



REFLECTION OF ENVIRONMENTAL SUSTAINABILITY ON GEOGRAPHY TEXTBOOKS AND STUDENT'S ACTIVITIES AT SECONDARY LEVEL

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ABSTRACT In this study the author tries to reveal how far the concept of Sustainability of Environment in the secondary curriculum is reflected in the corresponding text books of 'Geography and Environment' for the secondary classes of WBBSE, WB. He also tries to investigate the extent to which environmental activities are pursued in the curricular programmes of the schools. Qualitative method has been followed in the content analysis of geography text books of the classes VI to X for the issues related to sustainable environment. The content thus identified has been compared with desirable and standard ones. For quantitative exploration, six districts of West Bengal have been used to select 200 students of class X with cluster sampling method. A questionnaire was developed, standardized and administered over those students to get their opinions on the environment related activities they followed in the secondary classes as a part of curricular programme. It is found that (1) The concept of sustainability of environment is discussed in the text books with narration but with little explanation. (2) Girls and the rural students are advanced in environmental activities. (3) Environmental activities have been ignored in some schools of WB.

KEYWORDS : Sustainable development, Environmental activities of students, Content Analysis of Text books.

Introduction:

During the last phase of the 20th century, the term Environmental Sustainability referred to the capacity of the biosphere to meet the needs of the present generation, without hindering future generations from being able to meet their needs. This means using our natural resources wisely in the short-term so that these resources are available in the long-term. In other words, Environmental sustainability as the maintenance of natural capital and as concept apart from, but connected to, both social and economic sustainability.

Education has been branded as an essential component for environmental sustainability worldwide. The function of education can also optimistically influence the management of the world's increasingly strained over natural resources through the assimilation of successful techniques of environment based education, which provides students with the knowledge, skills, and experiences essential to become flourishing community leaders, as well as making intelligent decisions pertaining to the supervision of their natural resources. Quality education should prepare societies to actively participate in global politics and economics, as well as provide people with the skills necessary to make informed decisions and take responsible actions.

Background of the Study

A prolong time has already been passed through the vast exchange from the ancient wild arrogant beings to the modern civilized people. A great radical change set in every where as from the cultivation to industry or from the village up to urban places. Though that great changes makes the uncivilized people to civilize people put has waded the nature a great demolith. Nature looks the rapid progress helplessly. Today's learners are the citizen of future. It is very much necessary to know about the fact that how much the learners have understood the environment sustainability. The only motto of this experiment is to know that -basic knowledge, what they have procured from their text books, are able to motivate their daily life and how have the text books helped them?

Emergence of the study

From the far end of 20th century to the present time gradually increasing population, progress of township, growth of industry, have brought a radical change in the relationship of man and nature. These changing situation has also enhanced the mind and proceeding in the field of change. The main goal of the modern education system is to create the future ideal citizen. Those ideal citizens who will not only accept the social and economical progress but also accept the environmental progress as a part of the light. So, the environment attached education is important for not only generate a ideal citizen but also make a healthy eco friendly society.

Related Studies:

Shoberi, Omidver and Prahallad (2006) investigated the environmental awareness of the students in India and Iran and found that boys and girls do not differ significantly in environmental awareness.

Sengupta, Das and Maji (2010) .

A gap in theory and practices in environmental education was observed by Sengupta et al.(2010), Abbas and Singh (2012), ,,, Mukoni & Thote (2013)

Mishra (2012) found that environmental awareness is independent of management of the schools and sexes of the students

Bhat, De and Sen (2014) found that pollution awareness of the students is independent of sex of the students and pollution characteristics in the neighborhood of their schools.

Nikhat and Shafeeq (2014) found that the students of professional courses have more environmental awareness than the students of non-professional courser. The girls were found to be more concerned about their environmental problems as compared to boys.

Singh, Kumari and Singh (2014) found that Science and Arts teachers had more environmental awareness in comparison to Commerce teachers, CBSE teachers had more environmental awareness in comparison to local boards.

Panth, Verma and Gupta (2015) found that girls have more Environmental Awareness and less Attitude in comparisons to boys .

Halder (2012) found that environmental education in many schools is not true to the objectives of this education.

Bosah (2013) also observed a shabby picture of environmental education particularly at secondary level.

Critical appraisal and Identification of Research gaps :

From this study of related literature it is seen that gap between theory and practice in addressing a vital issue which is much-discussed in academic arena but hardly handled

with a practical approach. So it is time to move from theory to practice. In this context schools, teachers and students play an important role. Therefore, more intensive studies are required to explore the actual status of the curriculum with critical appraisal from an ecological perspective.

