A Study on Pro- Environmental Behaviour of High School Students

Sangita Haloi[1], Dr. Sima Kalita[2]

[1] M. Phil Research Scholar, Department of Education, Gauhati University, Assam, India
[2] Assistant Professor, Department of Education, Gauhati University, Assam, India
Email: [1]sangitahaloi123@gmail.com, [2]simakalita_gu@rediffmail.com

ABSTRACT

The environment is one of the most important components for mankind. Interactions between humans and environment that occur continuously, will affect human behaviour on the environment. Human attitudes and behaviour will determine the strength of an environment. The way humans treat their environment will have an impact on the quality of human life itself. The positive environmental behaviours, individuals engage in, as part of their personal lives are volitional actions rooted in their own initiative. Although societal structures, such as the presence of a public transportation system or recycling programme in one's city, may support or hinder pro-environmental behaviours. Acting in ways that benefit the environment is ultimately a personal choice. Pro-environmental behaviour is an individual effort to reduce the negative impact occurs due to destruction of nature by improving and preserving the environment. It becomes very important, especially among the students. Because students are considered as the nation builder. So, it is very important to provide environmental education to the students from primary to university level. It helps the students to become more aware towards their environment. Environmental protection and recovery are the main challenges facing our society today. Therefore, it is important to know and understand pro-environmental behaviour in society, and the factors influence it. The objective of the study is to know the pro-environmental behaviour of the students and to compare the pro-environmental behaviour of the students with respect to gender. The study also tried to see if there exists any relationship between economic status and pro- environmental behaviour of the students. Results of the present study have shown that gender and economic conditions were not significant predictors of pro-environmental behaviour.

Keywords

Pro-environmental behaviour, environment, awareness, gender, economic condition

Article Received: 10 August 2020, Revised: 25 October 2020, Accepted: 18 November 2020

Introduction

Environment is equated with nature, where in physical components of earth such as land, air, water etc. support and affect life in the biosphere. Without environment we cannot even think of our life. It refers to living and non-living organism which affect the life and nature of behaviour of the individual. It includes both the biotic and abiotic components. It is well organised system of mutually interacting and well-integrated elements.

The environment is one of the most important components for mankind. Interactions between humans and environment that occur continuously, will affect human behaviour on the environment. Human attitudes and behaviour will determine the good condition of an environment. The way humans treat their environment will have an impact on the quality of human life itself. Environmental protection and recovery are the main challenges facing our society today, therefore it is important to know and understand pro-environmental behaviour in society, and the factors influencing it.

Changing attitudes towards the environment has long been a goal of education programmes focused on helping students to change their environmental behaviour, because our best hope may lie in the next generations. Many programmes have focused on helping children learn about environmental issues and what they can do for the environmental protection. However, it is very clear that knowledge alone doesn't often change what people actually do. While there are multiple and complex reasons for people's personal behaviours and actions [1,2] , it is vitally important to consider the role of their values and attitudes.

There is a growing realisation that global environmental challenges such as biodiversity loss, air pollution, global warming and climate change are rooted in human behaviour. Consequently, one pathway to reduce the impact of individuals on the environment is by understanding people's actions in areas such as recycling, waste management, water and energy consumption and other activities to reduce negative impacts on the environment. Pro-

environmental behaviour is a behaviour that a person consciously chooses in order to minimize the negative impact of their actions on the environment. The general domain of individual behaviours that contribute to environmental sustainability is referred to as pro-environmental behaviour, which has been defined as "individual behaviours contributing to environmental sustainability (such as limiting energy consumptions, avoiding waste, recycling and environmental activism)".These behaviours may be public (for example, taking mass transit, participating in a rally for an environmental cause) or private (for example. Composting, not using home air conditioning on a hot day).

The positive environmental behaviours individuals engage in as part of their personal lives, are volitional actions rooted in their own initiative. Although societal structures, such as the presence of a public transportation system or recycling programme in one's city, may support or hinder pro-environmental behaviour. However, acting in the ways that benefit the environment is ultimately a personal choice.

