Environment Related Behaviour of the Students who are Visually Impaired

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Abstract

The protection of environment and prevention of pollution are the solemn responsibility of every citizen of the country. The environment related behaviour is the most important aspect of environmental education as the ultimate objective of it is to develop the students. The construct of environment related behaviour has been researched extensively across diverse social situations. But there is hardly any empirical study on environment related behaviour in the context of students with visual impairment. Cross-sectional empirical study was based on survey type research design. The sample (N=240), comprising students studying in grade IX to XII, was drawn from special and general educational institutes in West Bengal. Sampling decisions are made for the explicit purpose of obtaining the richest possible source of information to answer the research questions. It was found that the students with visual impairment studying in general educational institutions reported to perform more number of environment related behaviour than students studying in special type educational institution. Low vision students are in a more advantageous position than those who are fully blind. However, it is concluded from the findings that the girl students said that they engaged themselves more often in environment related behaviour.

Keywords: Environment related behaviour, Type of visual impaired, Types of educational institution, Gender, Inclusion and Students with Visual Impairment

Introduction

The state of environment is now facing severe threat with large-scale air water, sound and other types of *pollution* leading to global warming, climate change and loss of bio diversity. The present *degradation* is causing severe environmental crisis ultimately creating enormous problem for human beings.

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There is no denying the fact that human existence on this planet is at peril if environmental degradation is not arrested. Under these circumstances every citizen must learn to behave in such a manner, which would safeguard the fragile environment. Humans are constantly asked to make decisions that may directly or indirectly affect the environment. The education we receive while growing up plays a huge role in developing competent citizens. In order to ensure that citizens make intelligent and responsible decisions concerning any issue, it is vital that our educational system equips individuals with the relevant knowledge and skills. Environmental education is one such means that will assist students in this process. The goal of environmental education is not to produce "environmental activists", but instead is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help to solve these problems, and motivated to work toward their solution (*Stapp et. al., 1969*). Every student is the future citizen of the country and hence the protection of the environment is the supreme responsibility of the student population.

Whatever the approaches to environmental education are, the objective remains the development of responsible citizenship behaviour. Thus assessing environment related behaviour remains the important aspect of environmental education research. The empirical research in this regard requires that the types of ecological behaviours are analysed so that research tool on environment related behaviour can be effectively constructed for further studies. However, it is to be admitted that it is not easy task to develop a measuring tool of such behaviours. Peoples' behaviours are preceded by behaviour intention and other normative factors. In this respect the theory of reasoned action proposed by *Ajzen (1980)* should be taken into account.

As environmental behaviour is affected by so many factors, it is not easy to study or measure it. Moreover, its measurement is mainly based on self report. Observation of actual practice of such behaviour is seldom undertaken. The self reported behaviour may not reflect the actual situation because people often report socially desirable behaviour as part of image management. Besides, there are many situational constraints for which people are unable to perform the behaviour apart from an individual's own perceived self control. Different concepts of perceived control include internal locus of control *(Gamba & Oskamp, 1994)*, self efficacy (*Axelrod and Lehman, 1993*), and feeling of powerlessness (*Busch, Rossenagel & Weigel, 1984*).

Because of the presence of such variables the environmental behaviour is not only susceptible but also inconsistent. The ultimate goal of environmental education is citizenship training and as such the environmental education is now termed as responsible ecological behaviour indicating individual action to protect and improve the environment.

Culen & Volk (2000) constructed four subscales of environment related behaviour namely persuasive action, political action, consumer action and eco-management action. Environmental action on the part of the people may be direct or indirect. Moreover, this action may be carried out individually or collectively. *Jenson (2002)* had shown how environment related behaviour encompasses four types of actions.

