

## Environmental attitude of higher secondary students

Archana Singhal\*, Tamanna Kaushal\* and Urmila Verma\*\*

### ABSTRACT

*The present paper studied environmental attitude of Standard XI students studying in various schools affiliated with Central and Madhya Pradesh Board of Higher Education in the city of Jabalpur, Madhya Pradesh. A vast majority of students (>80%) had favourable to most favourable attitude, which differed significantly according to the discipline of study following an order of Mathematics > Biology > Commerce > Humanities. Environmental attitude of students was similar between the two boards in all the disciplines except for mathematics. The female students showed more favourable environmental attitude than their male counterparts across all disciplines. This research may denote that family background or well being of the subjects has no impact on environmental attitude. But cultural affinity seems to play a significant role in attitude formation towards environmental concerns and problems. Effective environmental education for school age students is crucial, since young people's attitude towards environment begins to develop at a very early age.*

### INTRODUCTION

India is a mega-diverse country due to its peculiar location at the tri-junction of the Afro-tropical, the Indo-Malayan and the Paleo-Arctic realms. With only 2.4% of the global land area, it harbours 8% of the known global biodiversity, but is also home for 17% of the world's human population (ENVIS, 2009). In its pursuit of becoming a rich and developed nation, it is experiencing rapid growth in agriculture, manufacturing, transport and urbanization in synergy with a geometric rise in its human population and degradation of its natural habitat. This is a tricky situation for a developing country like India, where individuals' perception using a material as resource or waste gains critical importance in environmental management. Attitude may be affected by direct experiences of natural beauty and local environmental problems, facilitating a better appreciation about functioning of the nature and interdependence of its various components. The resulting change in attitude may shape one's environmental behaviour based alone on empathy with and love for nature.

An attitude has a well defined object of reference. The degree or strength of a person's attitude may vary from extremely positive through a gradation to extremely negative (Freeman, 1968). Attitude comes from judgements, following the ABC model, i.e., affect, behavioural change and cognition. Most attitudes are a result of observational learning from their environment. The link between attitude and behaviour exists but depends on human behaviour, some of which are irrational. Unlike personality, attitudes are expected to change as a function of experience, and can be changed through persuasion. It is assumed by some that increase knowledge about the environment promotes positive attitude (Arcury, 2000). The knowledge-attitude-behaviour model describes that an increase in knowledge will lead to change in attitude that in turn will influence behaviour. A positive environmental attitude may facilitate willing participation of people in reduction of environmental problems (Al-Rabaani & Al-Mekhlafi, 2008). Wray-Lake *et al.* (2008), on the basis of trends in adolescent environment attitude, beliefs and behaviour across three decades in the United States of America, conclude that the recent declines in environmental concerns of youth

\*Assistant Professor, Department of Education, St. Aloysius College (Autonomous), Jabalpur 482 002, Madhya Pradesh, India  
\*\*Director, Department of Education, St. Paul College, Jabalpur 482 002, Madhya Pradesh, India

signal the need for a renewed focus on young people's views and calls for better environmental education and governmental leadership.

Young people's environmental attitudes are particularly important because they will ultimately be affected by and will need to provide solutions to environmental problems arising from present-day actions. As future scientists, policymakers, consumers, and voters, today's youth will be responsible for fixing the environment, and they are the ones who must be persuaded to adopt and pay the costs of future environmental policies. Therefore, it appears that effective environmental education for schoolage students is crucial in sustainable development of society. In general, young people's attitudes toward the environment begin to develop at a very early age. By the time they reach adolescence, many have acquired some level of environmental understanding of issues such as ecology, technology and economics, and can formulate their own views on how each influence environmental concerns and policy. The present study has, therefore, been conducted to measure environmental attitude of higher secondary students with the objectives of comparing it according to discipline of study, board of affiliation and gender.

### Hypotheses

- There are no differences in environmental attitude and of students pursuing humanities, commerce, biology, and mathematics disciplines.
- There are no differences in environmental attitude of students between Central and Madhya Pradesh Boards of Secondary Education.
- There are no gender differences in environmental attitude of students.