The past decades have witnessed an increase in studies on the role of education in fostering pro-environmental behaviour. Scholars have documented the growing presence of environmental and sustainability education in higher education institutions around the world. However, we know little about how colleges and universities mobilize students to adopt pro-environmental behaviours. In the last four decades, many researchers have investigated the negative impact of humankind on the carrying capacity of the earth (friends of the earth, 2009/; WWF, 2012), It is acknowledged that the increasing pollution of water, air and land resources on the other hand is caused by human behaviour [3]. As a consequence, governments of many countries developed policies to restrict industrial pollution, preserve natural resources, reduce greenhouse gas emissions etc. of their citizens, and research additionally focused on the development of more sustainable lifestyle in household[4, 5],companies [6]

Studies regarding pro-environmental behaviour in high school students are very few. This study aimed to examine the importance of pro-environmental behaviour among the students. In order to enhance more sustainable behaviour in students, recent research focuses on the identification of factors that have an impact on pro-environmental behaviour. This research study is to identify the factors that could predict the pro-environmental behaviour among the students of the particular area.

The debate about the concept of environmental sustainability and discussed the related aspects of growth, limits, scale and sustainability. The monumental challenge of human generation is to feed and house increasing world population without damaging the environment on which the human depend [7]. Thus, the study predicted that the goal of pro- environmental behaviour much be reached as soon as humanly possible. By means of a systematic literature review, the point of departure in determining the internal and external factors in this research is Ajzen's established theory of planned behaviour[8], because it has proven its value in former research studies. Furthermore, it is one of the more commonly referenced theories in the field of environmental studies [9]. The intention to act is the strongest predictor of actual behaviour. The antecedents of the intentions to act are found in three constructs; one's attitude toward the behaviour, his or her subjective norms and his or her behavioural control over the situation in which he or she is expected to act and behave in a specific way [10].

Subjective norms consist of group-shared beliefs of how a person should act and behave [11]. Perceived behavioural control concerns a person's belief that he or she is 'in control' over the performance of the expected behaviour [8,12]. The relationship dominant Social Program concept with Gramsci's (1971) theory of hegemony; specified the commonly cited components of the prevailing DSP in Western societies; illustrated the challenges to the DSP posed by the New Ecological Paradigm (NEP); and elucidated the discussion of previous empirical research on the DSP and NEP, and the presentation of the research hypotheses [13]. Environmental awareness can be seen as environmental knowledge and the recognition of environmental problems [14]. Considering all these it is expected that people should know environmental problems. The waste disposal, attempted to introduce the case studies conducted

in Finland, and argued the need for the robust and mutual relationship between residents and the waste management company. The attitudinal factors which determine the concern for the environment as well as environment friendly behaviours such as sorting and recycling the trash and cutting back on driving a car, while trying to account for the heterogeneity of pro-environment attitudes. The study considered a set of heterogeneous behaviours, something which would help to compare the consistency of the determinants between different pro-environmental behaviours; clarified that are the environmental behaviours differ between countries. Sparks and Shepherd states that the attitude of subjective norms and control of "Green consumerism" have a significant relationship in the intention of individuals in consuming green vegetables. Positive attitudes toward the environment can directly affect pro environmental behaviour at a low cost, such as recycling [15].

This study was an attempt to study the pro-environmental behaviour among the high school students taking gender and economic status into consideration.

Significance of the Study

Pro-environmental behaviour is an individual effort to reduce the negative impact due to destruction of nature by improving and preserving the environment. It becomes very important, especially among the students. Because students are considered as the nation builder. So, it is imperative to provide the students environmental education from primary to university level. It helps the students to become more aware towards their environment. Therefore, it is necessary to see the pro environmental behaviour of the students who were having environmental education as a subject.

Objectives of the Study

1) To study the pro-environmental behaviour of the High School students.
2) To compare the pro-environmental behaviour of the students with respect to gender.
3) To see if there exists any relationship between the economic status and pro- environmental behaviour of the students.

Hypotheses

H_{01}: There exists no significant difference between the pro-environmental behaviour of boys and girls.

H_{02}: There exists no significant relationship between the economic status of the students and their pro-environmental behaviour.

Design of the Study

Method

The study has been conducted through Descriptive Survey method. Descriptive Survey method is used to describe characteristics of a population or phenomenon being studied. A descriptive research design is used to investigate one or more variables.

Population

The students studying in 10^{th} standard in different high schools and higher secondary schools of Tihu Barama block of Nalbari District, Assam, India was the population of the study.

Sample

100 students (25 from each school) were selected as the sample for the study.

Area of the Study

The area of the study for the particular research was Makhibaha Village, Tihu under Nalbari District, Assam, India.

Sampling technique

Simple Random Sampling technique has been applied for the study.

Sources of data

Both primary and secondary sources of data have been used in this study. The responses of the students were collected through primary sources with the help of Pro-environmental Behaviour Questionnaire.