	Direct action	Indirect action
Individual action	1	2
Collective action	3	4

The collective action in the context of Asian countries like ours is important as our society is collective in nature and group activities get precedence over individual action. Hence types 3 and 4 of environmental behaviours are expected to be more effective although types 1 and 2 cannot be neglected. The researches on responsible environmental behaviour sought to differentiate between specific and general environmental behaviour. Different studies included different number of ecological performances. 30 to 65 of such performances were identified and researched by *Kaiser& Wilson (2000); Kaiser, Wolfing & Fuhrer (1999)* mentioned 38 different types of ecological behaviour when they constructed the General Environment related Behaviour.

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Some specific environment related behaviour (ERB) is cited below with their construct definition.

Table No.-2 Specific Environmental Behaviour and Construct Definition

ERB	Scale label	Construct definition
Recycling	Recycle	The used items are again utilized to produce some new product.
Spatial mobility	Commuting	Using travel mode ecologically, using more effective vehicle.
Energy conservation	Energy saving	Using fossil fuel sustain ably.
Political action	Ecological advocacy	Utilising political forum for environmental protection
Consumerism	Life style change	Restraining one's over consumption, reducing buying spree.
Ecological house keeping	Changes within the household	Restraining purchase of household items or accessories. Eating seasonal locally available food, adopting lower impact diet.
Ecological farming	Sustainable agriculture and poultry	Sustainable use of fertilizer GM seeds, animal rearing.
Water conservation	Water management	Minimizing wastage of water, water harvesting.
Regulatory support behaviour	Supporting environmental causes	Donating money to environmental groups, attending environmental programmes, showing solidarity with such groups, buying energy efficient products.

The environment related behaviour has been extensively studied as it is the ultimate objective of environmental education. One short coming of the study of environment related behaviour is that although a broad range of different behaviours have been included but the situational factors were often ruled out.

The situational factors are sometimes beyond the control of the individual for which despite the existence of behaviour intention, the actual behaviour may not take occur. The problem is that the planned behaviour theory focuses on the role of individual, neglecting wider social issues (Bamberg & Moser, 2007). The theory of planned behaviour also does not account for habitual behaviour (Fransson & Garling, 1999).

The researches on inclusive education, no doubt, are vibrant and an enthusiastic area of academic scholarship but obviously there is a gap in research integrating environmentalism and education of the children with special needs. The findings include the effect of participation in environment related activities on environmental awareness and action of the students with visual impairment (*Sengupta, Banerjee and Maji*, 2010), the effect of academic achievement on ecological value of students with visual impairment (*Mukherjee and Maji*, 2011), identifying factors within the environment related behaviour of these students (*Sengupta, Banerjee and Maji*, 2012).

Statement of the Problem

The protection of environment and prevention of pollution are the solemn responsibility of every citizen of the country. The principle of inclusion in education requires that all types of students should get the opportunity of holistic education, which obviously includes citizenship training for the preservation of natural resources and social progress. At the same time it is expected that as a special group of students they may contribute more towards protection of environment. It may be the case that students with visual impairment because of their inner sensitivity or loss of a sense organ may perceive the world differently and may be more enthusiastic in this respect. The title of the study is "Environment related behaviour students who are visually impaired".

Objectives of the Study

The objectives of the present study are-

- To assess the environment related behaviour of the students with visual impairment.
- To study the effect of type of educational institution, type of visual impairment and gender on the environment related behaviour of the students.

Hypotheses of the Study

The investigator made the following null hypotheses-

$H_0$1- There is no significant differences in environment related behaviour scores

between students in respect to –

  a- type of educational institution (general and special)
  b -gender (boy and girl)
  c- type of impairment (low vision and fully blind).

H_0 2- There is no significant interaction effect environment related behaviour scores of students between-

  a -type of educational institution and gender
  b- type of educational institution and type of visual impairment.
  c- type of impairment and gender .
  d- type of educational institution, gender and type of impairment.

Methodology

This study is a cross-sectional empirical study based on descriptive survey research design and mixed methods research approach. This is a *2x2x2 factorial research design.*

Sample

The population of the present study comprises the students (N=240) with visual impairment studying in classes IX to XII (age range 14-25 years) in schools situated in urban and semi-urban areas of West Bengal and affiliated to West Bengal Board of Secondary Education and West Bengal Council Higher Secondary Education. The population also includes special educational institutes (segregation of the students with special needs) and the general educational institutes (inclusion of the students with special needs).

