



Environmental Education Curriculum of West Bengal Board of Secondary Education and Central Board of Secondary Education- A Comparative Study

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ABSTRACT

The current study aims to compare the curriculum of West Bengal Board of Secondary Education (WBBSE) and Central Board of Secondary (CBSE) on the basis of environmental aspect. This comparison is done from two aspect-first, comparison of contents of both syllabuses with each other i.e. WBBSE and CBSE and second, comparison of both syllabuses on the basis of Environmental Education objectives. In order to do this content analysis method is used. The study is qualitative in nature. But after analysing the data researcher tried to interpret the result and present it quantitatively by using tables and bar-diagrams. The syllabuses of the secondary education (class: ix-x) of both WBBSE and CBSE are considered as the selected level of education for this study. The subjects considered for the comparison and analysis are Physical Science, Life Science and Geography. The environmental objectives those are considered for the analysis of content are Knowledge, Awareness, Attitudes, Skills and Participation. The five environmental divisions, Lithosphere, Biosphere, Atmosphere, Hydrosphere and Others are considered in this study for content analysis. "Others" as an environmental dimension is represented as the current environmental issues, pollution, health and diseases. Analysis of content is done by considering the title of the sub-units, objectives and inherent questions of each textbooks of each syllabus. For each subject textbook total number of sub-units and sub-units dealing with environment are presented separately for each syllabus. The data analysis revealed that in comparison of two curriculums it is found that except for class-ix Life Science the environmental content representation is same for both curriculums. But a major difference is found for class-x in Geography, where the environmental content representation is much higher in CBSE than WBBSE curriculum. It has been developed totally by considering the environmental content. It is also found by the researcher that in general both the curriculum has covered Environmental Education

content as suggested in the NCF-2005 and it is significant for both classes (ix-x). But the Environmental content covering and specifying intended objectives are comparatively higher in CBSE curriculum than WBBSE curriculum.

Key words: Environmental Education; content analysis; curriculum.

INTRODUCTION:

As the existence of life is related to the natural environment of the earth so, education for sustainable living has been a major concern to all the nations of the world. According to the Centre for Ecology, through education for sustainable living students gain knowledge, skills, and values to address the environmental and social challenges of the coming decades. They learn to think ecologically, understand the interconnectedness of human and natural systems, and develop the capacity to apply this understanding so that human communities and natural ecosystems may thrive. So, from the above discussion it can be said that Environment (physical as well as social) is the central area of sustainable living and it is directly related to the conservation and limited use of natural resources. But the physical as well as natural environment is totally being degraded by rapid population growth, uncontrolled and lavish consumptions, urbanization, industrial expansion and the huge amount of energy uses. These causes great environmental problems like environment pollution, ozone depletion, global warming, damaging of eco-systems, loss of bio-diversity etc. Gradually it became a universal problem as it indicates loss of life existence on earth. Considering these environmental consequences many steps were taken by different countries all over the world. Initially, Environment Education gained recognition when the United Nations (UN) Conference on the Human Environment held in Stockholm, Sweden, in 1972, declared environmental education must be used as a tool to address global environmental problems. The UNESCO (United Nations Education Scientific and Cultural Organizations) and UNEP

(United Nations Environment Program) created three major declarations that have guided the course of environmental education. The declaration document was made up of 7 proclamations and 26 principles “to inspire and guide the peoples of the world in the preservation and enhancement of the human environment.” After that Belgrade Charter was built upon the Stockholm Declaration on October 13, 1975. Later the decade, in 1977, the *International Conference on Environmental Education in Tbilisi, Georgia* emphasized the role of Environmental Education in preserving and improving the global environment and sought to provide the framework and guidelines for environmental education. The conference laid out the role, objectives and characteristics of environmental education, and provided several goals and principles for environmental education. Environmental Education (EE) is a process in which individuals gain awareness of their environment and acquire knowledge, skills, values, experiences, and also the determination, which will enable them to act- individually and collectively- to solve present and future environmental problems.

OBJECTIVES OF THE STUDY: The objectives of the paper are to-

1. Analyse the content of the curriculum of the *Central Board of Secondary Education (C.B.S.E)* in relation to Environmental Education.
2. Analyse the content of the curriculum of the *West Bengal Board of Secondary Education i.e. (W.B.B.S.E)* in relation to Environmental Education.
3. Compare the content of the curriculum of the W.B.B.S.E and C.B.S.E in relation to Environmental Education.

