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# Secondary Students' Environmental Attitudes: The Case of Environmental Education in Bangladesh

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**Abstract**

This paper examined secondary students' environmental attitudes in Bangladesh by employing a standardized environmental attitude scale. The scale consisted of 15 questions rated on a Likert-type scale ranging from 1 (*strongly disagree*) *to* 5 (*strongly agree*). 400 secondary students, with equal number of boys and girls from both the urban and rural schools participated in this study. The study found that overall students from both the urban and rural areas expressed favourable environmental attitudes with girls having a significantly higher level of favourable environmental attitudes than boys; in particular, rural girls had the highest level of environmental attitudes comparing among others. This paper discussed the scope for further research to identify the gap and relationship between environmental attitudes and environmental behaviours of Bangladeshi adolescents.

**Keywords***:* Environmental Attitudes, Environmental Education, Environmental Management

## 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 behaviour, which is highly influenced by the attitudes people possess (Meinhold & Malkus, 2005; Ramsey & Rickson, 1976). In other words, people's decision making is also guided by the values and attitudes they possess (Rennie, 2005, 2007). Environmental attitudes are therefore a big concern in significant environmental education research (e.g., Bradley, Waliczek, & Zajicek, 1999; Clarke, 1996; DiEnno & Hilton, 2005; Eagles & Demare, 1999; Kuhlemeier, Bergh, & Lagerweij, 1999; Lee, 2008; Mittelstaedt, Sanker, & VanderVeer, 1999; Ridener, 1997). Many of these studies are particularly concerned about young people's environmentally sensitive attitudes, because young people will be affected by and need to provide solutions to environmental problems as a result of present-day actions (Bradley et al., 1999). Consequently promoting environmental attitudes has been considered as an important part of environmental education as suggested in the respective international conventions and charters.

In the 1970s, Belgrade and Tbilisi conferences focused on the development of concepts and guidelines for environmental education. In the Belgrade Charter, it was argued that

> "[t]he 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 argument, promoting favourable attitudes towards environment has been seen as one of the goals of environmental education. At the Tbilisi conference, on the other hand, objectives for environmental education were defined, where one objective specifically focused on helping individuals acquire favourable attitudes to protect and improve the environment (UNESCO, 1977). Also, environmental attitudes are considered as a component of environmental literacy (Roth, 1968), which is perceived to be the primary goal of environmental education (Arcken, 2001).

This paper reports a study examining secondary students' (age range 14-15 years) environmental attitudes in Bangladesh. Research shows that environmental attitudes continue to develop up to adolescence. By adolescence, many acquire some level of environmental understanding (Bradley et al., 1999), which is often important for environmental attitudes. So, adolescents may have a level of understanding to express their attitudes towards the environment. As secondary students in Bangladesh can be considered as adolescents, they have been considered in this research. Moreover, the secondary level is very important in Bangladesh context, since this is the terminal education for one-third of the total number of students (Bangladesh Bureau of Educational Information and Statistics [BANBEIS], 2006). These students do not or cannot continue their formal education beyond secondary education and they usually join to the workforce of the country. Investigating secondary students can therefore provide a scope to know the environmental attitudes of students who may or may not continue their formal education after this level.

Findings of this study can be significant, because an understanding of students' environmental attitudes is important for responsive environmental management (La Trobe & Acott, 2000). Bangladesh is concerned about preparing such an environment management policy. The need for such a policy in Bangladesh is very important because like many other countries, Bangladesh is confronted with a host of environmental issues and problems, for example pollution, deforestation, salinity, urbanization, global warming and climate change, and so on (Ministry of Environment and Forest, 2001). To face these challenges it is important to acquaint our younger generation with appropriate knowledge, skills and attitudes relating to environment (Sarkar & Ara, 2007), because this generation will affect and be affected by the environment management policy undertaken today.

**Environmental Education Context in Bangladesh**

Some researchers argue that formal environmental education helps students to develop more favourable attitudes towards environment (Bradley et al., 1999; Ramsey & Rickson, 1976). Therefore it is reasonable to look at the environmental education context in Bangladesh within this study.