### Method

The present study was conducted on standard XI students of Jabalpur city, Madhya Pradesh. The students were randomly selected from 13 schools of Jabalpur city, comprising 6 schools affiliated to Madhya Pradesh Board of Secondary Education and 7 to Central Board of Secondary Education. The total sample comprised of 1,385 students with 722 belonging to the M.P. Board and remaining 663 to the Central Board. The number of boys and girls belonging to the Central Board was 13 and 42 in the discipline of biology, 102 and 145 in commerce, 18 and 12 in humanities, and 168 and 163, mathematics. The corresponding values for M.P. Board were 11 and 86, 106 and 191, 15 and 78, and 108 and 127, respectively. The tool used to measure environmental attitude was a standardized Psychological questionnaire based test named Environmental Attitude Scale by N.N. Shrivastava & Shashi Prabha Dubey, published by Arohi Manovigyan Kendra, Jabalpur. The test comprised of 40 items with all being positively worded. Every item was provided with three alternatives - Agree, Undecided and Disagree. Each 'Agree' statement was allotted 2 marks, each 'Undecided' 1 mark, and each 'Disagree' 0 marks. The maximum score of the test was 80 marks. The norms of the test are as follows:

Environmental Attitude	Boys	Girls
Most favourable	59 and above	56 and above
Favourable	52 - 58	49 - 55
Intermediary	45 - 51	42 - 48
Unfavourable	38 - 44	35 - 41
Most unfavourable	37 and less	34 and less



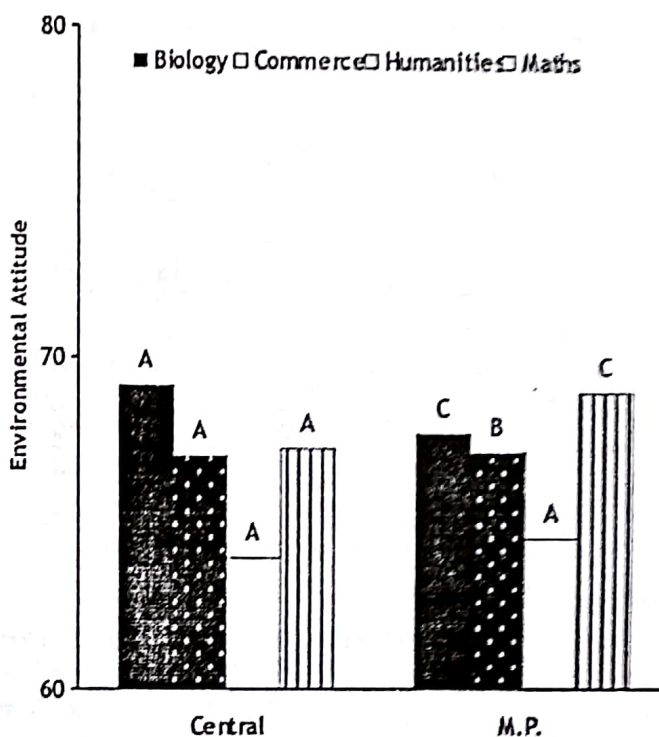
## Results

Environmental attitude ranged from 40 to 80 among the boys and 39 to 80 among the girls studying in schools affiliated to the M.P. Board. Majority of boys (100% in biology, 95% in commerce, 87% in humanities and 96% in mathematics) and girls (99% in biology, 99% in commerce, 97% in humanities and 99% in mathematics) recorded favourable to most favourable environmental attitude. In the schools affiliated with the Central Board, it ranged from 31 to 80 among boys and girls. Majority of boys (100% in biology, 87% in commerce, 82% in humanities and 93% in mathematics) and girls (100% in biology, commerce, and humanities and 99% in mathematics) recorded favourable to most favourable environmental attitude. The mean environmental attitude of students affiliated to the M.P. Board differed significantly among different disciplines ( $F_p < 0.001$ ), but it did not differ significantly for students of the Central Board ( $F_p > 0.05$ ).

The students of humanities discipline affiliated with the Central as well as M.P. Boards recorded the minimum mean values of environmental attitude (Figure 1). The maximum mean values were recorded for students of mathematics discipline in the M.P. Board and for biology students in the Central Board. The students of biology, commerce and mathematics streams showed statistically similar values of environmental attitude. It was in the order of Mathematics  $\geq$  Biology  $\geq$  Commerce  $\geq$  Humanities among students of both the boards (Figure 1). The mean values showed that all students had most favourable environmental attitude.