Gender and degree of visual impairment are also considered. The sample was drawn from total number of 62 schools (both special and general educational institution) from various districts.

This study will make use of purposive sampling. This simply means that participants are selected because of some defining characteristic that makes them the holders of the data needed for the study.

Sampling decisions are therefore made for the explicit purpose of obtaining the richest possible source of information to answer the research questions. It is also volunteer sampling in the sense that only those who were willing to participate were included in the sample.

Sampling Variables

There are three sampling variables in the selected problem-

i) Type of educational Institution - Two types of educational institutions namely general (inclusive setting) and special (exclusive setting) were selected. In general institution students with visual impairment are mainstreamed and special institution is only for the students who are visually impaired.

ii) Gender - The exposure to various social pressures is different for boy and girl students in our society. So gender is considered as a category.

iii) Type of visual impairment - Two types impairment was selected namely students with low vision and students who are fully blind. From school record the students with low vision were identified. These students can perceive light and can read large letters, where as other category of student have no light perception.

Instruments of the Study

Environment Related Behaviour scale (ERBS)

By environment related behaviour it is meant the observable and reported behaviour of the individuals, either done or willingness to do in future, regarding the protection of the environment. The factors included were behaviour related to civic responsibility, personal change, individual civic action and cooperative civic action etc.

The researcher developed the Likert type (5-point) scale (25 items) having a reliability (KR-21) value of 0.82. The item validity was tested by *Tetrachoric correlation* and the values varied from 0.2-0.7.

Procedure

The researcher first contacted teachers, head of the institution, NGO and hostel authority (where students with visual impairment are living). With the help of head of the institution, the researcher contacted students with visual impairment to get permission from them. After the permission was secured the students with visual impairment were interviewed. Before starting the interviews, head of the institution were informed about the objectives of the study and assured their identity will be kept confidential. The students were also similarly assured that the interview will remain confidential. Only interested students with visual impairment were asked to take part in the study. As the questionnaire was not in Braille form, the researchers read out the items to the students and tape recorded their responses. Approximately a range of 15 minute to one hour was required to interview each student. For this reason students met the researcher after or before the school hours and sometimes at their hostel. The researcher tried to maintain the objectivity as far as possible. For the purpose of quantitative analysis of data, a few selected statistical methods were used. The responses were typed into an Excel program. Data were analysed by using SPSS v.17.

Results and Discussion

Factorial ANOVA design was adopted to know whether there was any difference in the mean scores of type of educational institution, type of visual impairment and gender. For this purpose, the sample was classified into six categories i.e. students studying in general educational institution and special educational institution, students with low vision and who are fully blind, boy and girl students. The mean and S.D. of each group had been presented in Table- 1 and the summary of ANOVA had also been presented in Table- 2.

Table-1: Mean and S.D. of the Groups Considered for Environment Related Behaviour Scores

	Type of Edu. Institution		Type of Impairment		Gender	
	General	Special	Low Vision	Fully Blind	Boys	Girls
N	98	142	116	124	122	118
Mean	98.89	87.95	95.97	89.1	91.17	93.7
S.D.	12.651	12.703	13.056	13.406	13.406	14.045

Table-1, shows that environment related behaviour score of the students studying in general educational institution (M=98.89 and S.D. = 12.65), girl students (M= 93.7 and S.D. = 14.04) and students with low vision (M= 95.97 and S.D. = 13.07) are higher than students studying in special educational institution (M=87.95 and S.D. = 12.7), boys (M=91.17 and S.D. = 13.41) and also who are fully blind (M= 89.1 and S.D. = 13.61).