In Bangladesh, the education system consists of three major levels: primary, secondary and higher education. Primary level is a 5-year cycle and starts at age 6. Secondary education has three sub-stages: junior secondary (grade VI-VIII), secondary (grade IX and X), and higher secondary (grade XI and XII). In the secondary level, students choose their future study

direction from the groups of Science, Humanities, and Business Studies. Students of Science group study three units of Science – Physics, Chemistry and Biology separately, while students of the other groups study an integrated science unit named General Science (National Curriculum and Textbook Board [NCTB], 1996a).

Although there is no particular policy document on environmental education in Bangladesh (Salequzzaman & Stocker, 2001), in general, environmental education is introduced at the primary level in Grade III (NCTB, 2003). At this level, two units deal with environmental education named "Introduction to Environment: Science" and "Introduction to Environment: Social Science". After the primary level, environmental education is provided to students through a multidisciplinary approach. Similarly, in the secondary level, environmental education is provided to students through different subjects, such as Language, Social Science, General Science, and Biology. These subjects deal with various themes relating to environment, even though no general objectives of secondary education explicitly states any direct emphasis on environmental education (NCTB, 1996b).

At the secondary level, environment related themes are emphasized in the General Science unit, which is studied by students from the Humanities, and Business Studies group, which consists of almost 75% of the total secondary students (BANBEIS, 2006). The General Science curriculum includes four specific objectives relating to environment. These are:

- to acquire knowledge about energy; its sources, classifications, needs, uses, and conservation
- to understand about fossil fuels; its production, uses, conservation and alternative sources of energy
- to understand the components of ecosystem, inter-dependency between plants and animals, flow of energy, classification of ecosystem and balance of the environment
- to build up clear understanding about the interrelationship between population and environment, effects of population growth on environment, nature and danger of greenhouse effects and importance for the control of population growth (NCTB, 1996b, my translation)

Reflection of these four objectives is found in the General Science textbook. Five chapters in the textbook present environment related content: Population and Environment, Energy, Fuel, Ecology, and Disaster Management and Bangladesh (Haque, Shafiullah, Uddin, Roy, & Das, 2007).

In the Biology curriculum for science students, three specific objectives closely relate to environmental education, which appear to be very consistent with what is presented as objectives for the General Science curriculum. In the Biology textbook, three chapters discuss themes relating to the environment namely Organism and Environment, Pollution and Conservation of Environment, and Natural Diversities in Bangladesh (Muttaqi, Banu, Hasan, & Ahmed, 2007). Also in the Social Science textbook for students from the Science group, some environmental themes have been included, such as the earth's surface, sudden changes in the earth's crust, the atmosphere, isolation and temperature, cyclones, atmospheric pressure, humidity and precipitation. It also focuses on the effects of population growth on economic development (Begum, Shikdar, & Das, 2007).

In addition, in the Language (Bangla) textbook, which is designed as compulsory for all students, four chapters present various environment related content under the themes of population control and human resource development, environmental degradation, health and planting. Indeed even in the Islamic Education textbook for Muslim students, some

activities reflect the aspects of environmental education, such as preparing plan to clean the surroundings, preparing a list for drawbacks of smoking and drug addiction etc.

An overview of the discussion presented above appear to indicate that although there is no separate environmental education course in the secondary education in Bangladesh, environment related ideas are intended to provide to all students from both the science and non-science groups through different subject areas. However, it was also revealed in my curriculum review that most of these topics relating to environment failed to adequately portray the relationship between human activity and the quality of environment in the presentation of content.

## Methodology

### Participants Selection

Some researchers (e.g., Newhouse, 1991, as cited in Bradley et al., 1999) argue that environmental attitudes are most likely formed as a result of life experiences. As I have had an experience to live in both the urban and rural areas in Bangladesh, I could see that the life experiences in urban and rural settings are different. Because of their different settings and opportunities, the urban context offers far different arrays of experiences than the rural contexts. For example, students in rural areas usually have more opportunity to contact with the natural environment, whereas students in urban areas often have more access to the media discussing environmental concerns. Such exposures may have direct impact on the type of thinking and reasoning power which develops in them. Consistently, research (e.g., Muttaqui, 1983) found significant difference in post-primary students' environmental attitudes from urban and rural settings in Bangladesh. Thus I have considered both areas in participant selection within this study in order to show the difference.

