

# Impact of Discipline of Study on Environmental Behaviour of Undergraduate Students

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**Abstract :** The present study has been undertaken to quantify the impact of discipline of study on environmental behavior of undergraduate students of Jabalpur city. There was a significant association between performance categories of environmental behaviour and disciplines of study as reflected by chi-square test ( $\chi^2=35.76$ ,  $P<0.001$ ). Positive environmental behaviour was shown by the maximum number of students from mathematics (i.e. 77%) and the minimum number of students from commerce (i.e. 33%) and business administration (i.e. 35%) disciplines. Average environmental behaviour was reflected by the maximum number of students from business administration (i.e. 55%) and the minimum number of students from mathematics (i.e. 23%) disciplines. Mean environmental behaviour scores also varied significantly among students of various disciplines as reflected by analysis of variance test ( $F=9.61$ ,  $P<0.001$ ), and followed an order of mathematics  $\geq$  biology  $\geq$  arts  $\geq$  business administration  $\geq$  commerce. These results may denote that actual individual commitment to protect the environment may be influenced by students' discipline of study.

**Index Terms – Environmental behaviour, undergraduate students, disciplines of study.**

## I. INTRODUCTION

The rich variety of genes, species and ecosystems, which has been the foundation for the social, economic and cultural diversity on this planet for past billion years, has now itself become an issue of serious concern. The industrial revolution not only modernized the human society but also catalyzed an explosion in the population growth, which is projected to reach 9 billion over the next 50 years up from 6.8 billion today (Singhal, 2011). Majority of developing countries like India not only lack necessary scientific technological base but also the will to act to sustain environment health. Under such a scenario, the society needs to be educated about the importance of environment and sustainable development for ensuring a healthy and homeostatic environment for our future generation. Ecological behaviour may appear to be susceptible to a wide range of influences beyond one's control (Hines et al, 1987). Psychology attempts to train human societies to be less exploitive in their use of natural resources (Kruse, 1995) and miser in generation of wastes. The degree of environmental awareness and attitude may determine an individual's ecological behaviour, i.e. human reactions responsible for either environmental preservation or conservation or degradation (Axelrod & Lehman, 1993). Environmental behavior of individuals in particular and communities in general and their environmental consciousness are vitally important in solving the unique, local, regional and global environmental problems. The present paper quantifies the impact of discipline of study on environmental behaviour of undergraduate students, which may help in finding ways and means of improving environmental responses of Indian youths in sustainable development of society.

## II. METHODS

The present study was conducted on a sample of 254 first year undergraduate students studying in different disciplines of study at St. Aloysius College (Autonomous), Jabalpur. There were 52 students of mathematics (B.Sc. with Mathematics), 50 students of business administration (BBA), 51 students of commerce (B.Com.), 50 students of biology (B.Sc. with Biology) and 50 students of arts (BA) disciplines. The students were randomly selected from each discipline of study and each student was tested for his/her environmental behaviour with a standard test, namely "Environmental Behaviour Scale" (Singhal et al, 2010). The test comprises of 60 statements based on different dimensions of environment. A total of 40 statements are positively worded – eliciting a "yes" response and the remaining 16 statements are negatively worded – eliciting a "no" response from the students. For each positive statement, 1 mark is to be awarded for a "yes" response, and 1 mark is to be awarded for a "no" response for each negative statement. The scale has the maximum score of 60 marks and the minimum of 0 marks. The direction of scoring is such that a high scoring in the scale shows a better environmental behaviour.

The students' responses were scored strictly following the prescribed procedure and categorized on a 3-point scale, positive environmental behaviour ranging from 48 to 60, average environmental behaviour ranging from 37 to 47 and negative environmental behaviour from 0 to 36. The data was analyzed by standard statistical tools (Garret, 1981, Snedecor and Cochran, 1989, Asthana, 2007). Descriptive statistic was used to calculate mean, standard deviation and coefficient of variation. Inferential statistics was applied for testing association between attributes by chi-square test and comparison of means by one-way analysis of variance.

Table 1 Association between discipline of study and performance category of environmental behaviour of undergraduate students by Chi-square statistics.

Performance Category	Discipline of Study					Total
	Business Administration	Mathematics	Commerce	Biolog y	Arts	
Positive	18	40	17	26	27	128
Average	28	12	22	21	19	102
Negative	05	00	12	03	04	24
Total	51	52	51	50	50	254

$\chi^2 = 35.76 > \chi^2_{0.001} = 26.12$  at 8 degree of freedom.