Table-2: Summary of the Factorial Analysis of Variance (ANOVA) for the Scores of Environment Related Behaviour

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Main Influence Type of Edu. Inst. (A)	8974.591	1	8974.591	68.981	0.000
Gender (B)	989.083	1	989.083	7.602	0.006
Type of V.I. (C)	3788.551	1	3788.551	29.12	0.000
First order Interaction Influence Type of Edu. Inst. and Gender (A x B)	595.57	1	595.57	4.578	0.033
Type of Edu. Inst.and Type of V.I (A x C)	0.356	1	0.356	0.003	0.958
Gender and Type of V.I. (B x C)	1473.422	1	1473.422	11.325	0.001
Second order Interaction Influence Type of Edu. ,Gender and Type of V.I. (A x B x C)	763.572	1	763.572	5.869	0.016
Error	30183.88	232	130.103		
Total	2095014	240			
Corrected Total	45212.33	239			

a.   R Squared = .332 (Adjusted R Squared = .312)

Main Influences

The main influences of the category variables namely type of educational institution (A), gender (B) and type of visual impairment (C) on ecological value scores are reported below-

First Main Influence (A)

From the Table-2 it might be concluded that there was a significant effect of type of educational institution on environment related behaviour (the significant value less than 0.05). The F-ratio was found to be highly significant. It indicates that students' studying in two types educational institution differed significantly on their environment related behaviour. This might be interpreted as: there was significant main effect of students studying in educational institution on their environment related behaviour [F (1/232) = 68.981, P<0.01].

Second Main Influence (B)

The second main effect of gender was also significant. This finding could be reported as: there was significant main effect of gender [F (1/232) =7.602, P<0.01].

Third Main Influence (C)

The third main effect of type of impairment was also significant. This finding could be reported as: there was significant main effect of types of visual impairment [F (1/232) =29.12, P<0.01].

> ## This Result indicates that $H_0$1-a, $H_0$1-b, and $H_0$1-c are rejected

Interactional Influences

The main influences of the category variables namely type of educational institution (A), gender (B) and type of visual impairment (C) have already been reported. As the research design is 2X2X2 factorial design so the interactional effects are shown by first order interactional effects [(A X B), (A X C) and (B X C)] and second order interactional (A X B X C) effect.

i) First order Interactional Influences (A X B)

Table- 5.27 indicated a significant interaction effect between type of educational institution and gender group. For this, the F-value was found to be 4.578, which was significant at 0.05 level [F (1/232) = 4.578, P<0.05].

ii) First order Interactional Influences (B X C)

Table- 5.27 indicated a significant interaction effect between type of visual impairment and gender group. For this, the F-value was found to be 0.11.325, which was significant at 0.01 level [F (1/232) = 11.325, P<0.01].

iii) First order Interactional Influences (A X C)

Table- 5.27 indicated a non-significant interaction effect between type of educational institution and types of visual impairment group. For this, the F-value was found to be 0.003, which was not significant at 0.05 level [F (1/232) = 0.003, P=0.958].

iv) Second order Interactional Influences (A X B X C)

Table- 5.27 indicated a significant interaction effect between type of educational institution and gender group. For this, the F-value was found to be 5.869, which was significant at 0.01 level [F (1/232) = 5.869, P<0.01].

This Result indicates that H_0 2-b is accepted but H_0 2-a , H_0 2-c and H_0 2-d are rejected

Conclusions

On the basis of the quantitative analysis and findings above the following conclusions were drawn as the outcome of this study.

1. From the results, it may be concluded that the students with visual impairment studying in general educational institutions reported to perform more number of environment related behaviour than students studying in special type educational institution. Low vision students are in a more advantageous position than those who are fully blind. However, it is concluded from the findings that the girl students said that they engaged themselves more often in environment related behaviour.

2. It is concluded from the interaction between types of educational institution and gender on the score of ERB the students in general educational institution have scored higher. But the significant interaction effect indicates that the difference between girls and boys in their ERB scores is more pronounced in case of general educational institution (girls scoring more than the boys). And also same result between types of visual impairment and gender. But among the students belonging the special institutions the gender difference has narrowed down to the point of boys scoring almost higher than the girls. The interaction between types of educational institution and types of visual impairment showed different findings. No significant interaction effect was evident regarding ERB.

