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Nepalese Adolescent's Environmental Discourses

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Abstract

The aim of this study was to determine the effect of gender, residential background, education, age and income on the environmental attitudes and behaviours of people. The data were gathered from 200 residents of Kirtipur, chosen randomly and were interviewed face to face. Student's t-test and one way analysis of variance (ANOVA) were used to analyse the changes in the environmental attitudes and behaviours of people in terms of gender, residential background, education, age and income. The results of the study showed that most of the people have realized their own responsibility in protecting environment and recognized the importance of environmental protection over economic development, and reduction in water consumption and turning off lights are most frequently practiced environmentally responsible behaviours. It also emerged from the study that environmental attitude and behaviour are under the influence of various socio-demographic variables; and pro-environmental attitudes can only be translated into environmentally responsible behaviours in low cost situation in context of developing country. The study also puts forth an open discourse about instilling '*environmental fashion culture*' among younger generation people.

Keywords: environmental attitude, environmental behaviour, socio-demographic variables.

1. Introduction

In the process of economic development, as being a developing nation, environmental status in Nepal is experiencing a serious threat in the name of urbanization, deforestation and excessive dependent on fossil fuels.

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Environmental protection and restoration are some of the major challenges, our society is facing now a days. Environmental protection and restoration efforts depend not only on the schemes implemented by government, but also on the daily choices made by individuals; how they behave toward the environment, what they consume, or what they are willing to give up. Therefore, studying pro-environmental attitudes and behaviours as well as the factors that determine them is a fundamental part of understanding the true potential to foster more sustainable development.

The approach of viewing and treating the environment are changing these days and many of the environmental groups are working hard to raise public awareness throughout the globe. Environmental degradation and the impact it has on society came to the forefront of the world's collective consciousness in the 1970s (Dunlap, Van Liere, Mertig, Jones, 2000). With the development of environmental awareness, there came an exigency to understand how humans respond to environmental degradation and pollution (Maloney, Ward, Braucht, 1975). One of the ways to avoid harming the environment and prevent its destruction is the change in human behaviour towards and in the direction of the naturalist dimensions. To achieve behavioural changes associated with a particular issue, at first, it requires changing in individual's attitude towards the same issue. In turn, environmental attitudes and behaviours are also affected by various socio demographic factors.

The patterns of consumption and production are not sustainable in developed or developing countries. In developed countries, the levels of pollution, especially those causing global change, are far too high and trends go in the wrong direction. In developing countries, there is too much strain on the local resource, and this strain is increasing due to population growth, urbanisation, modernising life style in unsustainable way and merely economic development mentality. Therefore, investigating environmental attitudes and behaviours of people in Nepalese community and in turn its socio-demographic dynamics is a major concern of this paper.

There is hardly any empirical study of environmental attitudes and behaviours in Nepal, if any, generally focus on specific environmental problems. Thus, this paper is in the quest of answering the question like are there any differences in environmental attitude and behaviour in terms of gender, residential background, education, age and income? Hence, this study aims to determine how some of the socio-demographic variables affect environmental attitudes and behaviours of people.

2. Literature Review

2.1 Human-Nature Nexus

The perception that humankind is at the apex of creation allows humans to feel the right to abuse the planet, to maltreat it, and ultimately to subdue it to humans' interests. The impact of human activity on the planet has been widely established to be the driver for dramatic tipping points on Earth's biosphere. The anthropocentric mind-set not only leads to disengagement and disaffection, but even contempt for the natural world. The estrangement of people with nature is in fact often recognized as a major obstacle to ecological protection (Miller, 2005), environmental concern (Takács-Sánta, 2007) and several environmental responsible behaviours (De Young, 2000; Bamberg, Moser, 2007). Such disengagement with nature is also seen as a major cause for local extinction of natural experience (Barthel et al., 2005; Barthel, Folke, Colding, 2010), a crucial impediment to a global sustainable change (Folke et al., 2011) and a barrier to the overall harmony between society and nature (Biriukova, 2005).

Unfortunately, addressing people's mind-set to trigger a significant behavioural change is a remarkably ambitious and complicated task to accomplish that cannot be accomplished by simply sharing information. The simple acknowledgment of catastrophic scenarios triggers a feeling of powerlessness and despair, which in turn leads to denial, apathy, and delegation of responsibility which directly impede any behavioural change (Kollmuss, Agyeman, 2002).

Thus, an emotional and cognitive reconnection of people and biosphere has to be seen as a psychological foundation, one that would allow sustainable actions to emerge on a daily basis without being considered luxurious but rather imperative to sustain humankind. It is important to dig deep about how do humans understand nature? Is there difference in understanding nature between children and adults? In this regard, Gardner (1999; cited in Hyun, 2005) theorizes that all human beings are born with a mental ability called naturalist intelligence to recognize and classify the natural world. More recently, it has been stated in the biophilia hypothesis that we, as a species, have an innate need to affiliate with nature due to our long evolutionary development within it (Wilson, 1993). As humans separate themselves from nature, this innate desire is not adapting to changing environments, but rather atrophying as each generation becomes more separate from nature (Kellert, Wilson, 1993; Kellert, 2005).