Statement of the problem:

The environmental education has been the part of curriculum of the West Bengal Board of Secondary Education (WBBSE). Most of the students or learners are less interested to continue this as a special subject. It is an effort to know how much this subject is relevant in the level of secondary education and how environmental sustainability replicate in the textbook from class VI to X. Beside this investigation, we have to know about student's activities which may emerge from the lessons in the text books up from textbook's lesson. So the problem might be stated as –“Reflection Of Environmental Sustainability In Geography Textbook And Students' Activities At Secondary Level”

Operational Definition of the Terms use:

Environmental sustainability: A state in which demands placed on the environment can be met without reducing its capacity to allow all people to live well, now and in the future.

Activity: Refer to participation of the students lifecentric curricular programmes related to environment

Delimitation:

The present study is limited in Howrah, Uttar Dinajpur ,Bankura and Nadia District of West Bengal (WB) and Students belonging to X standard have been selected for the study.

A sample of 200 students were randomly selected from different schools of Howrah, Uttar Dinajpur ,Bankura and Nadia District of WB. The students of class X have studied all the geography textbooks below it at secondary level.

Geography text book of X standard has been considered **along with the textbooks VI to IX. The composite content was considered for content analysis.**

Students' activity at class X includes all the activities done from VI to X.

Information on environmental activities of the students (project, preparation of wall magazine, tree plantation programme, important day celebration etc.) was collected through a scale standardized by the author.

Variables of Primary study :

Main Variable: Environmental Activities of the Students (EAS)
Categorical Variables: Gender & School Habitat selected as categorical variable
Techniques of data collection:

Objectives

The present study comprised two stages (1) qualitative study for curriculum analysis &(2) quantitative analysis on the information of involvement of the students in activities related to environment.

The major objectives of the present research are –

For Qualitative Studies:

- To prepare a standard list of concepts pertaining to environmental sustainability that a student of secondary level should possess.
- To evaluate the Geography text books of WBBSE in relation to the prepared list of environmental concepts.

For Quantitative Studies:

- To assess the students' activities in secondary classes in some districts of West Bengal in relation to a prepared list of environmental concepts.
- To compare the students' activities gender and habitat-wise in secondary level from the stand point of sustainability covered in the curriculum and practiced in formal school programs.

Research Questions for Qualitative Study:

Do the secondary level textbooks of Geography (in WBBSE curriculum) contain properly the basic environmental concepts?

How much do the secondary level students possess environmental knowledge sustainability of Environment?

Null Hypotheses for Quantitative Study:

Ho1: There is no significant difference between boy and girl students of secondary level in terms of activity.

Ho2: There is no significant difference between rural and urban students of secondary level in terms of terms of activity.

Ho3: There is no significant difference between rural boy and rural girl students of secondary level in terms of terms of activity.

Ho4: There is no significant difference between urban boy and urban girl students of secondary level in terms of terms of activity.

Research Procedure

Both quantitative and qualitative methods were employed to investigate the “Reflection of Environment Sustainability in the

Textbook and Student's Activities at secondary level” in Howrah district.

Sources of Data:

The sources of data in this study were both primary and secondary sources.

Primary data: was obtained from tenth grade students of different schools in Howrah, Uttar Dinajpur ,Bakura and Nadia districts.

Secondary Data:

Information was also collected from X and from VI to IX standard Geography textbooks (Bhugol o Paribesh) provided by West Bengal Board of Secondary Education (WBBSE).

Population for quantitative study:

Students of class X under WBBSE following Bengali medium.

Sample and Sampling:

Adopting the non probability sampling technique, a sample of 200 Students of X grade (Boys and Girls) from seven government aided schools of Howrah, Uttar Dinajpur ,Bakura and Nadia District of West Bengal was collected for the purpose of the study. Distribution of sample in different categories is shown in Table 2

Table 2: Distribution of sample in different categories

Category	Boys	Girls	Total
Rural	50	50	100
Urban	50	50	100
Total	100	100	200

Analysis:

Reflection of Environmental Sustainability in Textbook:

The units of the Geography and environment books from class VI to X have been thoroughly analysed to find the concepts and activities on sustainability of environment. The concepts and activities have been placed in three dimensions i.e. Global, Local and Daily or Regular. They are shown in Table 3 below:

Table 3: List of Concepts pertaining to Environmental Sustainability at Secondary Level.

