

A Textbook Analysis of NCERT and Siert Environmental Studies for Class Four Students

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Abstract

Introduction: Textbooks are one of the vital repositories of knowledge from which the learners can gain a vast treasure during their journey of education. They are the most significant sources of information that promote creative thinking and imaginative power in the minds of children in their learning stage. As books are the prime part of the social milieu and reflect the realistic social scenario, they should be provided with a scaffold on par with the understanding level of the children. This study is confined to an analysis of Environmental Science textbooks framed as per various syllabi such as NCERT and SIERT for class IV students in Rajasthan. The paper examines both the frameworks of books and gives some suggestions to keep the appropriate thematic content pertaining to the syllabus. A textbook analysis methodology is used for the study. An analysis framework has been made as per the NCERT syllabus and SIERT syllabus textbooks. A systematic analysis was done oppositely according to the content of the book. It analyses the content of the book and the required elements of the learners as per the syllabus. The analysis of the environmental studies textbooks has found that they have been framed so that they can produce a sound impact on students learning. The framework of the textbooks allows the curriculum to its applicability to the future. The paper concludes that the textbooks that follow both the NCERT and SIERT syllabi should encompass the four prime areas such as content, sequence, standard, and language, which are very important for the efficiency of the textbook and the content is free from gender stereotyping.

Keywords: *Textbook Analysis, Environmental Studies, understanding level, content, curriculum, Quality education*

Introduction

An environmental studies textbook is accessed for the teacher and students for their teaching and learning process. The entire academic action highly depends on the textbook, and it also provides proper direction to the formal education. The textbook syllabus is the complete track for the academic study of a subject; it gives a clear course outline. Environmental studies textbooks assisting the teacher in making the right decision regarding the information to be presented in front of the students while teaching. A textbook is a repository of information that will guide the students; it also consists of bibliographic and textual information for their learning. Without the presence of a standard textbook, the entire classroom transaction will not complete in a successful way.

Text Books will help the students to enrich their cognitive and meta-cognitive thinking process, and it will also enhance the students' understanding level right from lower-order thinking level to higher-order think level. By using the textbook, student's reasoning skills will be improved naturally. Reading books sharpening the thinking process. Psychologically it will develop the student's mental health; it will be refreshing the student's mind and level of thinking. Once the teacher is analyzing the content, the quality of the content will reflect the effective outcome of the particular textbook. In this article, the researcher analyzes the content of the NCERT AND SIERT 4th standard Environmental studies textbook.

The researcher analyzed the content and compared the scope of both NCERT and SIERT 4th standards Environmental studies textbook. Content analysis highly focused on the scientific information's, facts, principles, laws, and rules present in the concepts, how far it is needed for the students to lead their day-to-day life, scientific attitudes, scientific temper, experiments, activities, assignments, and exercises, content clarity, pictures and diagrams, general knowledge information's, suitable examples, suitable usage of instruction aids based on the topics. Hence, the above items can be compared with the NCERT and SIERT 4th standard Environmental studies textbook. This research has examined, compared, and evaluated the content of NCERT and SIERT 4th standard Environmental studies textbook to study the scope of developing desirable values among the 4th standard students and also the paper revealed whether the content in the NCERT and SIERT depict the gender stereotype in 4th STD Environmental Studies textbook.

Four Prime Areas of the content

This textbook analysis focuses on the four main areas as content, sequence, standard, and language. These areas are the prime areas that reflect the quality of the textbook. The investigator selected the NCERT and SIERT 4th standard environmental studies textbook for comparative analysis.

Elements of the Content

The analysis is highly focusing on the scientific information's, facts, principles, laws, and rules present in the concepts, how far it is needed for the students to lead their day-to-day life, scientific attitudes, scientific temper, experiments, activities, assignments, and exercises, content clarity, pictures and diagrams, general knowledge information's, suitable examples, suitable usage of instruction aids.

