assessment on knowledge and awareness about environmental disaster among the graduate students of Udham Singh Nagar district of Uttarakhand. The investigator used questionnaire method for the study. The sample consists of 200 graduate students studying in various vocational courses from Institute of Management and Technology (IMT), Kashipur; R. H. Govt. P. G. College, Kashipur and Surajmal Agarwal Pvt. Kanya Mahavidyalaya, Kichha of Udham Singh Nagar district of Uttarakhand. Environmental Disaster Community and Awareness Scale (EDCLAS) tool was employed to collect the relevant data. The data were statistically analyzed using different techniques viz. mean, median, mode, standard deviation, standard errors of mean & standard deviation and t-ratios. The major finding of study reveals that male and female students both have same knowledge and awareness about environmental disaster and students belonging to urban areas as well as rural areas, both having knowledge and awareness about environmental disaster. Also students studying in various technical and non technical courses both having good knowledge and awareness about environmental disaster.

Key Words: Environmental disaster knowledge and awareness, graduate students, urban, rural, technical and nontechnical courses, male and female students.

1. INTRODUCTION

Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter relatedness among man, his culture, and his biophysical surroundings (Malhotra, 2012). It also refers to the study of nature, natural resources, interrelationship with man, human activities, disturbances to the environment and the attempts to improve the environment. It is the application of knowledge from different disciplines to study and manage the environment (Kumar, 2012). Environmental education also entails in decision making and self formulation of a code of behavior about issues of environmental quality (IUCN, 1970). Thus, this study is

also purposeful to know the knowledge and awareness on environmental disaster among the vocational students Udham Singh Nagar district of Uttarakhand.

Various research studies also conducted for environmental awareness among teachers and students. Rajput and Gupta (1988) studied environmental awareness among children of non-formal education centers of M.P. & Maharashtra. Shanawaj (1990) also studied environmental awareness and environmental attitude of secondary and higher secondary school teachers and students of Rajasthan. Patel and Nanubhai (1995) investigated environmental awareness of science students and effect of environmental studies. Bhattacharya (2003) analysed Environmental education curriculum for prospective teachers. Dighe (2008) studied Women's Empowerment at the Local Level (WELL) in the state of Uttarakhand. Oli (2008) studied about environmental awareness and knowledge among population of Champawat district of Uttarakhand. Ahuja (2009) studied environmental awareness among B.Ed. teacher trainees of government aided and self-finances colleges of Haryana.

Nayak (2011) investigated awareness, knowledge and attitude of Student Teachers of Mumbai and Navi-Mumbai towards Climate Change. Astalin (2011) conducted a study on environmental awareness among higher secondary students and some educational factors affecting it at Varanasi city. Vyas and Patel (2010) conducted a comparative study of environment awareness among secondary school students of Mehsana city, Gujarat. Sengupta *et al.*, (2010) studied environmental awareness and environment related behavior of Twelfth Grade Students in Kolkata. Lahiri (2011) assessed the environmental attitude among Pupil Teachers of Kolkata University in relation to responsible environmental behavior. Malhotra (2012) also documented the comparative account on environmental awareness of post graduate male and female students of Arts and Science stream of various departments of Kurukshetra University. Kumar (2012) studied environmental awareness among teacher trainees in teacher training institutes in Tiruchirapalli district of Tamilnadu. Singhal and Verma (2012) studied environmental awareness among Higher Secondary students of Jabalpur. Dave (2012) studied impact of environmental studies on the environmentally appropriate behavior and awareness of students of Udaipur and Gautam Buddh Nagar City.

2. OBJECTIVES OF THE STUDY

- To understand the nature of the distribution of the scores pertaining Environmental disaster community and awareness scale (EDCLAS) (Tewari, 2005).

- To ascertain whether the variables Gender, Knowledge & Awareness about environmental disaster are associated with one another in case of graduate students.
- To find out whether Area of residence wise groups of graduate students differ in their Knowledge & Awareness about environmental disaster.
- To understand the significant differences in the Knowledge & Awareness about environmental disaster of graduate students differing on the basis of their different vocational courses.

3. MATERIAL AND METHODS

The aim of present investigation is to understand the study of knowledge and awareness about environmental disaster among the graduate students of Udham Singh Nagar district of Uttarakhand. This study was conducted in between academic session of 2011-2012. In order to attain the objectives of the study the following research design have been developed.

The sample consists of 200 graduate students studying in various vocational courses. These students were selected from Institute of Management and Technology (IMT), Kashipur; R. H. Govt. P. G. College, Kashipur and Surajmal Agarwal Pvt. Kanya Mahavidyalaya, Kichha of Udham Singh Nagar district of Uttarakhand.