Children's understanding of the relationship of humans to nature is both partially complete and under construction during early childhood (Phenice,

Griffore, 2003). Children's development with little or no regular contact with the natural world is seen as a process of socialization by which children come to see themselves as separate and not a part of the natural world (Phenice, Griffore, 2003). Gardner (1999; cited in Hyun, 2005) believes young children tend to exhibit naturalist intelligence in a more holistic and descriptive fashion than adults do. That is, children experience the natural environment in a deep and direct manner, not as a background for events as some adults do (Sebba, 1991; Wilson, 1997). Sebba and Wilson also point out that the natural environment is an everlasting and dynamic stimulator for young children because most of them perceive the natural world through their primary perceptions, which are based on their sensory-directed experiences. A young child perceives nature in a personally meaningful way, while an adult perception of nature is more likely based on their own previous experiences and knowledge. In this regard, Wilson (1995) and Sebba (1991) hypothesize that during the early stage of cognitive development *perception conducts thought*. In contrast, human adults' way of knowing is mostly based on *perception obeys thought*.

The experience of nature and the natural environment may positively affect pro-environmental orientations (Chawla, 1999). Sensorial interaction with the biosphere has been assessed to be beneficial for cognitive, physical and health development. The cognitive benefits of contact with nature have been identified by various studies and indicate that nature improves awareness, reasoning, observation skills, creativity, concentration and imagination (White, 2004). Research has linked nature with physical benefits, including improved co-ordination, balance and agility (Fjortoft, 2001) and health benefits such as reduced sickness and a speedier recovery (White, 2004). In adulthood, even only the sight of natural environment positively influences the recovery of hospitalized patients, reduce sickness in prison and enhance health in a workspace (Kahn Jr, Severson, Ruckert, 2009). One example is the positive influence of direct contact with animals and natural environments to treat attention-deficit hyperactivity disorder (ADHD) (Taylor, Kuo, 2011).

Summarizing, nature fuels children's creativity and imagination, self-esteem, quietness, focus, understanding and education (Moore, 1997), besides it creates a long-term platform for positive behaviours towards the environment even for the adulthood (Chawla, 1999; Chawla, 2006).

Kellert (1993) suggests that people with stronger biophilic tendencies exhibit greater psychological wellbeing and hold more positive conservation ethics than those without. It has been found in a number of studies that outdoor recreationists tend to display greater pro-environmental attitudes and behaviours than those who do not engage in those activities (Theodori,

Luloff, Willits, 1998; Teisl, O'Brien, 2003). Similarly, early childhood experiences of nature have been shown to predict pro-environmental beliefs (Ewert, Place, Sibthorpe, 2005; Lohr, Pearson-Mims, 2005), and people with a rural childhood have been found to have more positive orientations toward the natural environment than those with an urban childhood (Hinds, Sparks, 2008).

If children's developing sense of self becomes disconnected from the natural world, then nature comes to be seen as something to be controlled and dominated rather than loved and preserved. Not only does the loss of children's outdoor play and contact with the natural world negatively impact the growth and development of the whole child and their acquisition of knowledge, it also sets the stage for a continuing loss of the natural environment (White, 2004). With children's access to the outdoors and the natural world becoming increasingly limited or non-existent, child care, kindergarten and schools, where children spend 40 to 50 hours per week, may be mankind's last opportunity to reconnect children with the natural world and create a future generation that values and preserves nature (Herrington, Studtmann, 1998; Malone, Tranter, 2003).

John Burroughs cautioned that, 'Knowledge without love will not stick. But if love comes first, knowledge is sure to follow'. The problem with most environmental education programs for young children is that they try to impart knowledge and responsibility before children have been allowed to develop a loving relationship with the earth (White, 2004). These arguments in environmental education on how to engage with children have often been more pedagogical than theoretical and place pedagogies, sustainable futures, global education, and nature-based education have all been central tools for encouraging educators to consider ways to empower children to give children agency to make a difference (Malone, 2007). Therefore, children's experiences during early childhood should nurture the conception of the child as a part of nature. During the early childhood period, regular positive interactions within nature help children develop respect and a caring attitude for the environment and the love of nature directly affects the intellectual activities of children's minds, which ultimately shapes their way of knowing about nature.

3. Methods and Materials

3.1 Study Area

The study focused on residents of Kirtipur of Kathmandu district, Nepal, located at 27^0 38' 37" to 27^0 41' 36" N and 85^0 14' 64" to 85^0 18' 00" E with altitude ranging from 1284m to 1524m above sea level. According to the 2011

national census of Nepal, the city is home to nearly 65,602 individuals with 36,476 (55.6%) males and 29,126 (44.4%) females in 19,441 households and at present has 19 wards and covers 1787 ha area. The annual population growth rate of the city is 4.8%.