Secondary data were collected from various books, journals, thesis, reports and newspapers related to the area of the study.

Tools used for data collection

1) Personal data sheet.
2) Self-structured Questionnaire on Pro-environmental behaviour.

Techniques for Data Analysis

1) Percentage Analysis

2) chi -square test

Delimitation of the Study

Type of school

The study has covered only four Government schools, under Tihu Barama Block of Nalbari District, Assam.

Students

For the study only the students studying in the 10th standard has been considered.

Gender wise

The study has covered only the boys and girls.

Analysis and Interpretation of Data

The collected data have been analysed systematically.

Table 1. Knowledge of Students on Pro-Environmental Behaviour

Response	No of Total Respondents	Percentage
Have some knowledge	38	38%
Little knowledge	29	29%
No knowledge	33	33%
Total	100	100%

Item 1 tried to know whether the students were having knowledge of pro-environmental behaviour or not. The investigator had found that 38% of students had some knowledge about pro-environmental behaviour, 33% had no idea about it. There are also some students (29%) who have little knowledge about it.

Table 2. Economic Status of The Students

Sl No	Status	Total No of Respondents	Percentage
1	Poor	35	35%
2	Middle Class	54	54%
3	Rich	11	11%
4	Total	100	100%

It was found that the students had come from various economic backgrounds. Some of them were from rich family(11%), majority of the students were from middle class family (54%) and also some of them were from a poor family background (35%).

Table 3. Awareness of Students Towards Environmental Pollution

Response	No of Total Respondent	Percentage
Aware	45	57%
Less aware	33	33%
Not aware	22	22%
Total	100	100%

Item 3 tried to know whether the students were aware of environmental pollution around their surroundings i.e. school, home, colony, society etc. or not. 45% of students reported that they were aware of environmental pollution like air pollution, noise pollution, water pollution etc. But there are also some students who did not really care about what happened to the environment (22%) There are also some students (33%) who were less aware about it.

Table 4. Involvement in Plantation Programme

Response	No of Total Respondent	Percentage
Involved	77	77%
Ashamed of it	11	11%
Not interested	12	12%
Total	100	100%

Item 4 tried to know the involvement of the students in any plantation program organized in the school or society. Here it had been found that a large no of students i.e. 77% of students were engaged in plantation programme.12% of the students were not interested in such type of activities. There are also some students (11%) who were ashamed of getting involved in plantation drive.

Table 5. Interest Regarding Participation in Street Play on Environmental Awareness

Response	No of Total Respondent	Percentage
Interested	55	55%
Ashamed of it	37	37%

Not interested	08	08%
Total	100	100%

Item 5 tried to know if the students were interested to participate in street play on environmental awareness organized by school or youths or society etc. It has been found that more than half (55%) of students were interested on participating in street plays ,8% of students were not at all interested. Some of them (37%) were ashamed of participating in street play.

Table 6. Nature Of Use of Dustbin in The School

Responses	No of Total Respondent	Percentage
Used it	72	72%
Never use it	11	11%
Throw waste materials anywhere	17	17%
Total	100	100%

Item 6 tried to know the nature of using dustbin by the students. In this study it has been found that most of the students i.e. 72% of students used dustbin , 17% of students used to throw garbage anywhere and 11% of the students never used dustbin.

Table 7. Nature Of Using Electricity

Sl No	Nature	Total No of Respondents	Percentage
1	Unnecessarily used	33	33%
2	Used when required	39	39%
3	Less used	28	28%
4	Total	100	100%

After the survey it has been found that 33% of students used the electricity unnecessarily. Only 39% of students used it valuably. On the other hand there are few students who were found in the less use of electricity category (28%).

Table 8. Nature of Using Plastics

Sl No	Responses	Total No of Respondents	Percentage
1	Uses it judiciously	38	38%
2	Throw anywhere	41	41%
3	Find the garbage and throw them	21	21%
4	Total	100	100%

Item 8 tried to know how the students had used the plastics. After the survey it had been found that 38% of students used it judiciously. Out of them most of the students i.e. 41% of students had thrown it anywhere which affect our environment. On the other hand, a few students i.e. 21% of students tried to find the garbage and throw it.

Table 9. Awareness Regarding Usage of Water

Sl No	Responses	Total No of Respondents	Percentage
1	Uses it judiciously	29	29%
2	Uses unnecessarily	47	47%
3	Uses when required and also stop others from wasting it.	24	24%
4	Total	100	100%

There are only 29% of students who used water judiciously. But a large number of students (47%) used water unnecessarily. On the other hand, there were also some students (24%) who used water whenever required and also stop others from wasting.