Proportionate random sampling technique was employed to select the 200 students studying in graduation of the above-mentioned institutes. Stratification was done on two factors, first on the basis of vocational courses (i.e. Technical courses (BCA, BBA etc.) & Non Technical Courses (B.Ed., B.Sc., P.G. Diploma in Yoga & P.G. Diploma in Tourism Studies) and second on the basis of gender (i.e. Male students and Female students). Gender and Vocational courses wise distribution of these 200 students from the two colleges has been presented in Table 1.

Table 1: Gender and vocational course wise distribution of the sample students selected from the various vocational courses in graduate level in the three institutes. (N=200)*

S. No.	Name of Institute	Courses	Male Students	Female Students	Sub Total	Total
1	IMT Kashipur	BCA	25	12	37	75
		BBA	25	13	38	
2	R.G. Govt. P.G. College, Kashipur	B.Ed.	30	20	50	75
		P.G. Diploma	10	05	15	

		in Yoga				
		P.G. Diploma in Tourism Studies	10	-	10	
3	S. A. Pvt. Kanya Mahavidyalaya, Kichha	B.Sc.		25	25	50
		BBA		15	15	
		BCA		10	10	
	Total		100	100	200	200

The total sample students were categorized into two groups on the basis of their gender viz. male students and female students. Gender wise distribution of the total sample students (N=200) is presented in Table 2.

Table 2. Gender wise distribution of the total sample students (N=200).

S. No.	Name of the College / Institute	Male Students	Female Students	Total
1.	Institute of Management and Technology (IMT), Kashipur	50	25	75
2.	Surajmal Agarwal Girls P.G. College, Kichha	-	50	50
3.	R. H. Govt. P.G. College, Kashipur	50	25	75
Total		100	100	200

On the basis of the Area of residence, the total sample students were divided into two categories namely Urban and Rural students, in which 89 (44.50%) students were from urban area and 111 (55.50%) students were from rural area.

Table 3. Area of Residence wise distribution of the total sample students (N=200)

S. No.	Name of the College / Institute	Urban	Rural	Total
1	Institute of Management and Technology (IMT), Kashipur	42	33	75
2	Surajmal Agarwal Pvt. Kanya Mahavidyalaya, Kichha	18	32	50
3	R. H. Govt. P.G. College, Kashipur	29	46	75
Total		89	111	200

The total sample students were also categorized into two groups on the basis of their different vocational courses viz. Technical Courses students (Students of BCA, BBA etc.) &

Non Technical Courses students (Students of B.Ed., B.Sc., P.G. Diploma in Yoga & P.G. Diploma in Tourism Studies etc.). Out of 200 students, 100 (50%) students were from Technical Courses and 100 (50%) students were from Non Technical Courses.

Table 4: Different vocational courses wise distribution of total sample students (N=200)

S. No.	Name of the College / Institute	Technical Courses Students	Non-Technical Courses Students	Total
1	Institute of Management and Technology (IMT), Kashipur	75	-	75
2	Surajmal Agarwal Pvt. Kanya Mahavidyalaya, Kichha	25	25	50
3	R. H. Govt. P.G. College, Kashipur	-	75	75
Total		100	100	200

The data collection was started in between academic session of 2011-2012. To know the Knowledge and Awareness about Environmental Disaster among the Graduate Students of Udham Singh Nagar District of Uttarakhand the Environmental Disasters Community Literacy and Awareness Scale (EDCLAS) is applied. This scale is developed and standardized by Mr. Basant Tewari in year 2000. This scale contains 40 points. This scale is converted in English for current investigation.

The Scoring Procedure

Present study is divided into two parts:

1. Environmental Knowledge among graduate students.
2. Environmental Awareness among the graduate students.

The questionnaire contains 24 points which is related to environmental knowledge and 16 points are related to environmental awareness. Each point has three options as yes, no and I don't know. One mark is given for correct answer; zero mark is given for wrong answer and zero mark is also given for the comment "I don't know". Mean, median, mode, standard deviation, standard errors of mean & standard deviation and t-ratios were used for statistical analysis.

3. RESULTS

Part I – The Methodological Results

The frequency distributions with regard to the Environmental Disaster Community and Awareness Scale (EDCLAS) (Tewari, 2005) scores of the total sample students have been presented in Table 5.

Table 5: Frequency Distribution of the Environmental Disaster Community and Awareness Scale scores (EDCLAS scores) of the total sample students (N=200).

S. No.	EDCLAS Score	Number of Students
1	35-40	2
2	30-35	20
3	25-30	78
4	20-25	54
5	15-20	33
6	10-15	12
7	5-10	1
Total		200

These statistical computations were necessary so that an idea may be obtained with respect to the similarity of these distributions with the Normal Probability Curve. This testing of normality was done by computing the values of Mean, Median and Mode. These values helped in undertaking the mathematical equality of the central tendencies of these distributions.