3.2 Sample Size

The study examined data from the field survey which was collected over a period of November to December, 2012. The research population of the study was all the permanent residents of Kirtipur belonging to the age group of 17 years and above. To derive a representative sample, the research population was divided into two different geographical areas: rural and urban area. Within each area two wards (ward number 7 and 8 having rural characteristic and ward number 3 and 17 having urban characteristics) were selected by simple random sampling technique. Within each selected wards, 50 households (HHs) were selected by simple random sampling techniques from the already prepared list of the HHs and one member from each selected HH was approached to respond to the questionnaire. Hence, the sample composed of 200 respondents.

3.3 Measures

To get the information about what local people think about the environment and how they behave towards the environment, a one-on-one questionnaire survey was conducted. The literate respondents were asked to fill the questionnaire while those not able to read and write; the researcher asked questions with them and filled the questionnaire himself.

The questionnaire was composed by two sections consisting of statements about environmental attitudes and behaviours. The environmental attitude consisted of six items and were measured on five-point Likert type scales ranging from strongly disagree (1) to strongly agree (5). The coding was reversed for negative items. The respondent's environmental behaviours were assessed using five items related to daily environmental activities and were measured on three-point Likert type scales ranging from always (3) to never (1).

Demographic information was also collected during the survey, where respondents' gender (male=1, female=2) was recorded by the interviewer's observation. Gender and residential background (rural=1, urban=2) were measured as nominal variable. While respondents' age (17-39=1, 40-59=2, ≥60=3), education level (below SLC=1, SLC=2, above SLC=3), and income (≤NRs. 9,999=1, 10,000-19,999=2, ≥20,000=3) were measured as ordinal variable.

3.4 Statistical Analysis

Apart from descriptive methods, inferential techniques such as student's t-test and one way analysis of variance (ANOVA) were used to analyse data. The calculations were carried out using the Statistical Package for the Social Sciences (SPSS version 20).

4. Results and Discussion

4.1 Profile of Respondents

Of the 200 respondents in the study, male and female were equal in proportion (50% both) as similar to the rural and urban respondents in proportion, 27.5% respondents were having qualification below SLC[1] (School Leaving Certificate), 31.5% were SLC qualified and majority (41%) were found to have qualification above SLC. 40.5% of respondents were in the age group of 17-39 years, 44.5% in the age group of 40-59 years and 15% were ≥ 60 years. The gross monthly income of 36% respondents was below NRs. 10,000, 48.5% earn in the range of NRs. 10,000-19,999 and only 15.5% earn above NRs. 19,999.

TABLE 1. Demographic profile of the respondents

		Total (N=200)	Rural (100)	Urban (100)
Gender				
	Male	100	50	50
	Female	100	50	50
Education				
	Below SLC	55	36	19
	SLC	63	32	31
	Above SLC	82	32	50
Age (Years)				
	17-39	81	42	39
	40-59	89	41	48
	≥60	30	17	13
Income (NRs.)				
	≤9,999	72	41	31
	10,000-19,999	97	46	51
	≥20,000	31	13	18

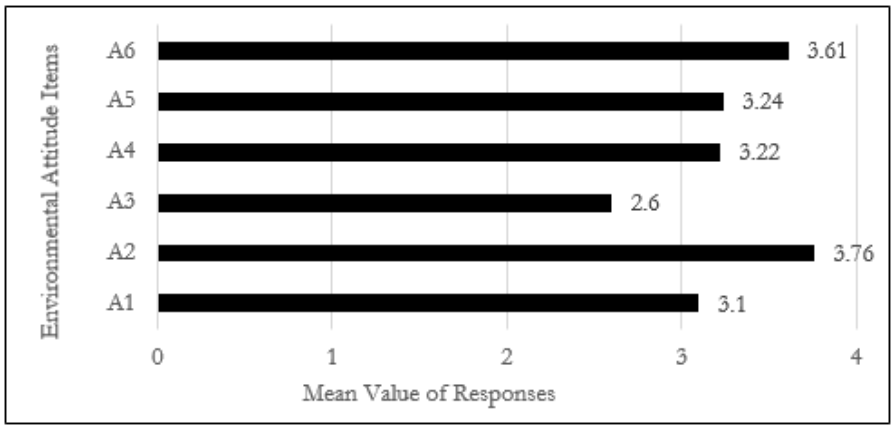
[1] SLC is the final examination in the secondary school system of Nepal which is recognized by the government as the level of examination to be passed by the 10th grade students conducted by the government centrally upon the success of the internal examinations conducted by the schools where the students study.

4.2 Environmental Attitudes and Behaviours

The six items within the environmental attitude scales and five items within the environmental behaviour scales were initially subjected to mean value analysis. As shown in Figure 1, most of the respondents show the positive environmental attitudes and depicts pro-environmental behaviour (Figure 2). However, this attitudinal support is not same for each item. The degree of environmentally responsible behaviours also varies according to the activities included in the environmental behavioural items.