Dimension	Sustainability	Classes where it is included
Global	Sustainability of energy (conventional) i.e coal, petroleum and natural gas etc and their use and misuse	IX and X
	Resource preservation or conservation	VIII, IX and X
Local	Water, Land and Minerals etc.	VI, VII and IX
Daily or Regular	Waste Management	X
	Waste use	X
	Energy Conservation	IX
	Forest Conservation	IX
	Use of eco-friendly materials	VI,VII, VIII, IX and X
	Healthy Practices (Environmental)	VII ,VIII, IX and X
	Participation in Environmental Education	VII ,VIII,IX and X
	Self Understanding	VI to X

In the textbooks most of the above noted sustainability units have been superficially touched. The discussion on Resource and reservation is elaborate regarding Global dimension rather than local dimension. On the regular dimension, the reservation of Resource, the Utilization of Resource or Wealth, the Reservation of Forest and some healthy practices including management in natural disaster some effective discussion is there. Self understanding in the backdrop of environmental education is not emphasized. Example and explanation of concepts and rule are few and far between in the textbook.

The following six activities have been included in the text book on Geography: Survey, Nature Study, Case Study, Creative Writing, Model Making and Open Textbook Evaluation but their execution in regular school practices, as informed from the responses of the questionnaire, has wide divergence.

Some schools have limited their activities (practicum) on global aspect but some are seriously engaged in practicum related to Conservation practices, Social forestry, different Local Agenda through Quiz, Measurement & Collection of primary data from resourceful personalities.

It is also found that the school teachers often fail to undertake proper project for their school students as , it is presumed , they were inadequately trained in their preservice teachers' training.

Students show zeal for different environment friendly projects but fail to continue

Testing of Hypotheses:

In order to test Hypothesis I (H01), difference in the mean scores on the Students' Activity of boys and girls were calculated. The results are presented in table 4.

Table 4: Mean and S.D. of Boys and Girls on Environmental Activities

Variable	Category	N	Mean	S.D.
Env. Activity of Students	Boys	100	47.76	6.95
	Girls	100	50.89	5.81

Table 4.1: Two-Sample Assuming Equal Variances of SA -Boys vs. Girls

t-Test: Two-Sample Assuming Equal Variances		
	Boys	Girls
Mean	47.76	50.89
Observations	100	100
df	198	
t Stat	-3.45479851	
t Critical two-tail	1.972017432	

From the Table it is seen (calculated $t > t$ -critical). Hence, t is significant at 0.05 level and hence there exists a significant difference in the Environment based activity of boys and girls. This means that the boys and girls are not equally competent. Thus the Null Hypothesis I (H01) which states – 'There is no significant difference between boy and a girl student of secondary level in terms of activity' is rejected. Girls seem to be better because of their higher mean in the activity.

Hypothesis – II

In order to test Hypothesis II (H02), difference in the mean scores on the student's activity of rural and urban area's student were calculated. The results are presented in table 5.

Table 5: Mean and SD of Rural and Urban Students on Environmental Activities

Variable	Category	N	Mean	S.D.
Env. Activity of Students	Rural	100	50.03	6.20
	Urban	100	48.62	6.89

Table 5.1: Two-Sample Assuming Equal Variances of Environmental Activities -Rural vs. Urban Students

t-Test: Two-Sample Assuming Equal Variances		
	Rural	Urban
Mean	50.03	48.62
Observations	100	100
df	198	
t Stat	1.520222	
t Critical two-tail	1.972017	

From the Table it is seen (calculated $t < t$ -critical). Hence, t is not significant at 0.05 level and hence there exists no significant difference between activities of the rural and urban students. Thus the Null Hypothesis (H0 II) which states -There is no significant difference between rural and urban students of secondary level in terms environmental activity' is accepted

Hypothesis - III

In order to test Hypothesis III (H03), difference in the mean scores on the Environment based activities of rural boys and rural girls were calculated. The results are presented in table 6.

Table 6: Mean and SD of Rural Boys and Girls on Environmental Activities

Variable	Category	N	Mean	S.D.
Env. Activity of Students	Rural Boys	50	48.84	6.19
	Rural Girls	50	51.22	6.04

Table 6.1: Two-Sample Assuming Equal Variances of Environmental Activities –Rural Boys vs. Rural Girls

t-Test: Two-Sample Assuming Equal Variances		
	Rural Boys	Rural Girls
Mean	48.84	51.22
Observations	50	50
df	98	
t Stat	-1.945300865	
t Critical two-tail	1.984467404	

From the Table 6.1 it is seen that calculated $t < t$ -critical. Hence, t is not significant at 0.05 level and there exists no significant difference in the activity of rural boys and rural girls. Thus the Null Hypothesis III (H03) which states –'There is no significant difference between rural boy and rural girl students of secondary level in terms of environmental activity' is accepted

Hypothesis - IV

In order to test Null Hypothesis IV (H04), difference in the mean scores on the Environmental activity of urban boys and urban girls were calculated. The results are presented in table 7.