3. The three category variables namely type of educational institution, gender and type of visual impairment interacted among themselves to produced significant effect on the scores of ERB.

Significance

The literature survey on Environmental Education research has revealed that extensive studies in this field have produced practical guidelines that can be used to solve the multi-dimensional environmental problems that are baffling the human society. In similar manner the present research highlights the areas that will help to enrich Environmental Education practice, if proper attention is given to it. The significance of the study is discussed below from the theoretical and practical points of view.

Theoretical   Significance

1. This study should be considered as unique because it is based on the basic educational principles like equal educational opportunity (EEO) and humane approach towards education.
   The inclusive policy as a strong basis of academic achievement has been highlighted in this research. It supports the philosophical and humanitarian approaches which are the corner stone of modern education.

2. It also implies that disadvantaged sections of the society are part of the mainstream society and they too should learn to behave responsibly towards environment and gradually improve the quality of life. This research indicates the importance of democratization of the social system eulogizing the concept of egalitarianism.

3. This study will throw light on important issue of interrelation between environmentalism and people's value systems and their control over action. Previously researchers mainly concentrated on environmental awareness and knowledge to understand environment related behaviour but at present the role of psychological factors are being recognized. This study is a contribution to this new approach toward environmental education.

4. The study shows that the principle of Inclusion has been realised even in the context of environmental education. Thus it shows that inclusion as an overall policy in meeting the needs of children with special needs is a sound and effective policy.

Applied Significance

The teachers are the best persons to implement the policies related to environment education. In the class they should continuously interact with the students about environment related issues so that the students developed multiple perspectives of environment and ability for critical thinking. Environmental issues can be raised by the teacher of any subject be it language, social studies and of course social science. More than books the teacher during the teaching has the ability to develop environment related behavior by being active and enthusiastic in the class. The idea is to give holistic attitude towards environment by involving students in various types of activities. The peer-group also plays an important role. In this respect the students with normal vision have special responsibility of educating the students with visual impairment as they are often unable to interact with the actual environment. The study is also significant for the parents, family member and NGO,s as their interaction with the students in the context of environment is likely to develop positive attitude and behaviour on the part of the students.

Recommendations

As it has already been mentioned that area of research is a new field, obviously there is a scope for further studies. The present study opens up fresh areas for further research-

1. There are various internal factors which influence environment related behavior. But there is the scope of researching the influence of other factors like self efficacy, attitude, normative belief, different types of motivation etc. on environment related behavior. Also effect of intelligence and its correlate, academic achievement can be investigated in this context.

2. Environmental related behaviour is also affected by external factors. Economic factors also play important role as *Kuznets* (1955) had postulated that in the early stage of economic growth environmental degradation and pollution increases but beyond some level of income per capita the trend reverses. Moreover the effects of parental influence, political will, enforcement of environment related statutes also determine behaviour and these issues can be studied.

3. The present study was concerned with secondary and higher secondary levels only. A similar investigation may be conducted on different levels of education viz., degree colleges and university level and also primary stage of education.

4. A large scale investigation may be conducted on students with visual impairment by drawing sample from other states of India and the results can be compared.

5. The research was based on data collected by personal interview as the questionnaires were in written language. Braille format of the questionnaire would have been more objective.

6. To arrest the degradation of environment, involvement of every student is necessary. Hence similar studies should be conducted on other differently abled students like hearing impaired students, orthopedic handicapped students etc.

7. It is also suggested that fully fledged qualitative research in the context of environment education will yield more in depth information and such researches should be undertaken.

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Visually impaired students, who are born without sight or those who have lost their. sight early in life need to build up their conception of the world by the use of their remaining. senses. Learning Environment – The learning environment should be created in such a. manner that students should be able to adapt easily and enhance their learning. The.