Among the six environmental attitude items, individual's own role in improving and maintaining environment (A2) received the highest mean value (3.76) followed by environmental attitude item regarding environmental protection is more important than economic development (A6) which received mean value of 3.61, willingness to pay (3.24), likely to bring change in life style (3.22) and joining protest march in support of environmental protection (3.1) on a scale ranged from 1 to 5. Environmental attitude towards government's role, that is, government is responsible for environmental protection (A3) received the lowest mean value (2.60) complementing the idea that individual's role is more essential than the government's role.

FIGURE 1. Mean value of environmental attitude items.



Note: A1= joining protest march in support of environmental protection, A2= own role in improving the environment, A3= government's responsibility for maintaining the environment, A4= changing life style for solving environmental problems, A5= willingness to pay, A6= importance of environmental protection over economic growth.

The degree and order of preferences of these environmental attitude items also suggest that people are more concerned with the environment and try to address the problems through their own efforts either by abnegating

economically or by moulding their life styles or by participating actively such as joining protest march in support of environment. That is why; people have realized the essence of their own role and recognize environmental protection as more important over economic development. This indicates that people have strong internal locus of control and believe that their actions can bring about change as supported by Hines, Hungerford and Tomera (1986-87). The other reason may be that people are directly experiencing the consequences of the deleterious effect of environmental degradations. Individuals may be objectively vulnerable to environmental damage because they depend upon the environment for their livelihood, or because they lack basic resources such as water and energy that are particularly threatened by environmental change. Individuals may also perceive vulnerability to such change given the extent to which they depend upon natural resources for their livelihood, or the extent to which they believe themselves and their families to be impacted by environmental changes. So people became more conscious of the issues because the emotional reaction is stronger when we experience the degradation directly as stated by Chawla (1999).

The other reason may include the apathetic attitude and/or incapability of government of Nepal to deal with environmental problems deliberately. The government seems reluctant and condone the environment polluters. Thus, the people have started to take the responsibility on their own shoulder to mitigate the environmental problems. Contrasting with the reason just mentioned, Blake (1999) asserts that lack of trust in institution and states often stops people from acting pro-environmentally and they are less willing to follow the prescribed actions. Despite the various interpretations, the respondents can be supposed to have strong locus of control and believe that their action can bring about change and having greater sense of personal responsibility, they are more likely to engage in environmentally responsible behaviours which accords with the finding of Hines, Hungerford, and Tomera (1986-87). However, same level of reflection cannot be guaranteed in environmentally responsible behaviours (Nouri, Karbassi, Mirkia, 2008; Chen, 2010; Chen, Yu, Liaw, Huang, 2010).

Among the five environmental behaviour items, reduction in water consumption (B4) and turning off lights when leaving room (B2) received the highest mean value 2.82 and 2.78 respectively followed by behaviour regarding use of public transportation (2.11) and reusing plastic bags and bottles (1.82) on a scale ranged from 1 to 3. Very few people are found in indulging activity like bringing own shopping bags when shopping (1.19). These findings imply that the people substantially demonstrate environmentally responsible behaviour irrespective of the various reasons.

There may be various attitudinal factors influencing water conservation behaviour. Due to the scarcity of public supply of drinking water in the study area, people are forced to buy water at higher prices. Thus price and economic incentives may play a significant role in reducing water consumption (Berk et al., 1980; Hamilton, 1983; Syme, Seligman, Thomas, 1990-1991; Syme, Nancarrow, Seligman, 2000). The other reason may include environmental threat which individuals feel that their inaction (i.e. not saving water) may result significant consequences (Kantola, Syme, Nesdale, 1983; Baldassare, Katz, 1992).

FIGURE 2. Mean value of environmental behaviour items.

Note: B1=reusing (plastic bags and bottles) behaviour, B2= turning off lights when leaving room, B3=using public transportation, B4=reducing water consumption, B5= bringing own shopping bags.

It can also be compared with Inglehart's (1990) 'scarcity hypothesis' which states that one places the greatest subjective value on those things that are in relatively short supply. Some other inferences can also be derived for interpreting the reason behind frequently practiced environmental behaviours like water conserving behaviour, turning off lights when leaving room, frequent use of public transportation and reusing plastic bags and bottles. First, despite the positive environmental attitude, their behaviours may have resulted due to the economic concern which is in agreement with several studies (Imandoust, Gadam, 2007; Chien, Shih, 2007). Second, developed environmental awareness of the people might have reflected their behaviours in the same level (Shetzer, Stackman, Moore, 1991).

