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ACCOMPLISHMENT OF ENVIRONMENTAL EDUCATION OBJECTIVES IN ENGINEERING COLLEGES OF CHANDRAPUR CITY, CENTRAL INDIA

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ABSTRACT

The present study focused on achievement of environmental education objectives in students of engineering colleges of Chandrapur city, Central India. It primarily aims at assessment of environmental education objectives w.r.t. environmental knowledge, action, awareness and attitude of the engineering students. The study was carried out in 2016. For conducting this study the existing two colleges in the city were selected. Sample size for the study includes 60 students, which comprises of 30 male and 30 female students of first year who were learning UGC's environmental Studies Course and second year that were completed this course. The data was collected from the students through interview schedule which was analyzed on the basis of sample population response. The results revealed that the variables like gender, area, school and caste-category had significant impact in achieving environmental education objectives. It was observed that level of environmental awareness was higher 79.68% whereas participation level was low with 54.69% among engineering students.

Keywords: Action, Attitude, Awareness, Chandrapur, Environmental education, Engineering student, knowledge

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Introduction

Scientific and technological interventions has lead to myriad changes in the environment. The unwanted progress of the nature are climatic disturbance, augmented ultraviolet (UV)-B radiations and insufficient and contaminated drinking water etc., from which most of having sober consequences are less understandable and umpire through the functioning of ecological systems. Human being is totally depend upon the nature but it is now undergoing rapid change this will prove to be serious hazards to human race (ARIES, 2016). The yield of unintended and insensible approach will have to be ed by the future generations that led to be irreparably damage the relationship and agreement of human beings with the nature (Shobeiri and Prahallada, 2008). To overcome this situation number of scientific, technological, managerial measure were adopted however only the moral and ethical education can bring the fundamental change in society, change of attitude towards nature and the environment that can lead to progress towards sustainable development. Environmental education is an influential sensitization tool for environment and biodiversity conservation, and also for the sustainable use of natural resources (Sukhwinder Kaur, 2013). India is one of the countries in the world where a commitment to environmental protection and improvement is preserve in the constitution (Pandya, 2000). Environmental education should be taught as a compulsory subject so as to edify the environmental awareness and protection through medium of education, had directed by Honorable Supreme Court of India (Sengupta *et al*., 2010). The protection of the earth needed awareness, knowledge, attitudes, skills and participation of people which are the objectives of environmental education as declared in Tbilisi's declaration (Singh *et al*., 2014). The desired changes like intended to improve the social ecological aspects of social ecological system, including human being that result from environmental education course is termed as an environmental education outcomes (Russ, 2014).

As to known the achievement of the environmental education, there is need to evaluate the environmental education programme. Evaluation means making a decisive assessment of environmental education (Stokking *et al*., 1999) so as to find out the gaps and to improve the educational quality and practices by monitoring the effectiveness of environmental education programme (Russ, 2014). The present study is focused on the environmental education outcomes in engineering students of Chandrapur city of Central India.

Methodology

A research tool student's interview schedule was used for this study. This interview schedule was especially designed and developed for their study. After carrying out pilot study the interview schedule was modified and upgraded. The interview schedule had the self efficiency to evaluate the environmental education programme and the achievements of environmental education objectives such as knowledge, action**,** awareness and attitude in engineering colleges of Chandrapur city, Maharashtra.

Sample size

For this study total 60 students (n=60) were selected from to engineering colleges of Chandrapur city viz. Rajiv Gandhi College of Engineering Research and Technology(RCERT) and Government Engineering College, Chandrapur (GEC) from I year and II year students. The details pertaining to the sample population is presented in Table 1. The data collected from the student was analyzed on the basis of comparison of response of the students. Sample size was selected on the basis of systematic random sampling.

Results and Discussion

The results obtained from the study are presented in Tables 2 and 3. The tables provide insight into environmental knowledge, action, awareness and attitude of engineering college students with respect to gender, area, school and category.

Knowledge

From results of the study as presented in Table 2, it was found that 77.70% male students had knowledge of environment as compared with female students (61.07%). The urban background engineering students had 74.01% environmental knowledge whereas rural students had 65.52%. There was no significant difference between government and convent background students environmental knowledge. It was also found that caste category background of students was considered as a significance factor in environmental knowledge, in which 74.03% OBC category student had environmental knowledge, while ST students had least environment knowledge (53.33%). General category and SC students had environmental knowledge of 68.34% and 59.22% respectively.

Action

The environmental action results revealed that gender was not considered as a significant factor in participation for environmental conservation (action). It was found that rural background students had more participation 57.10% in environmental conservation as compared to urban students (48.54%). There was a significant difference in government and convent background students with respect to actions towards environmental conservation. Government school background students had more participation 57.60% than convent background students (49.07%). The OBC category students had more participation 65.42% as compared to General (49.40%), SC (57.11%) and ST (57.14%) category.