In order for participant selection, two districts in Bangladesh were purposively selected due to my proximity and convenience. The secondary schools in these districts were divided into urban and rural category according to their geographical location. Five secondary schools from each of the urban and rural areas in each district were selected and twenty students from each of these schools were then randomly selected. In this manner, 400 participants were included altogether with equal number of boys (n = 200) and girls (n = 200). Both boys and girls students were included since some studies found significant sex difference in students' environmental attitudes (Mittelstaedt et al., 1999).

### Research Method and Analysis Procedure

A standardised attitude scale to determine students' environmental attitudes of Bangladesh adolescents, devised by Muttaqui (1982) was used in this study. The language of the scale was the participants' mother tongue, Bengali, which consisted of 15 questions rated on a Likert-type scale. Each of the attitude questions had an assigned score ranging from 1 to 5, with 1 representing the strongest disagreement and 5 representing the strongest agreement with the expressed attitude. Consequently, the closer the mean is to 5, the higher the student's attitudes. Some questions were placed into a negative form and subsequently the score was reversed for analysis. This was done to prevent an individual from developing a stereotyped response set where s/he developed a pattern, such as agreeing with all the statements (Babbie, 1998). If the mean score is 3 on a particular statement, it indicates that the student was undecided or apathetic or had no opinion about that statement. Consequently, a total mean score of 45 on the entire scale indicates neither favourable nor unfavourable attitudes. An overall mean score of less than 45 represents an overall

unfavourable attitudes; a score above 45 indicates an overall favourable attitudes. Both descriptive and inferential statistical procedures were used employing the statistical package SPSS.

**Results**

As discussed previously, students responded to an attitude scale consisting of 15 items, which can be clustered under three themes: concern about environment and associated problems, responsibility to environment, and influences of human activity on environment. Table 1 presents the results obtained from the participants' responses to the particular theme in the scale.

Table 1
*Students' Responses to the Environmental Attitude Scale*

| Theme: Concern about environment and associated problems | School context | *X* | *SD* | *t* |
|---|---|---|---|---|
| Conservation for oil and gas is necessary | Urban | 4.07 | 0.4 | 0.54 |
| | Rural | 4.01 | 0.3 | |
| Although thinking for water pollution is important, thinking for land pollution is unnecessary | Urban | 4.08 | 0.5 | 0.09 |
| | Rural | 4.09 | 0.4 | |
| Every insect should be destroyed because they do harm to crops and people | Urban | 1.9 | 0.2 | 1.17 |
| | Rural | 2.13 | 0.2 | |
| An increase of carbon dioxide in air may bring danger to the environment | Urban | 4.16 | 0.8 | 0.45 |
| | Rural | 4.11 | 0.6 | |
| It is not a matter if we, the younger, do not think about environmental pollution | Urban | 3.2 | 0.5 | 0.45 |
| | Rural | 3.27 | 0.4 | |
| I can keep my surroundings beautiful if I try a little | Urban | 4.72 | 0.7 | 1.44 |
| | Rural | 4.88 | 0.5 | |
| Theme: Responsibility to environment | School context | *X* | *SD* | *t* |
| Land, water and air must remain pollution-free in order to keep the environment beautiful and clean | Urban | 4.81 | 0.5 | 0.72 |
| | Rural | 4.89 | 0.6 | |
| Leaves and branches of the plants and trees should not be broken unnecessarily | Urban | 4.78 | 0.5 | 2.4* |
| | Rural | 3.52 | 0.4 | |
| It is not necessary to use water economically | Urban | 3.17 | 0.5 | 0.63 |
| | Rural | 3.24 | 0.5 | |
| I should not play high volume audio to create noise pollution, like | Urban | 4.53 | 0.6 | 1.11 |
| | Rural | 4.69 | 0.6 | |
| I should obey the law of "ban of polythene" | Urban | 4.49 | 0.7 | 0.63 |
| | Rural | 4.42 | 0.5 | |
| I should not throw pitches and coughs here and there | Urban | 4.75 | 0.6 | 0.42 |
| | Rural | 4.69 | 0.5 | |
| Theme: Influences of human activity on environment | School context | *X* | *SD* | *t* |
| Because of science and technology, people do not need to depend on environment | Urban | 3.17 | 0.6 | 0.63 |
| | Rural | 3.1 | 0.5 | |
| | Urban | 2.89 | 0.3 | 0.72 |