4.3 Effect of Gender on Environmental Attitudes and Behaviours

In this study, it was determined whether or not gender has any effect on environmental attitudes and behaviours and for this, student's t-test was used to examine the differences. There is statistically significant difference between male and female environmental attitude regarding participation in protest march in support of environment (A1), individual's own role in protecting environment (A2), willingness to pay money (A5) and viewing environmental protection as more important than economic growth (A6). The results indicated that male respondents are more inclined to participate in pro-environmental protest, emphasize on individual's own role rather than government's role, show willingness to contribute money for environmental protection and recognize that environmental protection is more important than economic growth (Table 2). Because women tend to occupy subordinate roles in society, they have less access to institutional forms of power and so, are more willing to criticize decisions made by the government and hence emphasize more on government's role rather than their own roles for environmental protection. Having less likely to have their voices heard, women are reluctant to participate actively in protest march compared to men and feel that change can only be brought about by powerful others.

TABLE 2. Comparison of environmental attitudes and behaviours by gender

	Environmental Attitude Items						Environmental Behaviour Items				
	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5
Male	3.54	4.12	2.38	3.41	3.49	3.83	1.51	2.72	1.96	2.74	1.24
Female	2.65	3.39	2.63	3.02	2.99	3.38	2.13	2.83	2.25	2.90	1.15
t-value	4.452	4.110	1.198	1.732	2.722	2.234	6.099	1.544	2.367	2.574	1.279
P-value	0.000*	0.000*	0.232	0.085	0.007*	0.027*	0.000*	0.124	0.019*	0.011*	0.202

*significant at 0.05 level

In addition, environmental behaviour like reusing plastic bags and bottles (B1), using public transportation (B3) and reducing water consumption (B4) are found to be significantly different between genders. Female respondents indulge more in reuse activities, they prefer to travel by public transportation and usually bring their own shopping bags. This shows that females are more likely to participate in environmentally responsible behaviour. Use of public transportation and gender difference may relate to men's higher access to motorbikes. Women may be motivated to use public transportation because they are more likely to be uncomfortable and fear of driving. Since the proportion of women with a fear of driving is more than twice as high as men, 18% versus 7% among European road users (*She moves,* 2014) which may increase greatly in Asian context particularly in Nepal. Women are found to be indulged more in reusing plastic bags and bottles in this study, is also in line

with the findings of some studies which reveal women to be more likely to recycle (Ando, Gosselin, 2005; Oates, McDonald, 2006; Barr, 2007). However, when investigating gender and recycling, Schultz, Oskamp, and Mainieri (1995) found that men and women are equally likely to recycle. So it would be injudicious to expect the same results in another population and context.

In most of the studies carried out previously, it is stated that women's attitudes and behaviours toward protecting the environment are more developed than men and has higher level of environmentalism (Davidson, Freudenberg, 1996; Tarrant, Cordel, 1997; Burger, Sanchez, Gochfeld, 1998; Zelezny, Chua, Aldrich, 2000). In contrary, Arcury (2000) found that female respondents are less environmentally concerned than male respondents. Some studies reports that despite having less factual knowledge about environmental problems than male, female express more concern (Schahn, Holzer, 1990; Arcury, Christianson, 1993; Stern, Dietz, Kalof, 1993; Gambro, Switzky, 1999; Levine, Strube, 2012). Davidson and Freudenburg (1996) defends the above arguments that women are more concerned about environmental hazards 'not because they know less but because they care more'.

Despite having slightly more positive environmental attitudes of male than female, surprisingly, male demonstrated less environment friendly behaviours than the females. There could be various interpretation of female's more pro-environmental behaviour but what is understood from this study, is that the traditional gender roles in the Nepalese society where women perform more domestic tasks than men, drive them to behave in environmentally sustainable way. Women are traditionally the caretakers and nurturers in society. Because of their role in child bearing and child rearing, women are believed to be closer to nature and, thus, more inclined towards protective attitudes about the environment. This conclusion is also in line with the findings of Davey (2012) who quotes that women tend to be more relationship-orientated than men because women in developing countries are more often the water collectors, gatherers of wood, and harvesters of product, and therefore having a closer day to day involvement in, and deeper awareness of their community and its dependence on a healthy environment. More or less similar reasons for depicting higher pro-environmental behaviour by women have also been discussed in various studies due to higher levels of socialization to be other-oriented and socially responsible (Zelezny, Chua, Aldrich, 2000), due to different gender roles in society (Stern, Dietz, Guagnano, 1995), due to cultural and social-structural factors that make them on average more aware of the interconnections between causes and consequences of environmental harm (Stern, Dietz, Kalof, 1993; Hunter, Hatch, Johnson, 2004).