Awareness

Environmental awareness among students was found to be male students had 88.73% awareness whereas female had 71.06%. The area background of students was measured as an impact factor in students for awareness in environmental issues. Government school background students had environmental awareness of 84.50% whereas in convent school educated students it was found to be 79.10%. It was observed that caste category background of students was significant factor in environmental awareness of students. Among the students maximum environmental awareness was found in OBC students (94.40%) followed by ST students (86.66%), General category students (76.90%) and least awareness in SC (55.33%) students.

Attitude

The results indicate that gender and area background of students was dependable factor for environmental friendly attitude among students. It was found that convent school background students had more environmental friendly attitude (73.08%) than government background school (60.68%) students. The caste category background had no significant variation on environment friendly attitude among OBC (77.48%), SC and ST students whereas General category students had environmental friendly attitude of 64.58% only which was minimum among these caste category students.

Coefficient of Multiple Correlation

Coefficient of multiple correlation (multiple R) values computed for different variables in the study viz. gender, area, schooling, and caste-category of the students with environmental education objectives such as knowledge, awareness, action and attitude. The correlation coefficient provides information about strength of linear relationship. The observations were in between 0 to 1. The values nearer to 1 denote perfect positive relationship whereas a zero value denotes no relationship at all. Coefficient of multiple correlations for engineering students of Chandrapur city, Maharashtra is presented in Table 4. From this table it was observed that multiple correlation coefficient for gender and awareness was strongly correlated (0.78) whereas knowledge (0.36). Moderate correlation was observed (0.48) between area and knowledge (0.36). Minimum correlation was observed between area and action 0.09. Regarding schooling and knowledge and awareness minimum correlation coefficient of (0.23-0.27) was observed followed by attitude and action (0.18-0.19). Caste category of the students reported that awareness of the students was correlated (0.76) followed by knowledge (0.43).

Conclusion

Differences were observed in environmental knowledge, action, awareness and attitude of the engineering students with respects to the variables like gender, area, schooling and caste category background of the students. In environmental knowledge, gender, area and caste category background of students had considered as impact factors. As comparison to participation for environmental conservation; area, schooling and caste category background of the students were measured as responsible factors. Regarding environmental awareness gender, schooling and caste category were found to be governing factors. The environmental friendly attitude was found to be governed by schooling background and caste category background. From the objectives of environmental education, awareness in environmental issues was found to be more among students while participation for environmental conservation was minimum. The variables such as gender, area, schooling background and caste category are considered as a gap in achieving environmental education objectives which need to be overcome by introducing certain measures in environmental education programmes.

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Table 1: Sample population from the study area

College	**Gender**		**Background**								**Total number of students**
	(M)*	(F)*	Area		School		Caste Category				
			(R)*	(U)*	(G)*	(C)*	General	OBC	SC	ST	
RCERT I	9	11	8	12	5	15	5	7	4	4	20
RCERT II	4	6	5	5	4	6	3	2	2	3	10
GEC I	11	9	13	7	11	9	4	8	7	1	20
GEC II	6	4	4	6	7	3	2	6	2	---	10

(M): Male, (F): Female, (R): Rural, (U): Urban, (G): Government, (C): Convent

Table 2: Environmental education objectives achievements

Variables	**Particulars**	**Knowledge**	**Action**	**Awareness**	**Attitude**
Gender	Male	77.70	53.72	88.73	65.32
	Female	61.07	51.87	71.06	63.30
Area	Rural	65.52	57.10	78.86	63.28
	Urban	74.01	48.54	81.10	63.98
School	Government	63.46	57.60	84.50	60.68
	Convent	67.66	49.07	79.10	73.08
Category	General	68.34	49.40	76.90	64.58
	OBC	74.03	65.42	94.40	77.48
	SC	59.22	57.11	55.53	71.06
	ST	53.33	57.14	86.66	72.00

Table 3: Summary of environmental education objectives in the engineering students from study area

Variables	Particulars	Knowledge	Action	Awareness	Attitude
Gender	Male	M>F	M=F	M>F	M=F
	Female				
Area	Rural	R<U	R>U	R=U	R=U
	Urban				
School	Government	G=C	G>C	G>C	G<C
	Convent				
Category	General	OBC>General>SC>ST	OBC>SC=ST> General	OBC>ST>General>SC	OBC>SC=ST>General
	OBC				
	SC				
	ST				

Table 4: Coefficient of Multiple Correlations

Variables	EE objectives	Multiple R
Gender	Knowledge	0.36
	Action	0.06
	Awareness	0.78
	Attitude	0.11
Area	Knowledge	0.36
	Action	0.09
	Awareness	0.18
	Attitude	0.10
School	Knowledge	0.27
	Action	0.18
	Awareness	0.23
	Attitude	0.19
Category	Knowledge	0.43
	Action	0.14
	Awareness	0.76
	Attitude	0.33