In addition to this, the standard errors of mean and standard deviation were also computed. This was done with a purpose to ascertain to which extent the statistics namely mean and standard deviation pertaining to the sample was representative of their corresponding parameters. These statistics have been presented in Table 6.

Table 6: Values of Mean, Median, Mode, Standard deviation, Standard errors of Mean and Standard deviation with respect to the Environmental Disaster Community and Awareness Scale scores (EDCLAS scores) (N= 200)

S. No.	Statistics	Symbol	EDCLAS scores
1	Mean	M	24.10
2	Median	Mdn	25.00
3	Mode	Mo	26.46
4	Standard Deviation	SD	5.54
5	Standard Errors of Mean	SEM	0.39
6	Standard Errors of Standard	SESD	0.28

	Deviation		
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On the basis of above narration, it may be said that the values of Mean, Median and Mode are not very far from one another and the comparatively smaller values of the Standard errors of the relevant statistics indicate that these statistics are good representatives of their corresponding parameters.

Part II- Relationship of Knowledge and Awareness about Environmental Disaster of total sample students with their gender:

Gender, here in this investigation refers to the sex wise two groups of students namely male and female students. In order to understand the nature and extent of relationship between EDCLAS scores and Gender, the male and female students were compared for their mean EDCLAS scores. t-ratio was computed for this purpose and it has been presented in Table 7.

Table 7: Value of t-ratio for ascertaining the significant difference in the mean EDCLAS scores of Gender wise two groups of total sample students (N=200).

S. No.	Group	N	Mean	Median	Mode	Standard Deviation	t-ratio	d.f.
1.	Male	100	24.72	26	26	5.85	0.694	198
2.	Female	100	24.42	25	27	4.92		

The value of t- ratio, mentioned in Table 7 was found to be insignificant at 0.05 level of significance. It means that the male students and female students do not differ with regard to their mean EDCLAS scores.

Part III- Relationship of Knowledge and Awareness about Environmental Disaster of total sample students with their area of residence:

Area of residence, here in this investigation refers to the area of residence wise two groups of students namely urban and rural students. In order to understand the nature and extent of relationship between EDCLAS scores and area of residence, the urban students and rural students were compared for their mean EDCLAS scores. t-ratio was computed for this purpose and it has been presented in Table 8.

Table 8: Value of t-ratio for ascertaining the significance of difference in the mean EDCLAS scores of area of residence wise two groups of total sample students (N=200)

S. No.	Group	N	Mean	Median	Mode	Standard Deviation	t-ratio	d.f.
1.	Urban	89	25.08	26	26	4.53	0.317	198

2.	Rural	111	24.34	25	27	5.62		
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The value of t- ratio, mentioned in Table 8 was found to be insignificant at 0.05 level of significance. It means that the urban area students and rural area students do not differ with regard to their mean EDCLAS scores.

Part IV- Relationship of Knowledge and Awareness about Environmental Disaster of total sample students with their different Vocational Courses

The total sample students were categorized into two groups on the basis of their different vocational courses viz. Technical Courses students (Students of BCA, BBA etc.) & Non Technical Courses students (Students of B.Ed., B.Sc., P.G. Diploma in Yoga & P.G. Diploma in Tourism Studies etc.).

In order to understand the nature and extent of relationship between EDCLAS scores and various vocational courses, the Technical Courses students and Non-Technical Courses students were compared for their mean EDCLAS scores. t-ratio was computed for this purpose and it has been presented in Table 9.

Table 9: Value of t-ratio for ascertaining the significance of difference in the mean EDCLAS scores of different Vocational Courses wise two groups of total sample students (N=200)

S. No.	Group	N	Mean	Median	Mode	Standard Deviation	t-ratio	d.f.
1.	Technical Courses Students	100	24.70	25.5	26	5.29	0.367	198
2.	Non-Technical Courses Students	100	24.44	25.5	26	5.51		

The value of t- ratio, mentioned in Table 9 was found to be insignificant at 0.05 level of significance. It means that the Technical Courses students and Non- Technical Courses students do not differ with regard to their mean EDCLAS scores.

4. DISCUSSION

In this chapter the various results obtained by the analysis of the data have been discussed. This discussion has been divided into the following seven parts to obtain a global and comprehensive picture of the important findings on the basis of the various results:

1. Nature of the distribution of the scores pertaining to the construct namely knowledge and awareness about environmental disaster.
2. Gender, Area of residence and various vocational course wise differences in the knowledge and awareness about environmental disaster of the graduate students.

Part I- Nature of the distribution of the scores pertaining to the construct Knowledge and Awareness about Environmental Disaster:

Environmental Disaster Community and Awareness Scale (EDCLAS) scores for the total sample students (N=200) were found to be approximately normally distributed. The slight deviation of the various statistics from the ideal values of these statistics for a perfectly normal distribution may be considered to be functionally tolerable. Hence, the distribution was accepted to be in the somewhat similar form and shape of a normal distribution curve. This strongly support the use of parametric statistics in making relevant comparisons between various mean scores with regard to the appropriate groups of the sample students.