4.4 Effect of Residential Background on Environmental Attitudes and Behaviours

To find the answer whether the environmental attitudes and the environmental behaviours differ with regard to the residential background of the respondents, student's t-test was used. Residential background has statistically significant effect on environmental attitudes regarding participation in protest march in support of environment (A1), individual's own role in protecting environment (A2), government's role in protecting environment (A3), willingness to pay (A5) and viewing environmental protection as more important than economic growth (A6) and environmental behaviour activities like reusing plastic bags and bottles (B1) and bringing own shopping bags for shopping (B5) were also significantly different by residential background of respondents. As depicted in Table 3, urban respondents are more inclined to participate in protest march in support of environmental protection, believe in individuals' own role to protect environment, show willingness to pay for environmental conservation and deem that environmental protection is more important than economic growth. The reason may be that the urban respondents are experiencing more adverse effect of environment on their life directly than the rural respondents and showing positive attitude towards the environment. This derived meaning aligns with a study from Norway in which Norwegian farmers are found to be less ecocentric and more anthropocentric than others (Bjerke, Kaltenborn, 1999). Rural Trinidadians are also more anthropocentric than their urban counterparts (Rauwald, Moore, 2002), and the same is true in Canada (Huddart-Kennedy, Beckley, McFarlane, Nadeau, 2009), although, rural residents reported higher participation in recycling and stewardship behaviours. The anthropocentric tendencies of rural residents seem consistent with their use of natural resources for human needs.

TABLE 3. Comparison of environmental attitudes and behaviours by residential background

	Environmental Attitude Items						Environmental Behaviour Items				
	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5
Rural	2.73	3.57	3.05	3.09	3.01	3.25	1.97	2.75	2.18	2.77	1.31
Urban	3.46	3.94	2.15	3.34	3.47	3.96	1.67	2.80	2.03	2.87	1.08
t-value	3.594	2.020	4.723	1.105	2.497	3.593	2.759	0.698	1.212	1.593	3.347
P-value	0.000*	0.045*	0.000*	0.270	0.013*	0.000*	0.006*	0.486	0.227	0.051	0.001*

*significant at 0.05 level

However, a study in UK students who had grown up in rural areas, reports that rural populations are more positively oriented toward the natural environment than urban-raised students (Hinds, Sparks, 2008). Meanwhile, several studies also align with the finding of this study that urban residents

have positive attitude towards environment. They concluded that urban residents are generally associated with greater environmentalism (Mohai, Twight, 1987; Arcury, Christianson, 1990; Buttel, 1992) because urban residents are often exposed to greater environmental degradation. The present study evinces that rural residents exhibited more environmentally responsible behaviour regarding reusing plastic bags and bottles; and bringing own shopping bags for shopping than urban residents in this study supporting the finding of Huddart-Kennedy et al. (2009) that rural residents indulge more in recycling activities. The reason for demonstrating higher environmental attitude among urban respondents is that the people are more informed about environmental issues through various media access but may be unable to act environmentally because of luxurious living habits and more likely to get things done at monetary cost rather than involving themselves. The higher willingness to pay money by urban respondents may be because of the higher income sources and more economic opportunity in the area.

It may be hypothesized that rural residents who depends on the natural resources for their livelihood want to protect it from possible contamination. It is also agreed by Olofsson and Ohman (1998) who mentioned that people living in rural areas are more environmentally friendly and have a higher environmental concern than those living in urban areas since they have to deal more directly with nature and the natural environment. Despite the environmentally friendlier behaviour of rural respondents, they are not likely to take the responsibility of environmental protection rather than they impose more emphasis on the government's role. Thus, what I believe is that whatever the degree of positivity regarding environmental attitude may be, the most important thing is to demonstrate environmentally friendlier behaviour which proved to be true with rural respondents in this study.

4.5 Effect of Education on Environmental Attitudes and Behaviours

Another important quest was to examine significant difference between education and environmental attitudes and behaviours. One way analysis of variance (ANOVA) was used to examine the differences. Table 4 depicts that there is significant difference between peoples' level of education and environmental attitude items such as individuals' own role in protecting environment (A2), changing life styles for environmental health (A4), willingness to pay (A5) and regarding environmental protection as more important than economic growth (A6) while other attitude items like joining protest march (A1) and government's role in protecting environment (A3) remains unaffected by level of education. People having higher educational status are more inclined to reckon individuals' own responsibility to protect

environment, ready to change life style for environmental conservation, more likely to pay for better environmental quality and priorities environmental protection over economic development. Generally, people having higher levels of education have more environmental knowledge and a greater understanding of the importance and urgency of environmental protection, and thus, have stronger environmental awareness. It accords with the findings of Reynolds (1992) who found that people with higher qualifications show a more caring attitude towards the environment than the people with lower qualifications. Willers and Van Staden (1998) also support this viewpoint. According to her study, improved educational qualifications yields a higher percentage of environmentally concerned respondents. However, the same level of reflection has not been observed in environmentally responsible behaviour in this study. The impact of education on environmental attitude and behaviour cannot be supposed straightforward because it can be influenced by other variables like economic status.