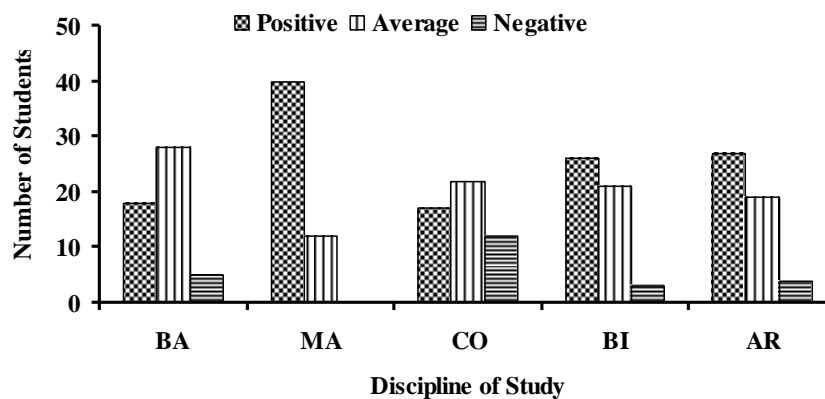


Figure 1 Distribution of undergraduate students according to performance categories of environmental behaviour in different disciplines of study (BA – business administration, MA – mathematics, CO – commerce, BI – biology, AR – arts).

Table 2 Mean score of environmental behaviour of undergraduate students in different disciplines of study.

Discipline of Study	Number of Students	Mean	Standard Deviation	Coefficient of Variation (%)
Business Administration	51	45.35	6.53	14.4
Mathematics	52	50.78	5.76	11.4
Commerce	51	43.13	8.13	18.9
Biology	50	47.70	5.87	12.3
Arts	50	47.44	6.44	13.6

$F = 9.61 > F_{0.001} = 4.77$  at 4 and 249 degrees of freedom.

### III. RESULTS AND DISCUSSION

Table 1 displays association between discipline of study and performance category of environmental behaviour of undergraduate test. Fig. 1 shows the distribution of undergraduate students according to performance categories of environmental behaviour in different disciplines of study. Among students of mathematics discipline, the maximum number recorded the positive environmental behaviour (i.e. 77%) and the remaining recorded the average behaviour (i.e. 23%), while none recorded the negative behaviour. Maximum number of students pursuing arts (i.e. 54%) and biology (i.e. 52%) disciplines also recorded the positive behaviour, followed by those with average behaviour (i.e. 38% and 42%, respectively), while the minimum number recorded the negative behaviour. The proportion of students with average behaviour was the maximum in commerce (i.e. 43%) and business administration (i.e. 55%) disciplines, followed by those with positive (i.e. 33% and 35%, respectively) and negative (i.e. 24% and 10%, respectively) behaviour. There was a highly significant association between discipline of study and performance category of environmental behaviour ( $\chi^2=35.76, P<0.001$ ).

Table 2 displays mean scores, standard deviation and coefficient of variation of undergraduate students in different disciplines of study. The mean score of environmental behaviour of students differed significantly among students of various disciplines ( $F=9.61, P<0.001$ ). It was the maximum in case of students of mathematics discipline and the minimum for students of commerce discipline. The students of arts and biology disciplines recorded nearly equal mean scores. The variability in performance of students, as measured by coefficient of variation, was the minimum in mathematics discipline (i.e. 11.4%) and the maximum in commerce discipline (i.e. 18.9%). However, performance of students in their environmental behaviour was very consistent as coefficient of variation was always between 10 and 20%.

Majority of students exhibited average to positive environmental behaviour, while a minority recorded the negative environmental behaviour, implying their sensitivity to the environment. The discipline of study significantly impacted performance distribution as well as mean scores of environment behaviour, following an order of mathematics  $\geq$  biology  $\geq$  arts  $\geq$  business administration  $\geq$  commerce. Singhal (2011 & 2013) has earlier reported a significant impact of discipline of study on environmental behaviour of higher secondary students, recording the maximum mean score for mathematics discipline and the minimum for humanities. These findings signify pivotal role of youths in the community with great potential for environmental protection [Lee, 2009]. Attitudes, knowledge, behaviour of the youths can either directly or indirectly influence future decision-making about natural resources and how their use can be sustainable (Meinhold & Malkus, 2005). Therefore, young people need to be motivated for shaping their pioneer pro-environmental behaviour and ensuring their active participation in addressing emerging environment issues and problems (Ting & Cheng, 2017).

According to Pooley & o'Connor (2000) and Chankrajang & Muttarak (2017), education is the most effective ways to solve environmental problems. Environmental education is considered important to increase individual knowledge, positive attitude, and eco-friendly behaviour. The current system of environmental education in India helps students to be fully acquainting them with their environment and implications of their actions (Saxena, 1986, Sarabhai et al, 2002, Trivedi, 2004, Sharma, 2006, Shrivastava, 2007). Our findings may denote that various disciplines of study in school as well college education require up gradation of the syllabi dealing with environmental studies and improving upon their responses to environment through indoor as well as outdoor activities.

#### IV. ACKNOWLEDGEMENT

The author expresses her gratitude to the Principal, St. Aloysius College (Autonomous) and Head of the Department of Education for extending her necessary facilities for this research.

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