METHODOLOGY OF THE STUDY:

The study is qualitative in nature and the method followed in this study is content analysis. The content of the syllabuses of both curriculums is analysed on the basis of data obtained. The data used for content analysis are the prescribed syllabuses of W.B.B.S.E. and C.B.S.E. So, the data is assumed to be trustworthy and authentic. International standardized Environmental Education objectives are considered for analysis of the contents.

DELIMITATIONS OF THE STUDY:

The study is delimited in the following aspects:

1. Only the secondary curriculum (class ix-x) of two boards i.e. WBBSE and CBSE are taken for comparison.
2. The syllabuses of the subjects of only Physical Science, Life Science and Geography are selected for content analysis.
3. Only five Environmental divisions are considered i.e. Lithosphere, Atmosphere, Hydrosphere, Bio-sphere and others.
4. The study is also delimited in terms of reliability and validity, which are unfounded.

ENVIRONMENTAL EDUCATION:

Environmental education (EE) refers to organized efforts to teach how natural environments function, and particularly, how human beings can manage behaviour and ecosystems to live sustainably. It is a multidisciplinary field integrating disciplines such as biology, chemistry, physics, ecology (study of interactions among organisms with their physical environment), earth science, mathematics and geography. The term often implies education within the school system, from primary to post-secondary.

According to UNESCO (*United Nations Educational, Scientific and Cultural Organisation, 2014*) Environmental Education (EE) is vital in imparting an inherent respect for nature amongst society and in enhancing public environmental awareness. UNESCO emphasises the role of EE in safeguarding future global developments of societal quality of life (*QOL*), through the protection of the environment, eradication of poverty, minimization of inequalities and insurance of sustainable development.

The IGES (*Institute of Global Environmental Strategies*) states, Environment Education (EE) is a holistic approach to learning in order to achieve an ecologically and socially sustainable future. Its primary purpose is to enhance an individual’s knowledge, attitudes, skills, values and motivation to improve quality of the environment.

THE OBJECTIVES OF ENVIRONMENTAL EDUCATION:

The above goals were better defined by 5 objectives which were outlined in *UNESCO-UNEP Environmental Education Newsletter Vol.1, No. 1 (January, 1996)*. These objectives are to improve:

1. **Knowledge:** To help individuals, groups and societies gain a variety of experience in, and acquire a basic understanding of what is required to create and maintain a sustainable environment.
 2. **Awareness:** To help social groups and individuals acquire awareness and sensitivity towards: “the environment as a whole, and;” issues, questions and problems related to environment and development.
 3. **Attitudes:** To help individuals, groups and societies acquire: “a set of values and feelings of concern for the environment, and “the motivation to actively participate in protection of the environment.
 4. **Skills:** To help individuals, groups and societies acquire the skills for: “identifying,” anticipating, “preventing and “solving environmental problems.
 5. **Participating:** To provide individuals, groups and societies with an opportunity and the motivation to be actively involved at all levels in creating a sustainable environment. (IGES,2004)
- A. Scholastic Area:
 1. First Language : English/Hindi
 2. Second Language: Any language without the first language.(It may be a regional language)
 3. Mathematics.
 4. Science.
 5. Social Science.
 6. Additional subject or any vocational subject as suggested by NSQF.
 - B. Co-Scholastic Area (these are the subjects of internal assessment):
 1. Work Education or Pre-vocational Education.
 2. Art Education.
 3. Health and Physical Education.

CONTEXT OF CONTENT ANALYSIS

The context of content analysis will provide some basic information and procedures which has been followed in the process of subject content analysis. These are following:

COMPONENTS OF ENVIRONMENT:

The environment has three important constituents. These are: Physical, Biological and Social. The three major constituent parts of environment give rise to four important zones. These are Lithosphere, Atmosphere, Hydrosphere, and Bio-sphere. These are in general considered as the components of environment.

The content analysis of each syllabus has been done on the basis of above discussed Environmental Components in relation with the Objectives of Environmental Education.