TABLE 4. Comparison of environmental attitudes and behaviours by education

	Environmental Attitude Items						Environmental Behaviour Items				
	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5
Below SLC	3.00	3.33	2.75	2.89	2.85	3.35	2.07	2.71	2.20	2.73	1.29
SLC	3.16	3.95	2.48	2.76	3.02	3.29	1.75	2.75	2.24	2.86	1.16
Above SLC	3.11	3.89	2.60	3.78	3.67	4.02	1.71	2.84	1.94	2.85	1.16
F (2, 197)	0.175	4.284	0.527	9.522	8.174	6.245	4.138	1.283	2.561	1.654	1.411
P-value	0.840	0.016*	0.591	0.000*	0.000*	0.002*	0.017*	0.280	0.080	0.194	0.246

*significant at 0.05 level

Education is also found to have statistically significant impact on environmental behavioural activity like reusing activities (B1) with less educated people indulging more in reusing plastic bags and bottles having hypothesized that they have less positive attitude towards environment. These findings offer an interesting conclusion that more educated people may be more willing to take environmentally motivated principled actions and yet are less willing than others to take relatively small actions that may be more of personal inconvenience.

4.6 Effect of Age on Environmental Attitudes and Behaviours

To examine the effect of age on environmental attitude and behaviour, ANOVA test was used. There is significant difference in the attitudes regarding individuals' own role in protecting environment (A2) and changing life styles for healthier environment (A4). Younger people are more inclined to believe in individuals' own role and more likely to bring change in life style to conserve environment. Fiedeldey et al. (1998) in his research in US also

shows that younger adults express more concern for the environment than their counterparts as found in this study. The finding of this study is also in agreement with Arcury and Christianson (1990) finding which shows that age is inversely related to positive environmental attitudes since older people were found to be less concerned about the environment than younger one except the environmental responsible behaviour like bringing own shopping bags for shopping.

TABLE 5. Comparison of environmental attitudes and behaviours by age

	Environmental Attitude Items						Environmental Behaviour Items				
	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5
17-39	3.36	3.89	2.83	3.63	3.22	3.51	1.85	2.77	2.02	2.79	1.09
40-59	2.93	3.98	2.51	2.85	3.21	3.70	1.80	2.87	2.17	2.84	1.13
≥60	2.57	3.73	2.27	3.17	3.37	3.60	1.80	2.53	2.13	2.83	1.67
F (2, 297)	2.202	12.132	2.089	5.208	0.162	0.370	0.112	5.054	0.587	0.309	18.898
P-value	0.113	0.000*	0.127	0.006*	0.850	0.692	0.894	0.07	0.557	0.735	0.000*

*significant at 0.05 level

Meanwhile some study also reported less ecocentric behaviour of younger people than older people, at least in some samples (Grendstad, Wollebaek, 1998). Though, in this study younger people were found to emphasize the urgency for bringing change in their life style for environmental conservation. There is also significant differences in the behavioural activities like bringing own shopping bags (B5) among different age group. Older aged people are more likely to bring their own shopping bags than the younger one (Table 5).

The older populations are incapable of involving in activities requiring active participation due to their physical incapability. The experiences gained throughout the life also must be considered along with age. Those who have suffered environmental malaise throughout their life may express positive environmental concerns. In this study, the older populations might not have experienced deteriorating effect of environment, so are less likely to show positive concerns. However, behaviour like bringing own shopping bags is found to be hugely practiced among older population which also need to be counted because it also impacts significantly on the loads of environmental pollution. But, the younger population regard this practice as more inconvenient and outdated fashion. Thus, it requires tackling environmental problems by inculcating an '*environmental fashion culture*' that is, labelling ones environmental conservation act as a matter of reputation and publicising it as a fashionable act, which sets a new paradigm to be included in environmental conservation strategies, more specifically to attract younger population.

4.7 Effect of Income on Environmental Attitudes and Behaviours

On the last quest of the study, in order to indicate if environmental attitude and behaviours show any change with regard to income, ANOVA test was used. As in Table 6, environmental attitudes regarding joining protest march (A1), emphasizing on government's role (A3), willingness to pay (A5) and recognizing environmental protection as more important than economic development (A6); and environmental behaviours like turning off lights (B2) and bringing own shopping bags (B5) significantly differs with income. Generally people having higher income are more inclined to take part in protest, but emphasizing more on government's role rather than individual's own role, more likely to contribute economically and recognize environmental protection more important than economic growth.

TABLE 6. Comparison of environmental attitudes and behaviours by income

	Environmental Attitude Items						Environmental Behaviour Items				
	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5
≤9,999	2.78	3.57	2.22	3.44	2.93	3.17	1.93	2.88	2.19	2.86	1.33
10,000-19,999	3.14	3.92	2.85	3.11	3.37	3.92	1.75	2.82	2.10	2.85	1.09
≥20,000	3.68	3.68	2.71	3.00	3.55	3.65	1.77	2.39	1.90	2.65	1.19
F (2, 297)	4.249	1.543	4.235	1.218	3.385	5.923	1.136	12.243	1.200	2.904	5.011
P-value	0.016*	0.216	0.016*	0.298	0.036*	0.003*	0.323	0.000*	0.304	0.057	0.008*

*significant at 0.05 level

People having higher income often recognize environment as a luxury good once their material needs are satisfied (Van Liere, Dunlap, 1980; Scott, Willits, 1994) and more likely to act ecologically because they have more resources to care about bigger, less personal, social and pro-environmental issues as hypothesized by Borden and Francis (1978; as cited in Kollmuss, Agyeman, 2002). That is why; affluent people are more likely to pay for environmental conservation. However, despite the positive environmental attitude, high income people showed low environmentally responsible behaviour in this study. Some recent studies (Dunlap, Mertig, 1995; Brechin, 1999; Dunlap, York, 2008) found similar or even more pro-environmental attitudes among citizens of poor countries, hypothesizing that people in poor countries may be willing to make similar or larger economic sacrifices for environmental protection because they are more exposed to environmental harm.