Table 10. Reactions Towards People Who Damage Tree or Flower

Sl No	Reactions	Total No of Respondents	Percentage
1	Stop them and convincing them not to damage	43	35%
2	Ignore it	57	57%
3	He/she will also do the same	0	0
4	Total	100	100%

Item no 10 tried to see the reaction of students when they saw persons damaging tree or flower. It has been found that 43% of students tried to stop others from damaging trees, plants and flowers and convinced them not to damage it. But most of the students (57%) had ignored such situations.

Table 11. Reactions Towards Dying Plants or flowers

Sl No	Responses	Total No of Respondents	Percentage
1	Will tell other to pour water	33	33%
2	Will pour water himself/herself	37	37%
3	Will not take it seriously	30	30%
4	Total	100	100%

It has been found that 33% of students would tell others i.e. father, mother, brother, anyone to pour water on it after they saw dying flowers or plants. But some students (37%) who were interested to pour water on it by himself/herself immediately. On the other hand, there were also some students (30%) who did not take it seriously.

Table 12. Types of Carry Bags Preferred by Students

Sl No	Types	Total No of Respondents	Percentage
1	Plastic	47	47%
2	Paper	19	19%
3	Jute	34	34%
4	Total	100	100%

It was found that plastic carry bags were most preferred choice of the students (47%) followed by jute and paper bags.

Table 13. Nature of Further Use of Polythene Bags

Sl No	Responses	Total No of Respondents	Percentage
1	Throw it in the dustbin	27	27%
2	Keep it for further use	53	53%
3	Collect it to sell to scrap vendor	20	20%
4	Total	100	100%

27% of students had said that they used to throw the bags in dustbin after using it. But maximum number of students (53%) used to keep the bags for further use. A few students (20%) collected the bags to sell to scrap vendor.

Table 14. Reactions to See Others Catching Butterfly

Sl No	Reactions	Total No of Respondents	Percentage
1	Would Stop them	34	34%
2	Would join them	13	13%
3	Will do nothing	53	53%
4	TOTAL	100	100%

It has been found that when the students saw any children catching butterflies, 34% would stop the children. Few students (13%) would like to join others to do the same. Most of the students (53%) would do nothing after they had seen others catching butterflies.

Table 15. Reactions After Seeing Injured Bird

Sl No	Reactions	Total No of Respondents	Percentage
1	Will pick it and treat it	44	44%
2	Will ignore it	17	17%
3	Will tell other to treat them	39	39%
4	Total	100	100%

This item tried to see the reaction of students after seeing an injured bird. When they saw a bird dying or injured by someone, it had been found that 44% of students had said that they would take it to their homes and try to treat them. But there are also some students (17%) who used to ignore such birds or animals. On the other hand, there

are some students (39%) who used to tell others to treat the injured bird.

Table 16. Reactions After Hearing Loud Speaker in the Locality

Sl No	Reactions	Total No of Respondents	Percentage
1	Tell them to stop it.	20	20%
2	Tell them to reduce the volume	49	49%
3	bear it	31	31%
4	Total	100	100%

This item tried to know the reaction of students after they had heard loudspeakers in the locality. It had been found that 20% of students would tell to stop the loudspeaker, 49% of students would tell them to reduce the volume. On the other hand, there were also few students (31%) who had the habit of bearing it.

Table 17. Preferred Types of Crackers

Sl No	Types	Total No of Respondents	Percentage
1	Loud sound for long time.	51	51%
2	Loud sound for shorter time	33	33%
3	Less sound	16	16%
4	Total	100	100%

Above table has shown that 51% of students were found to burst crackers with louder sound and which lasts for a long time. It has been found that 33% of the students used to burst crackers with loud sound for shorter time and only 16% of students liked to burst crackers which were having less sound.

Table 18. Ways of Disposal of Waste During Travelling

Sl No	Ways	Total No of Respondents	Percentage
1	Collect and will throw it in dustbin on the station	17	17%
2	Collect and throw it away anywhere	39	39%
3	Throw it in train/Bus	44	44%
4	Total	100	100%

This item tried to find how the students dispose the waste during travelling by train or bus. It had been found that most of the students(44%) threw it in train or bus. But there are some students (17%) who collected the waste and throw it in the dustbin on the station. On the other hand, some students (39%) collected the wastage and throw it anywhere.