The sequence of the Content

The content in the textbook is organized in a systematically progressive fashion, which proposes an erection, a direction, and an evolution in the teaching-learning process, systematized in chapters and units, the materials of learning information, clarifications, commentaries, practical activities, precises, appraisal in order, there is a methodical advance of learning towards the achievement of new information based on known items of knowledge. However, textbooks are essential teaching learning tools for the teachers and also the pupil. In a nutshell, a 4th standard NCERT and SIERT environmental studies textbook offer numerous potentials for the arrangement of content and its presentation.

Standard of the Content

The standard of the content presents both in the 4th standard NCERT and SIERT environmental studies textbook. It is suitable for all the learners in the classroom. Standards-based education refers to instructional, assessment, grading, and academic reporting systems centered on students exhibiting mastery of the knowledge and skills they are expected to learn as they go through their education. As a result, content standards are more than just a list of essential knowledge and skills. They are, instead, a vision of what should be included in the curriculum in terms of content priority and emphasis.

Content Language

Content preparation may be in different languages, and the selected language should be suitable for the geographical situation and culture. Language preference in the construction of curriculum content is essential so that students feel free to learn the concepts clearly and easily. In the 4th standard NCERT environmental studies textbook, the medium of instruction is in the English language and in the SIERT environmental studies textbook, the contents are framed in the Hindi language.

Significance of the Study

School textbooks are significant instruction resources; textbooks are the pillars of the Indian Education System. It is the only source in inculcating students' moral, social, aesthetic, scientific, spiritual, and vocational values. Individuals, schools, and institutions such as NCERT involved in developing textual content need a strong reference point for instilling constitutional rights and values awareness.

Environmental studies textbooks handle environmental-related knowledge, human relationships, social values, and attitudes in their content. These are necessary for new generations to contribute effectively in a variety of environmental settings. As a result, the current article evaluated, analyzed, and compared the NCERT and SIERT fourth-grade environmental studies books in terms of recognizing underlying values and the scope of establishing desirable KASH – Knowledge, Attitude, Skill, and Habits – in students.

The Rationale of the Study

The purpose of this study is to show how the expected and desired outcomes in students can be produced through the environmental studies curriculum, so that curriculum developers, textbook authors, and scientific educators can make informed decisions.

Problem Statement

Text Book Analysis of 4th Grade NCERT environmental studies Text Book and SIERT environmental studies Text Book to study the comparative nature of the content present in both textbooks.

Objectives of the Study

- To analyze an opposite manner according to the content of 4th Grade NCERT environmental studies Text Book and SIERT environmental studies.
- To find out the content of the book with required elements of the learners as per the syllabus.
- To identify the environmental studies textbooks framed to produce a sound impact on students learning and the framework of the textbooks allows the curriculum to its applicability to the future.

Methodology

The qualitative research method and 4th-grade environmental studies textbook of both NCERT and SIERT were taken as samples for the study.

Analysis of the content

The content Presentation was apparent and easy to understand. Inside the content there is an availability of cognitive links, comparing and contrasting, day to day life-oriented examples, content related pictures, different geographical locations, culture, comparison of real images it with cartoon pictures, in between the content there is a presence of logical questions which will be inducing the reasoning skills among students. Students automatically think and rethink the information and questions posed in all the chapters. Pictorial representation of information's kindling the student interest towards learning.

Finally, the children learn about the importance of the environment. Punishment will create psychological disturbances among students, but it will also develop moral, ethical, and social values among the students. All the chapters in both the NCERT and SIERT environmental studies textbooks provide a global view of the various aspects of the content present in each unit. The learning experiences taken by students make a sound impact on learning environmental aspects, and the framework of the textbooks allows the curriculum to its applicability to the future need of the students, parents, and community.

Curiosity, eagerness, fun, puzzle games, painting, matching of images with clues, understand the concept by comparing the characteristic features from one concept to another concept and providing more information about the biotic and abiotic factor, habitats, living style, nature and its importance, the beauty of nature, and food habits. Origami activity and number cognitive connection activity help the students to identify the hidden concepts in the specific activity to acquire the knowledge and its importance.