In contrast to the assumption of these studies (Dunlap, Mertig, 1995; Brechin, 1999; Dunlap, York, 2008) that the citizens of poor countries may be willing to make economic sacrifices is not proved to be true in this study. Since, people having low income are more likely to involve in responsible environmental behaviour like turning off lights when leaving room and bring

own shopping bags but not ready to make economic sacrifice for environmental protection. Thus, it is inferred that the people having low income may be unknown about the environmental consequences of their activities and only consider the activities concerning low cost. That is why they perform environmentally responsible behaviour despite the low willingness to pay for environmental protection. So, it is concluded that pro-environmental attitudes influence pro-environmental behaviours only in low cost situation.

5. Conclusions

The study aimed at determining the effects of respondents' gender, residential background, education, age and income on the environmental attitudes and behaviours. Residential background, gender, education and income are most influential socio-demographic variables to predict environmental attitude. Nonetheless residential background has greater impact than the other four variables. Meanwhile environmental behaviours are highly predictable by gender, residential background and income. However, gender is stronger predictor of environmental behaviour than the other two variables. So the dynamics of environmental attitudes and behaviours are greatly varied across socio-demographic variables.

Most of the people have realized the importance of environmental protection and recognized their own responsibility in matters of environmental protection which could be considered as highly positive environmental attitude. Meanwhile, reduction in water consumption, turning off lights when leaving room and use of public transportation are some of the responsible environmental behaviours.

Deriving from the data set, some basic variables such as gender, residential background and income significantly affect attitudes regarding participation in protest march in support of environmental protection with male, urban and high-income populations more inclined towards such attitude. The attitude regarding individuals' own role on improving and maintaining the environment is significantly affected by socio-demographic variables like gender, residential background, education and age while income does not have any effect on it. Male, urban respondents, SLC qualified and adults (40-59 years) population are more inclined to emphasize on their own role in maintaining the environment than their counterparts. The attitude towards government's role in maintaining environment differs only in terms of residential background and income of people with rural and economically sound populations putting more emphasis on government role than urban and

low-income populations respectively. Other socio-demographic variables do not affect such attitude. Environmental attitude towards changing life style can bring environmental sustainability, is greatly influenced by education level and age of the people with highly educated and younger population more inclined to bring such changes in their life styles for solving environmental problems while it is unaffected by other socio-demographic variables like gender, residential background and income of people. The attitudes of people regarding willingness to pay for environmental protection and recognizing environmental protection as more important than economic development differs in terms of gender, residential background, education and income. It does not get affected by age of the people. Male, urban, highly educated and economically sound populations are found to be more inclined to contribute economically for betterment of the environment and emphasize more on environmental protection than economic growth.

The environmentally responsible behaviours like reusing plastic bags and bottles differs in terms of gender, residential background and education level of people while other variables like age and income remains neutral. Female, rural respondents and less educated people participate more in reusing activities than their counterparts. People having low-income are more likely to turn off lights when leaving room than the high-income and other socio-demographic variables like gender, residential background, education and age do not affect such behavioural activity. The behavioural activities like frequent use of public transportation and reduction in water consumption differ in terms of gender. Public transportation and reduction in water consumption behaviours are often demonstrated by female in comparison to male. Such behavioural activities are not affected by residential background, education, age and income of people. The practices of bringing own shopping bags is more frequently demonstrated by rural, old aged and low-income population than their counterparts. Gender and education do not affect such behavioural activity.

There are several disparities in the attitudes and behaviours regarding environmental protection. Behaviours cannot be the absolute reflection of attitudes. Pro-environmental attitudes do not necessarily lead to environmentally responsible behaviours. The reason for being unable to reflect an obvious environmental concern and feeling into responsible behaviour is because people don't realize the consequences of their actions on the environment, or it is because they feel helpless to make a difference or sometime they are just unwilling to make necessary sacrifices. At the meantime, it emerges from the study that environmental attitudes can only be translated into environmentally responsible behaviours in low cost situation. So, in developing nations, environmentally responsible behaviours can be

inculcated only under economic facilitation. Thus, other variables act as recessive traits while economic concerns dominate the other variables in case of displaying environmentally responsible behaviour. The study also encourages individuals to behave more pro-environmentally, not only by changing their perceptions about their possible contribution to environmental problems but also by switching them towards more sustainable behavioural habits. Finally, the author also suggests discoursing about instilling the *environmental fashion culture* in younger generation people.

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