Table 19. Reactions to Smokers Who Smoke in Public Vehicles

Sl No	Factor	Total No of Respondents	Percentage
1	Tell to stop him	21	21%
2	Will sit at other place	48	48%
3	Will do nothing	31	31%
4	TOTAL	100	100%

From the above table it has been found that most of the students (48%) used to sit in other place while they saw someone smoking nearby , 21% of the students reacted that they would tell such people to stop smoking and 31% would do nothing.

Table 20. Mode of Travelling to Nearby Places

Sl No	Mode of Travelling	Total No of Respondents	Percentage
1	By walking	10	10%
2	By bicycle	59	49%
3	By scooter	31	31%
4	Total	100	100%

This item tried to find the mode of travelling of the students will the students to nearby places. The result has shown that most of the students(59%) used to go by bicycle to their friends nearby him/her. Only 10% of students

used to go by walking and 31% of students used to go by scooter.

Table 21. Pro -environmental Behaviour of the Total Sample

Very Good	Good	Average	Poor	Total
35 (35%)	25 (25%)	21 (21%)	19 (19%)	100 (100%)

It had been found from the study that out of 100 students 35% had very good pro- environmental behaviour, 25% of students were having good pro-environmental behaviour, 21% of them were having average pro-environmental behaviour and 19% of students were having poor environmental behaviour.

Table 22. Nature of Pro-Environmental Behaviour in Relation to Gender

Category of pro-environmental Behaviour					
Gender	VG	Good	Average	poor	Total
Boys	8 (16%)	7 (14%)	25 (50%)	10 (20%)	50 (100%)
Girls	14	12	21	3	50
	(28%)	(24%)	(42%)	(6%)	(100%)
Total	22	19	46	13	100

VG=Very good

Above table shows that pro-environmental behaviour of girls was better than that of boys.

Table 23. Chi square showing difference in Pro -environmental Behaviour in relation to Gender

Variable	N	df	χ^2 value	Significant value	Level of significance
Pro-environmental Behaviour	100	2	7.250	.064	0.05
Gender	100				

Table 23 has shown that the difference between the pro environmental behaviour of boys and girls was not significant at .05 level , for 2 degrees of freedom. The above table has indicated that the significant value was greater than 0.05, which leads to the acceptance of null hypothesis Ho_1. Therefore, it can be said that in the present study there was no significant difference between the boys and girls in pro -environmental behaviour.

Table 24. Nature of Pro-Environmental Behaviour in Relation Economic Status

Category of Pro-Environmental Behaviour										
E st	Vg	%	Gd	%	Avg	%	Pr	%	Ttl	%
Pr	10	28.6	12	34.3	8	22.9	5	14.3	35	100
M cl	15	27.8	10	18.5	17	31.5	12	22.2	54	100
Rh	3	27.3	2	18.2	3	27.3	3	27.3	11	100
TL	28		24		28		20		100	

Vg=very good,gd=good,avg=averge,pr=poorTt=total

Above table has indicated that, in the very good category and good category of pro-environmental behaviour, economically poor class was above of the middle class and economically rich class.

Table 25. Chi Square Showing the Relationship Between Economic Status and Pro-environmental Behaviour

Variable	N	df	χ^2 value	Significant value	Level of significance
Pro-environmental Behaviour	10 0	6	3.94	.684	0.05
Gender	10 0		3		

Table 25 has shown that the relationship between the economic status and pro environmental behaviour of the students was not significant at 0.05 level , for 6 degrees of freedom. . It has been shown in the table that the significant value was greater than 0.05, which leads to the acceptance of null hypothesis Ho_2. Therefore, it can be said that

in the present study there was no significant relationship between the economic status and pro environmental behaviour of the students.