Part II: About Environmental Disaster of the Graduate Student's Gender, Area of Residence and Various Vocational Courses wise differences in the Knowledge and Awareness:

Entry in Table 7 reveals that the t-ratio computed to ascertain the significance of difference in the mean Environmental Disaster Community and Awareness Scale (EDCLAS) scores of male students and female students was insignificant at 0.05 level of significance. It means that knowledge and awareness about environmental disaster is a gender free construct.

Shanawaj (1990) in a study on environmental awareness and environmental attitude of secondary and higher secondary teachers and students in Rajasthan, found that female students possessed significantly more awareness than males, while quite opposite results are reported by Tripathi (2000) where boys had better awareness than girls. Malhotra (2012) find that there is difference among the environmental awareness of male post graduate students and female post graduate students of science stream as well as among the male post graduate students and female post graduate students of Arts stream, also they found that the post-graduate science students are having higher awareness score than the post-graduate Art students.

According to Vyas and Patel (2010) girl's students were more conscious than boys students about environment awareness in secondary school of Mehsana city, Gujarat. Hadipour (2001) reported significant difference among male and female teachers in their awareness about environmental education where male teachers had higher awareness. Jinarajan (1999) in his study on student teachers from Bangalore did not find any gender

difference in environmental awareness but Vipinder and Jaswinder (2005) reported that male and female teachers had equal levels of scores on environmental education awareness. Singhal and Verma (2012) conducted a study on Environmental Awareness among Higher Secondary Students of Jabalpur and found that level of environmental awareness was high in most students of different disciplines without gender difference. The students of humanities showed minimum awareness; biology or mathematics showed the maximum environmental awareness, which followed the order of Mathematics > Biology > Commerce > Humanities. The students of Central Board were better aware than those of State Board.

Kumar (2012) find that teacher trainees in Tiruchirapalli district have average level of environmental awareness with regard to back ground variables such as gender, locality and teaching competence. Astalin (2011) find that students of 11th and 12th standard affiliated to C.B.S.E. and U.P. Board of Varanasi city were identical as for as their environmental awareness was concerned. Science stream students had more environmental awareness in comparison to arts stream students. The CBSE students had more environmental awareness in comparison to U.P. Board students. Parent's group of students belonging to literate, undergraduate, post graduate and research had more environmental awareness in comparison to parent's group of students belonging to high school and intermediate.

Entry in Table 8 reveal that the t-ratio computed to ascertain the significance of difference in the mean Environmental Disaster Community and Awareness Scale (EDCLAS) scores of urban and rural students were insignificant at 0.05 level of significance. The results obtained showed that urban and rural students were found not to differ in their mean Environmental Disaster Community and Awareness Scale (EDCLAS) scores.

Entry in Table 9 reveal that the t-ratio computed to ascertain the significance of difference in the mean Environmental Disaster Community and Awareness Scale (EDCLAS) scores of Technical Courses students and Non-Technical Courses students was insignificant at 0.05 level of significance. The results obtained showed that the Technical Courses students and the Non-Technical Courses students were found not to differ in their mean Environmental Disaster Community and Awareness Scale (EDCLAS) scores.

5. CONCLUSION

Uttarakhand is a mountainous state having 13 districts segregated in the two administrative divisions of Kumaun and Garhwal. This mountainous region has a fragile ecosystem. The widespread environmental degradation that has been the consequence of faulty and insensitive economic policies and poor management of resources is a normal feature of the region.

Uttarakhand is exposed to multiple natural hazards. In order to achieve sustainable development, the state must counteract these hazards by opting various preventive measures whenever possible and by designing and constructing resistant houses, commercial buildings and infrastructure. Widespread failure must not be tolerated. Therefore, this type of curriculum must be applied in vocational courses. In this study the knowledge and awareness about environmental disaster among graduate students is slightly higher in male students in comparison to female students.

In this study, male and female students both have same knowledge and awareness about environmental disaster. These different vocational courses students have the same syllabus of environmental studies in the second year of their graduation; therefore they try to acquire more and more information about natural disaster.

In this study, students who live in urban areas and students who live in rural areas, both have knowledge and awareness about environmental disaster. Also students studying in various technical courses (students of BBA, BCA etc.) and students studying in various non technical courses (students of B.Ed., B.Sc., P.G. Diploma in Yoga & P.G. Diploma in Tourism Studies etc.) both have good knowledge and awareness about environmental disaster. These different vocational courses students study environmental studies in their syllabus, perceive the environmental problems in a similar way and try to acquire more and more information for forming and devaluating alternative solutions regarding these problems.

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