As the researcher wants to compare the Secondary Curriculum of W.B.B.S.E and C.B.S.E so, only the syllabus of class ix-x is given below:

SECONDARY (IX-X) CURRICULUM OF W.B.B.S.E:

1. First Language: Bengali.
2. Second Language: English.
3. Mathematics.
4. Physical Science and Environment.
5. Life Science and Environment.
6. History and Environment.
7. Geography and Environment.

SECONDARY (IX-X) CURRICULUM OF C.B.S.E:

1. Analysis of the content is done by considering the title of the subunits, objectives and inherent questions of each textbook of each syllabus. As the textbooks are developed by following the guideline of NCF 2005, i.e. to develop all environmental objectives among the students.
2. Only the curricular subjects i.e. Physical Science, Life Science and Geography are considered for content analysis. And no other subjects has been analysed.
3. As in the C.B.S.E curriculum Science is not separately presented in the form of Physical Science and Life Science so, the researcher separates all units as Physical Science and Life Science according to the subject matter presented in each units.
4. Total number of subunits of each subject, in each class (ix-x), of both separate curriculums has been calculated.
5. Total number of subunits dealing with Environment Education (EE) of each subject, in each class (ix-x), of both separate curriculums has also been calculated.
6. Environmental contents were analysed according to the components – Lithosphere (L), Atmosphere (A), Hydrosphere (H), Bio-sphere (B) and Others (O).

7. 'Others' as an Environmental dimension is represented in this paper as current environmental issues, pollution, health and diseases etc.
8. The all Environmental Objectives i.e. Knowledge, Awareness, Attitudes, Skills and Participations are considered for content analysis, as both curriculum and textbooks has been constructed following the National Curriculum Framework 2005.
9. All other limitations are discussed earlier. No other limitations are there to be stated.

CONTENT ANALYSIS OF THE C.B.S.E SYLLABUS

A) Content Analysis of the Syllabus of Class IX-X in PHYSICAL SCIENCE in C.B.S.E

1. In Class IX the Total number of subunits is 49 The subunits dealing with environment is 11, i.e. 23% of the total subunits.
2. In Class X the Total number of subunits is 43 The subunits dealing with environment is 18, i.e. 42% of the total subunits.

Table A.1

CLASS- IX

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS		✓	✓	✓	✓
ATTITUDES		✓			✓
SKILLS					
PARTICIPATION					

Table A.2

CLASS- X

COMPONENTS OF ENVIRONMENT

OBJECTIVES	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES	✓	✓		✓	✓
SKILLS	✓	✓	✓		
PARTICIPATION					

Table A.3

B) Content Analysis of the Syllabus of Class IX-X in LIFE SCIENCE in C.B.S.E CLASS- IX

1. In Class IX the Total number of subunits is 32 The subunits dealing with environment is 18, i.e. 56% of the total subunits.
2. In Class X the Total number of subunits is 32 The subunits dealing with environment is 19, i.e. 59% of the total subunits.

Table B.1

CLASS- IX

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES	✓	✓	✓	✓	✓
SKILLS				✓	✓
PARTICIPATION			✓		✓

Table B.2

CLASS- X

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O

KNO WLED GE	✓	✓	✓	✓	✓
AWA RENE SS	✓	✓	✓	✓	✓
ATTIT UDES	✓			✓	✓
SKILL S	✓		✓	✓	✓
PARTI CIPAT ION	✓	✓	✓	✓	✓

Table B.3

KNO WLED GE	✓	✓	✓	✓	✓
AWA RENE SS	✓	✓	✓	✓	✓
ATTIT UDES	✓	✓	✓	✓	✓
SKILL S	✓		✓	✓	✓
PARTI CIPAT ION					

Table C.3

CONTENT ANALYSIS OF THE W.B.B.S.E SYLLABUS

C) Content Analysis of the Syllabus of Class IX-X in GEOGRAPHY in C.B.S.E

1. In Class IX the Total number of subunits is 22 The subunits dealing with environment is 19, i.e. 86% of the total subunits.
2. In Class X the Total number of subunits is 42 The subunits dealing with environment is 42, i.e. 100% of the total subunits

Table C.1

CLASS- IX

OBJE CTIVE S	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNO WLED GE	✓	✓	✓	✓	✓
AWA RENE SS	✓	✓	✓	✓	✓
ATTIT UDES	✓	✓	✓	✓	✓
SKILL S				✓	✓
PARTI CIPAT ION				✓	

Table C.2

CLASS- X

OBJE CTIVE S	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O

D) Content Analysis of the Syllabus of Class IX-X in PHYSICAL SCIENCE in W.B.B.S.E

1. In Class IX the Total number of subunits is 38 The subunits dealing with environment is 13, i.e. 34% of the total subunits.
2. In Class X the Total number of subunits is 28 The subunits dealing with environment is 15, i.e. 54% of the total subunits.