| | | | | |
|---|---|---|---|---|
| Balance of environment is not dependent on human activity | Rural | 2.97 | 0.3 | |
| Nature will conserve air, water and land automatically because these are the parts of nature | Urban | 2.08 | 0.3 | 2.03* |
| | Rural | 2.99 | 0.5 | |
| Total | Urban | 56.8 | 7.9 | 0.11 |
| | Rural | 57.0 | 6.8 | |

*Note.* *Significant at 0.05 significance level

Table 1 presents mean scores (*X*), standard deviations (*SD*), and respective *t*-values as clustered as school contexts. Data in this Table shows that students from both the urban and rural areas overall expressed favourable environmental attitudes. I come to this conclusion, because the total mean score was greater than 45 for all students (urban $X = 56.8$, rural $X = 57$). Also, the difference found between the urban and rural students' environmental attitudes was not at a statistically significant level.

Data in Table 1 also shows that students from both areas had a higher level of favourable environmental attitudes to the theme "concern about environment and associated problems" except two items in this theme. These two items relates to destroying insects and thinking about the environmental pollution. Both urban and rural students had negative environmental attitudes relating to destroying insects (urban $X = 1.9$, rural $X = 2.13$). Also, students did not have a higher level of environmental attitudes relating to thinking about the environmental pollution; their respective scores were just above the score indicating "undecided (3)" (urban $X = 3.2$, rural $X = 3.27$). To the other items except these two, students' mean score ranges between 4.01 and 4.88, which denotes a higher level of positive environmental attitudes.

As can be seen in Table 1, students expressed favourable environmental attitudes to all of the items relating to the theme "responsibility to environment". They did not however, have a higher level of attitudes relating to economic use of water. To this particular item, their respective scores were just above the score indicating "undecided" (urban $X = 3.17$, rural $X = 3.24$). However, it is apparent that students from both areas scored higher to the items relating to maintaining a pollution-free environment, forbidding noise pollution, obeying the environmental laws, and keeping own surroundings clean. In all of these cases, their mean score ranges between 4.42 and 4.89, which denotes highly favourable environmental attitudes. A significant difference was found between the urban and rural students' attitudes to the item relating to trees and plants being damaged. Students' mean score from the rural schools (rural $X = 3.52$) was lagging behind than that of the urban schools (urban $X = 4.78$).

It is apparent that students had overall unfavourable environmental attitudes relating to the theme "influences of human activity on environment". Students' mean scores tend to indicate that they had unfavourable attitudes relating to effect of human activity on the balance of environment (urban $X = 2.89$, rural $X = 2.97$) and conservation of air, water and land (urban $X = 2.08$, rural $X = 2.99$). Also, students had a low level of favourable attitudes relating to human's dependence on the environment.

**Sex, School Contexts and Environmental Attitudes**

Data in Table 2 shows the mean scores, standard deviations, and *t*-values obtained from the students' responses in terms of their sex and school contexts. Looking at the results for the *t*-test analysis comparing students' scores, by sex, it is apparent that girls scored significantly higher ($X = 59.65$) than boys ($X = 54.1$); $t = 4.89$, $p < 0.05$. This result indicates that girls had

significantly higher level of favourable environmental attitudes than boys. Consistently, in both school contexts, girls had a significantly higher level of favourable environmental attitudes than boys. In particular, rural girls had the highest level of positive environmental attitudes ($X$ = 61.4) compared to others (urban boys, urban girls and rural boys).