Findings

1) The study has found that most of the students did not have Knowledge about pro-environmental behaviour and it was not a good sign for environmental protection.
2) The study has also found that the maximum students were from middle class family.
3) The study has also revealed that all the students were not aware of environmental pollution, only 45% were aware of it.
4) The study has revealed that maximum number of students were interested to participate in plantation drive or street play or any other program related to environmental preservation which is a good initiative to spread environmental awareness.
5) Most of the sample students were having the habit of using dustbin.
6) In the item valuable use of electricity only 28% of the students were in the less use category.
7) Use of Plastics by the sample students were not at all encouraging as 41% of them throw plastics anywhere.
8) Regarding use of water also the behaviour of the students was not encouraging. 47% of them used water unnecessarily.
9) More than half of the students (57%) had no concern if other people were damaging plants or flowers and they simply ignore it. However some of the students(37%) were having sympathy toward dying flower or plants and they had the habit of pouring water over it. when they came across with any injured bird.
10) Students mostly preferred plastic bags in comparison to paper or jute bags or paper bags. 57% of the students however kept those plastic bags for further use.
11) Most of the students (53%) did nothing while they saw others catching butterflies and it is a cause of concern.
12) 44% of the students offer treatment to injured birds.
13) Students were less aware about sound pollution.
14) From the study it had been found that most of the sample students were interested to use loud sound crackers which are very dangerous for our environment.
15) Regarding disposal of waste in the train it was found that only a meagre percentage (17%) collect and throw it in dustbin on the station others threw it in the train or anywhere.
16) The result has shown that maximum number of students used to go by bicycle to nearby places.
17) Only 21% students try to stop the smokers from smoking in a public place.
18) The study has shown pro environmental behaviour of the students were not up to mark. Only 35% of the sample students were having very good pro- environmental behaviour.
19) Percentage analysis has shown that the girl students were more aware than boy students with respect to environment. However further analysis has shown no significant difference in this respect.
20) The analysis of data revealed that there existed no significant difference of pro-environmental behaviour in respect to economic status.

Conclusions

In recent decades, the growth of interest in green campus is observed. The ultimate goal of most of the studies on pro- environmental behaviour is to provide information that can be helpful in reducing negative environmental impact of human activities. The present study is an attempt to know about pro- environmental behaviour of the High school students. It has been found that the students had lack of knowledge about pro- environmental behaviour. It is the duty of the school, family and society instil in the students pro- environmental behaviour to make the earth a better place to live in.

References

[1] J E Heimlch,2008 ; Understanding behaviour to understand behaviour change: A literature review; Pages 215-237; http://doi.org/10.1080/13504620802148881

[2] A Kollmus, J Agyeman, 2002; Environmental education research 8(3):pp.239-260 DOI: 10.1080/13504620220145401; Tufts University, Medford, MA, USA

[3] Lehman P.K & Geller, E.S. (2004); Behavioural analysis and environmental protection: Accomplishments and Potential for more.Behaviour and Social Issues, 13(1), 13-32. http://doi.org/10.5210/bsi.v13i1.33

[4] Kronenberg H.M. 2007; The role of the perichondrium in Fetal bone development. http://doi.org/10.1196/annals.1402.059

[5] Marchand A., Walker S,2008; Product development and responsible consumption: designing alternatives for sustainable lifestyles; Journal of cleaner Production 16(11):1163-1169; Lancaster University

[6] Kuerzinger,2004; Capacity building for profitable management; Journal of cleaner Production 12(3): 237-248

[7] Robert Goodland,1991; Population and Environment; Vol. 13, No.3(Spring1992).,pp. 167-182.

[8] Ajzen, I.,1991.The theory of planned behaviour. Organ. Behav. Hum.Decis.Process.50,pp.179-211.

[9] Nye M.,Hargeaves T, 2010; A comparative study of intervention processes at home and work; http://doi.org/10.1111/j.1530-9290.2009.00193.x

[10] Ajzen, I, Fishbein, M..2004, Attitudes and the Attitude-behaviour Relation: Reasoned and Automatic Processes. John Wiley; Health Psychology, 23(4), 431-434.http://doi.org/10.1037/0278-6133.23.4.431

[11] Conner, M and Armitage, C. J. ,2008; attitudinal ambivalence. In W.D Crano & R. Prislin(Eds.), Frontiers of social psychology. Attitude and attitude change (p.261-286). Psychology press.

[12] Bandura, A., 1997. Self-Efficacy: the Exercise of control. W.H Freeman and Company/Times books/Henry Holt & Co. New work.http://psycnet.apa.org/record/1997-08589-000

[13] Shafer S.; Difference in actual and perceived online skills: The role o gender; June 2006. Social science quarterly. 87(2):432-448

[14] Grob, A. (1995); A structural model of environmental attitudes and behaviour. Journal of environmental psychology,15(3), 209-220.http/;//doi.org/10.1016/0272-4944(95)90004-7

[15] Melgar D. and Bock Yehuda, 2013, Near-field tsunami models with rpid earthquake source inversions from land and ocen -based observations : the potential for forecast and warning, Journal of Jeophysical Research :Solid Earth ,118(11) , pp.5939-5965