Table 7: Mean and S.D. of Urban Boys and Urban Girls on Environmental Activities

Variable	Category	N	Mean	S.D.
Env. Activity of Students Activity	Urban Boys	50	48.68	7.53
	Urban Girls	50	50.56	5.62

Table 7.1: Two-Sample Assuming Equal Variances of Environmental Activities –Urban Boys vs. Urban Girls

t-Test: Two-Sample Assuming Equal Variances		
	Urban Boys	Urban girls
Mean	46.68	50.56
Observations	50	50
df	98	
t Stat	-2.918170404	
t Critical two-tail	1.984467404	

From the Table 7.1 it is seen that calculated $t > t$ -critical. Hence, t is not significant at 0.05 level. Hence there exists a significant difference in the activity of urban boys and urban girls. Thus the Hypothesis IV(H04) which states –'There is no significant difference between urban boys and girls of secondary level in terms of environmental activity' is rejected.

Findings:

- The findings of the present investigation are noted below:
- The Geography syllabus and the textbooks written according to it consist of insufficient knowledge about sustainable development of environment. In class nine text books under WBBSE, Environmental Sustainability has been reflected.
- Significant difference has been found between the boys and girls students about the daily activities on the basis of environmental sustainability.
- There is no significant difference has been found between the rural and urban students about the daily activities on the basis of environmental sustainability
- No significant difference has been found between the rural boys and rural girls students about the daily activities on the basis of environmental sustainability
- Significant difference has been found between the urban boys and urban girls students about the daily activities as regards environmental sustainability

Limitation of the study:

- The limitations of this study arise due to stringency of – time, money and labour.
- The study is meant for WB schools but schools are not distributed over length and breadth of the state.
- Sample size should have been more than mere 200 considering the

- population of the students.
- More time should have been afforded for the work.

Discussion:

The Geography textbook of class nine of WBBSE 'BHUGOL O PORIBESH', is mainly descriptive. Examples have been liberally used there but explanations are miserly given. There are no concrete instructions as to how the learners utilize their textbook knowledge in practical life.

The cause of degradation of environment lies in huge increase of township, destruction of natural resources to serve the increasing population and greediness of a section of people. In the rural area the environment remains almost virgin because of love and respect of rural people to the environment. They have merged environmental practices to their culture.

No difference is found between rural and urban students in terms of their activity, But the boys and girls from urban area show difference in terms daily life activities, the girls being better. The cause might be the sophisticated nature of girls, their love for nature, cleanliness etc.

Implication of the study: In this study the practices of teaching, learning of geography, work habits developed among the students and their awareness of sustainability of environment have been focused. The idea of sustainability of the environment and the skills learnt for it may help generations together to survive. With this end in view the geography text books have been analysed to find (1) how far the books enable the students to take stride to maintain life on this planet in present and in future(2) activities to enrich environment.

Recommendations:

Few problematic issues were identified from the investigation. Few pistil solutions have given the researcher.

- Nature Study on Geography is neglected in most of the schools. It should be included into practicum and should be given due emphasis.
- The guardians should encourage their children to participate in the eco-friendly activities in schools.
- To secure environmental sustainability, few topics should be enlisted in the geography syllabus of nine standard under WBBSE. These are –

*Different type of pollution (Air, Water, Soil, Vision etc.) should be included.

*Wet land management should be included in the curriculum of 'Bhugool and Paribesh.

Conclusion:

Environmental conservation is a vital international issue, at least since the Stockholm Conference of UNEP, 1972. Phrases like global warming, climate change, sustainable development, greenhouse gas emission, carbon footprint and virtual water trade are frequently hitting as the central themes in academic and administrative conferences and symposiums at all levels throughout the globe. Environmental education should be a lifelong process and should aim at merely imparting knowledge and understanding man's total environment and of the methods and their application for improving our near and distant surroundings but it should also aim at including skills, the attitudes and values necessary to understand, appreciate and improve our biosphere and troposphere.

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