Students of the M. P. Board recorded higher levels of environmental attitude in comparison to that of the Central Board in the streams of commerce (67.18 vs. 67.03), mathematics (69.00 vs. 67.27) and humanities (64.60 vs. 63.93). However, such differences between both the boards were statistically significant only in the stream of mathematics ( $p = < 0.01$ ). Students of the Central attitude than that of the M.P. Board (However, students of all the disciplines differences between the two boards.

Figure 1: Comparison of mean environmental attitude of students of different disciplines in Central and M.P. Boards (Differences were significant between disciplines at  $p < 0.05$  by New Multiple Range Test).



The female students recorded significantly more favourable environmental attitude than the male students in the discipline of commerce (68.25 vs. 65.26), mathematics (69.38 vs. 66.53) and biology (68.77 vs. 65.58), and insignificantly higher levels in humanities (64.87 vs. 63.27). The gender differences were more pronounced in the commerce and mathematics ( $p = <0.001$ ), less pronounced in biology ( $p = <0.05$ ), and statistically insignificant in the discipline of humanities ( $p = >0.05$ ) (Table 2). On the basis of all the disciplines taken together, girls recorded significantly more favourable environmental attitude than boys ( $p = <0.001$ ).

**Table 1:**  
Comparison of mean environmental attitude of students between the two Boards.

Discipline	Board	N	Mean	Standard deviation	t value
Commerce	Central	247	67.03	9.50	0.20
	M.P.	297	67.18	7.77	
Humanities	Central	30	63.93	12.08	0.33
	M.P.	93	64.60	8.82	
Mathematics	Central	331	67.27	7.54	2.74**
	M.P.	235	69.00	7.22	
Biology	Central	55	69.18	6.03	1.28
	M.P.	97	67.74	7.01	
All	Central	663	67.19	8.49	0.73
	MP	722	67.51	7.75	

\* $p = <0.05$ ; \*\* $p = <0.01$ .

**Table 2:** Comparison of mean environmental attitude of female and male students.

Discipline	Gender	N	Mean	Standard deviation	t value
Commerce	Female	336	68.25	7.57	4.00***
	Male	208	65.26	9.77	
Humanities	Female	90	64.87	8.32	0.81
	Male	33	63.27	12.73	
Mathematics	Female	290	69.38	6.79	4.63***
	Male	276	66.53	7.83	
Biology	Female	128	68.77	6.53	2.17*
	Male	24	65.58	7.04	
All	Female	844	68.35	7.35	5.78***
	Male	541	65.80	8.96	

\* $p = <0.05$ ; \*\* $p = <0.01$ ; \*\*\* $p = <0.001$

### Discussion

Majority of students from both the Boards have shown favourable to most favourable environmental attitude, while a small minority revealed the unfavourable attitude. Environmental attitude did not differ between the Central and M.P. Boards. Al-Rabaani & Al-Mekhlafi (2008) also found that students' attitude towards environmental problems was not influenced by different schools. These results may denote that family background or well



being of the subjects has no impact on environmental attitude. The results of earlier researches in this respect are contradictory. Silberstein (1981) and Cohen & Wingerd (1993) found that education has a positive effect on student attitudes, while others have shown no relation between education and attitude (Al-Najede, 1990; Lyons & Breakwell, 1994).

are the researches that found no gender differences in environmental attitude (Ushadevi & Dhanya, 2009). But the other researches found that environmental attitudes are influenced by gender (Kuhn, 1979; Schahn & Holzer, 1990, Worsley & Skrzypiec, 1998; Singhal, 2008). The girls in the present study have shown a more favourable environmental attitude than the boys, which may be linked to our cultural heritage and milieu. Cultural affinity seems to play a significant role in attitude formation towards environmental concerns and problems (Kuribayashi & Aoyagi-Usui, 1998). For example, the girls are engaged in daily chores of a typical Indian home, making them more sensitive towards their environment.