Table D.1

CLASS- IX

OBJE CTIVE S	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNO WLED GE	✓	✓	✓	✓	✓
AWA RENE SS	✓	✓	✓	✓	✓
ATTIT UDES	✓				
SKILL S					
PARTI CIPAT ION					

Table D.2

CLASS- X

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES					✓
SKILLS	✓	✓			✓
PARTICIPATION					

Table D.3

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES	✓	✓		✓	✓
SKILLS	✓			✓	✓
PARTICIPATION				✓	

Table E.3

E) Content Analysis of the Syllabus of Class IX-X in LIFE SCIENCE in W.B.B.S.E

F) Content Analysis of the Syllabus of Class IX-X in GEOGRAPHY in W.B.B.S.E

- In Class IX the Total number of subunits is 25
The subunits dealing with environment is 18, i.e. 72% of the total subunits.
- In Class X the Total number of subunits is 17
The subunits dealing with environment is 13, i.e. 76% of the total subunits

Table E.1

CLASS- IX

- In Class IX the Total number of subunits is 26
The subunits dealing with environment is 18, i.e. 70% of the total subunits.
- In Class X the Total number of subunits is 23
The subunits dealing with environment is 19, i.e. 83% of the total subunits

Table F.1

CLASS- IX

Table E.2

CLASS- X

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES	✓				✓
SKILLS					
PARTICIPATION					✓

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES	✓		✓	✓	✓
SKILLS	✓		✓		✓
PARTICIPATION					

Table F.2

CLASS- X

OBJECTIVES	COMPONENTS OF ENVIRONMENT				
	L	A	H	B	O
KNOWLEDGE	✓	✓	✓	✓	✓
AWARENESS	✓	✓	✓	✓	✓
ATTITUDES	✓	✓	✓	✓	✓
SKILLS	✓			✓	✓
PARTICIPATION				✓	✓

Table F.3

INTERPRETATION:

Comparison of W.B.B.S.E and C.B.S.E Syllabus in quantitative representation:

i) In PHYSICAL SCIENCE:

As the table- A.1 and D.1 shows that the C.B.S.E and W.B.B.S.E syllabus differ in the representation of Environmental content quantitatively in the following way:

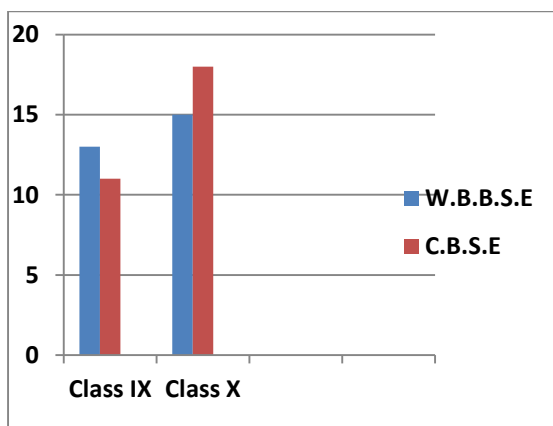


Fig.1: Comparison in Physical Science Content

ii) In LIFE SCIENCE:

As the table B.1 and E.1 shows that the C.B.S.E and W.B.B.S.E syllabus differ in the representation of Environmental content quantitatively in the following way:

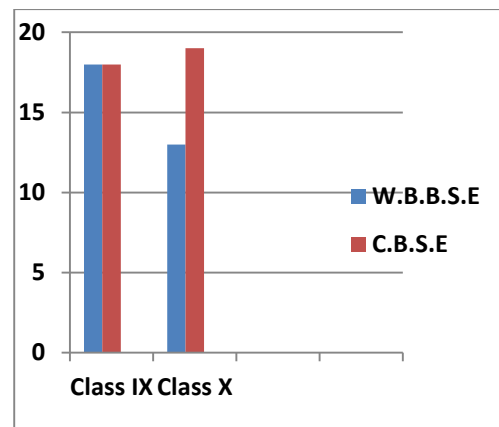


Fig.2: Comparison of Life Science Content

iii) In GEOGRAPHY:

As the table C.1 and F.1 shows that the C.B.S.E and W.B.B.S.E syllabus differ in the representation of Environmental content quantitatively in the following way:

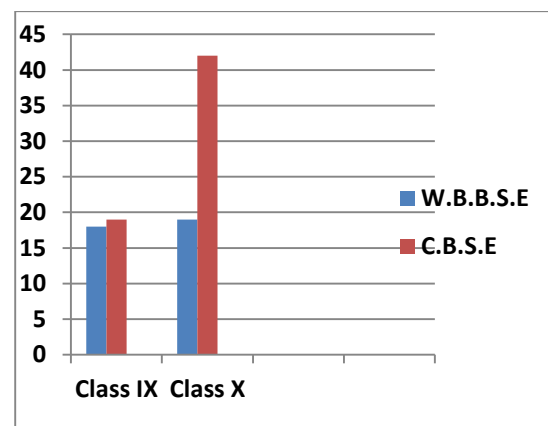


Fig.3: Comparison of Geography Content

FINDINGS:

So, in quantitative interpretation, the above figures show that there exist multiple differences in each subject of both curriculums, except for class-ix in Life Science the Environmental content representation is same. A major difference is found for class-x in Geography. Where, the Environmental content representation is much higher in C.B.S.E curriculum rather than in W.B.B.S.E curriculum. Approximately same number of Environmental content is found in Geography for class-ix in both curriculums. In Physical Science for class ix-x in both curriculum and in Life Science for class-x of both curriculum significant differences has been found. So, it may be concluded that on an average the Environmental content representation in C.B.S.E

curriculum is higher than W.B.B.S.E in class-x, but it is almost same in class-ix.

Comparison and Interpretation on the basis of Intended Objectives:

The Environmental objectives those were considered for the analysis of content and to compare the C.B.S.E and W.B.B.S.E curriculum are Knowledge, Awareness, Attitudes, Skills and Participation. In the present study after analysing the content it could be interpreted in the following way by using the data of the tables- A.2, A.3, B.2, B.3, C.2, C.3, D.2, D.3, E.2, E.3, F.2 and F.3

- As the content analysis has been done by analysing the subunits, objectives, subject matter and inherent questions given in each subject textbook of both curriculum so, here also a diverse data has been found. The general objectives remain for both the curriculum is development of Knowledge and somewhere Awareness. Development of Attitudes, Skills and Participations were not directly considered as the intended objectives, but as the researcher also analysis the inherent questions of the textbooks so, somewhere it remains as the objectives of Environmental contents.
- It is to be informed that in C.B.S.E curriculum the Geography syllabus of class-x has been developed totally by considering the Environmental content. (Source: Environmental education infused in the NCERT syllabus of class i-xii published by NCERT) The Environmental objectives in Physical Science in class-ix for both curriculums are almost same, i.e. there is a lack of Attitudes, Skills and Participations oriented objectives. In overall content analysis the skills and participations oriented objectives are found more in C.B.S.E curriculum than W.B.B.S.E for both classes.
- A general trend is found that in class-ix in both the curriculum, the content representation and intended objectives are comparatively less than class-x, especially in Physical Science and Geography. In respect of Development of Environmental Attitudes as an objective the C.B.S.E curriculum is much ahead of than W.B.B.S.E. But the development of textbooks in both the curriculum seems almost same.

So, it can be said that both the curriculum has followed the instructions of NCF 2005, but the C.B.S.E curriculum is much enriched, scientific and systematic than W.B.B.S.E in the representation of Environmental content.

CONCLUSION:

The study has been done to compare the C.B.S.E and W.B.B.S.E curriculum from Environmental Education (EE) aspect. It is found after the content analysis that in general both the curriculum has covered Environmental Education content as suggested in the NCF 2005. In both the classes (ix and x) the number of Environmental Education (EE) content is significant. But as the result shows that the Environmental content covering and specifying intended objectives is comparatively higher in C.B.S.E curriculum. The textbooks of W.B.B.S.E should also restructure.

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