Table 2
*Environmental Attitudes Scores according to Sex*

| Sex | Urban ($n$ = 200) | | | Rural ($n$ = 200) | | | Total ($N$ = 400) | | |
|---|---|---|---|---|---|---|---|---|---|
| | $X$ | $SD$ | $t$ | $X$ | $SD$ | $t$ | $X$ | $SD$ | $t$ |
| Boys ($n$ = 200) | 55.7 | 7.8 | 3.39* | 52.6 | 7.6 | 6.93* | 54.1 | 7.7 | 4.89* |
| Girls ($n$ = 200) | 57.9 | 6.9 | | 61.4 | 7.1 | | 59.65 | 7.0 | |

*Note.* *Significant at 0.05 significance level

**Discussion**

This study attempts to illustrate a scenario of the environmental education context in Bangladesh secondary education and secondary students' environmental attitudes. The findings of this study indicate that secondary students had favourable environmental attitudes overall, which is consistent with that of some other studies conducted on the secondary students elsewhere, for example in the Netherlands (Kuhlemeier et al., 1999). As well, this finding also concur with two other studies conducted on primary and post-primary students in Bangladesh (Muttaqui, 1983; Viqarunnesa, 1986) more than two decades back. This study also finds that girls had a significantly higher level of favourable environmental attitudes than boys, which supports the previous findings of Mittelstaedt et al. (1999) and Muttaqui (1983). I would argue that this higher level of girls' environmental attitudes can be used in a dynamic way for educating girls. If their higher level of attitudes can be captured and sustained through environmental education, we may expect some dedicated female environmentalists in future.

This study reveals that students had a feeling that human activities do not influence environment greatly. For example, they expressed an unfavourable attitude relating to the balance of the environment (see Table 1). Their responses indicate that this balance is not affected by human activities. This finding seems to be alarming because many of the environmental problems including the imbalance of environment are occurred by human activities. Students may feel like this because of their deficiency of environmental knowledge in this respect. As previously discussed, most of the environment related content as presented in the secondary textbooks fails to portray the relationship between human activity and quality of environment, it seems to be reasonable to argue that students had the deficiency of knowledge in this respect, and hence, had unfavourable attitudes. My argument concurs with the idea that increased environmental knowledge may help improve environmental attitudes (Bradley et al., 1999; Ramsey and Rickson, 1976). Therefore, I would suggest curriculum and textbook developers, teachers and teacher educators in Bangladesh to be concerned in this regard.

This research also finds that students in rural school contexts had a slightly higher level of environmental attitudes than that of the students in urban school contexts. This finding seems to me somewhat interesting. Research (e.g., Eagles & Demare, 1999) shows that long term media and family influences are very important factors for developing environmental

attitudes. From my life experiences I have observed that rural people have much more opportunities to contact with nature and less access to the media than urban people. Moreover, in rural areas in Bangladesh, many of the students are the first generation learners; they get very little academic supports from their family. Also, I have reported elsewhere (Sarkar & Ara, 2007; Sarkar et al., 2008) that the schools where I worked for this study, occasionally have environment-friendly practices, particularly rural schools were seemed mostly poor in this respect. It is therefore very difficult to conclude which factors make rural students' high level of environmental attitudes. So it is reasonable to seek a good scope for further research to identify which factors influence students to develop environmental attitudes.

Ewert and Baker (2001) argue that there might be a gap between environmental attitudes and environmental behaviours. Respondents could be biased responding in socially desirable ways to test items designed to assess environmental attitudes. Particularly, respondents could respond to such items in ways which are consistent with socially acceptable views about environmental issues and positions and not on the basis of how they really feel. Therefore findings revealed from this study might not represent how the secondary students truly feel for the environment. Further research is required to identify the gap and relationship between environmental attitudes and environmental behaviours of Bangladeshi adolescents.

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