The discipline of study has significantly affected the level of environmental attitude among the students, which followed an order of mathematics  $\geq$  biology  $\geq$  commerce  $\geq$  humanities. These results are consistent with the earlier researches reported by others (Al-Rabaani & Al-Mekhlafi, 2008; Ushadevi & Dhanya, 2009). This may show that actual individual commitment to protect the environment is a function of the level of education, demonstrating that highly educated populations are more likely to be actively involved in environmental protection (Goetz *et al.*, 1998). Arcury (2000) also assumed that increased knowledge about environment promotes positive attitudes. Most theories of attitudes have noted two components: an emotional dimension involving feelings and a cognitive aspect that refers to dispassionate facts and beliefs. An attitude is something else beyond simple facts that may be judged against other data, it has an evaluation component. This may be very deep at an emotional level, where it is called affect. Environmental affects are crucial concepts in the environmental concern domain (Maloney & Ward, 1973; Maloney *et al.*, 1975).

Analyses of trends in youth attitudes toward environmental responsibility in U.S.A. revealed that they tended to see government and people in general as more responsible for environmental problems than they themselves felt. Clearly, the average high school senior across the past three decades has not viewed him or herself as the first line of defense in protecting the environment (Wray-Lake *et al.*, 2008). Therefore, it appears that effective environmental education for school age students is crucial, since young people's attitude towards environment begins to develop at a very early age.

## References

- Al-Najede, A. (1990). The effect of environmental science curriculum on development of environmental attitudes of in service teachers. *Egyptian Association of Curricula and Teaching Methods*, 1, 40-45.
- Al-Rabaani, A.B.H., & Al-Mekhlafi, M.S.S. (2008). Attitudes of the Sultan Qaboos University students towards some environmental problems. *Indian Journal of Environmental Education*, 8, 8-21.
- Arcury, T.A. (2000). Environmental attitude and environmental knowledge. *Human Organization*, 49, 300-304.
- Cohen, S., & Wingerd, D. (1993). Children and the environment: ecological awareness among preschool children. *Environment and Behaviour*, 25, 103-120.
- ENVIS. (2009). *State of Environment Report India - 2009*. Environmental Information System (ENVIS). New Delhi: Ministry of Environment & Forests, Government of India.

- Freeman, F.S. (1968). *Theory and Practice of Psychological Testing (III Edition)*. New Delhi: Oxford & I.B.H. Publishing Co.
- Goetz, S.J., Debertin, D.L., & Pagoulatos, A. (1998). Human capital, income, and environmental quality: a state level analysis. *Northeastern Agricultural and Resource Economics*, 27, 200-208.
- Kuhn, D. (1979). Study of the attitudes of secondary school students towards energy-related issues. *Science Education*, 63, 609-620.
- Kuribayashi, A., & Aoyagi-Usui, M. (1998). Pro-environmental attitudes and behaviour: a comparison of Thailand and Japan. *NLI Research*, 122, 34-46.
- Lyons, E., & Breakwell, G. (1994). Factors predicting environmental concern and indifference in 13 - to 16 years - olds. *Environment and Behavior*, 26, 223-238.
- Maloney, M. P., & Ward, M.P. (1973). Ecology: let's hear from the people. an objective scale for the measurement of ecological attitudes and knowledge. *American Psychologist*, 28, 583-586.
- Maloney, M. P., Ward, M.P., & Braucht, G.N. (1975). Psychology in action: a revised scale for the measurement of ecological attitudes and knowledge. *American Psychologist*, 30, 787-790.
- Schahn, J., & Holzer, E. (1990). Studies of individual environmental concern: the role of knowledge, gender, and background variables. *Environment and Behavior*, 122, 767-786.
- Silberstein, M. (1981). Factors which affect students' attitudes towards the use of living animals in learning biology. *Journal of Science Education*, 65, 119-130.
- Singhal, A. (2008). *A Study on Impact of Environmental Awareness and Environmental Attitude on Environmental Ethics and Behaviour among the +2 Students*. M.Ed. Dissertation (Unpublished), Jabalpur: Rani Durgavati University.
- Ushadevi, V.K., & Dhanya, R. (2009). Student-teachers' environmental awareness and attitude towards local environmental issues. *Indian Journal of Environmental Education*, 9, 8-15.
- Worsley, A., & Skrzypiec, G. (1998). Environmental attitudes of senior secondary school students in South Australia. *Global Environmental Change*, 8, 209-225.
- Wray-Lake, L., Flanagan, C.A., & Osgood, D.W. (2008). *Examining Trends in Adolescent Environmental Attitudes, Beliefs, and Behaviour across Three Decades*. Network on Transitions to Adulthood Research Network Working Paper. MacArthur Foundation Network on the Transition to Adulthood, U.S.A.