Table: 1 Content Comparison of NCERT & SIERT 4th standard environmental Studies text book

S. No.	4 Prime Elements in the Text Book	NCERT	SIERT
1	Content	practical experience to theory experiences, from theory to practical exercises with assessment, Illustration, Observation and analysis, applying of learning concepts in their day-to-day life	Practical experience to theory experiences, from theory to practical exercises with assessment activity.
2	Sequence	Systematic, Logical organization of the content	Systematic, Logical organization of the content
3	Standard	Attain Scientific knowledge, attitude, skill, and habits, and the content is also applicable to the future.	Attain skill and mastery in the content.
4	Language	English	Hindi & English

Gender Stereotyping in NCERT and SIERT 4th STD Environmental Studies textbooks Focusing Dimensions in Gender Stereotyping

Gender Stereotype has been a worthy topic for many researchers so far. Family and childhood were prominent themes in nineteenth-century literature. Traditional beliefs have always been mirrored in books, which have acted as socializing tools for passing values down to the next generation. At those periods of time, there were two categories of books, one for males and the other for girls. The number of publications written expressly for boys or girls began to rise in the latter half of the nineteenth century, providing advice on gender-appropriate behaviour. The literature for boys emphasized leadership and action, while the ones for girls emphasized characteristics such as obedience and humility. In the 1960s and 1970s, researchers began to notice gender stereotypes in children's literature. In 1972, Weitzman led the first investigation to confirm significant gender differences. He established that in children's books of knowledge, girls and women were essentially invisible, whereas men were the leaders and actively participated. They also state that,

"Females were underrepresented in titles, core positions, and primary characters by a ratio of 1:1, ... Males, on the other hand, were described as leaders, self-sufficient, and energetic" (Narahara, 1998). According to a 1987 study, the majority of female characters failed to identify any career objectives, female role models were sparse, and men characters were still presented as an independent. They appeared to have uncovered a pattern in children's picture books that were favourable. Traditional representations of women are giving way to more egalitarian images of men and women, according to research conducted in the 1990s. Gender disparities can be seen in children's environments, behaviour, and language development. Gender stereotypes have an impact on how young people see themselves. Gender differences in children's responses arise, especially among older children, but it's

essential to appreciate the effect of preconception formation. Children who haven't developed a strong sense of self are especially at risk. According to studies, girls and boys who are exposed to a powerful female/male story character have much higher self-concept ratings.

"It is critical for a child to be able to relate with characters in novels; otherwise, youngsters may believe that their lives are unimportant, which may have a detrimental impact on them" (Narahara, 1998).

Male dominance in photos was formerly assumed to be tied to the gender of the authors; however, Alberts (1996) revealed that having a higher proportion of female authors did not influence male dominance in pictures. This implies that the man is the family's guardian and represents the family in public, meaning that he has power over his wife and children. Because of the male-dominated tradition, the major purpose of the man in marriage is to make money, while the woman's responsibility is 'only' to care for the house and family (Jogan, 1998).

School and the curriculum are the important catalysts for the children that influence the thoughts and actions among students. The curriculum should provide a neutral environment for both males and females and need to create an accessible environment that does not influence gender stereotyping. Content contribution in both NCERT and SIERT 4th STD Environmental Studies textbooks and qualities were free from gender bias and gender stereotype. Content distribution and its importance is highly applicable for both male and female students. The activities present in each unit give equal importance for both male and female students.

Focusing the five major dimensions in gender stereotyping is, content contribution in influencing both gender wellness, adopting equity and equality in balancing the textual information in the diversified classroom setup, overall representation of the text in each unit in both NCERT and SIERT IV STD Environmental Studies textbook, Inclusiveness all the content in the textbook revealed the inclusions namely cognitive, social, environmental and cultural inclusion, and finally the activities present in all the units highly give importance for both male and female genders, equal participation and preparation of follow up activities are in the same level. There is no discrimination of the content and disparities in the units; both NCERT and SIERT give equal importance in the inculcation of values among the students in the 4th STD Environmental Studies textbooks.

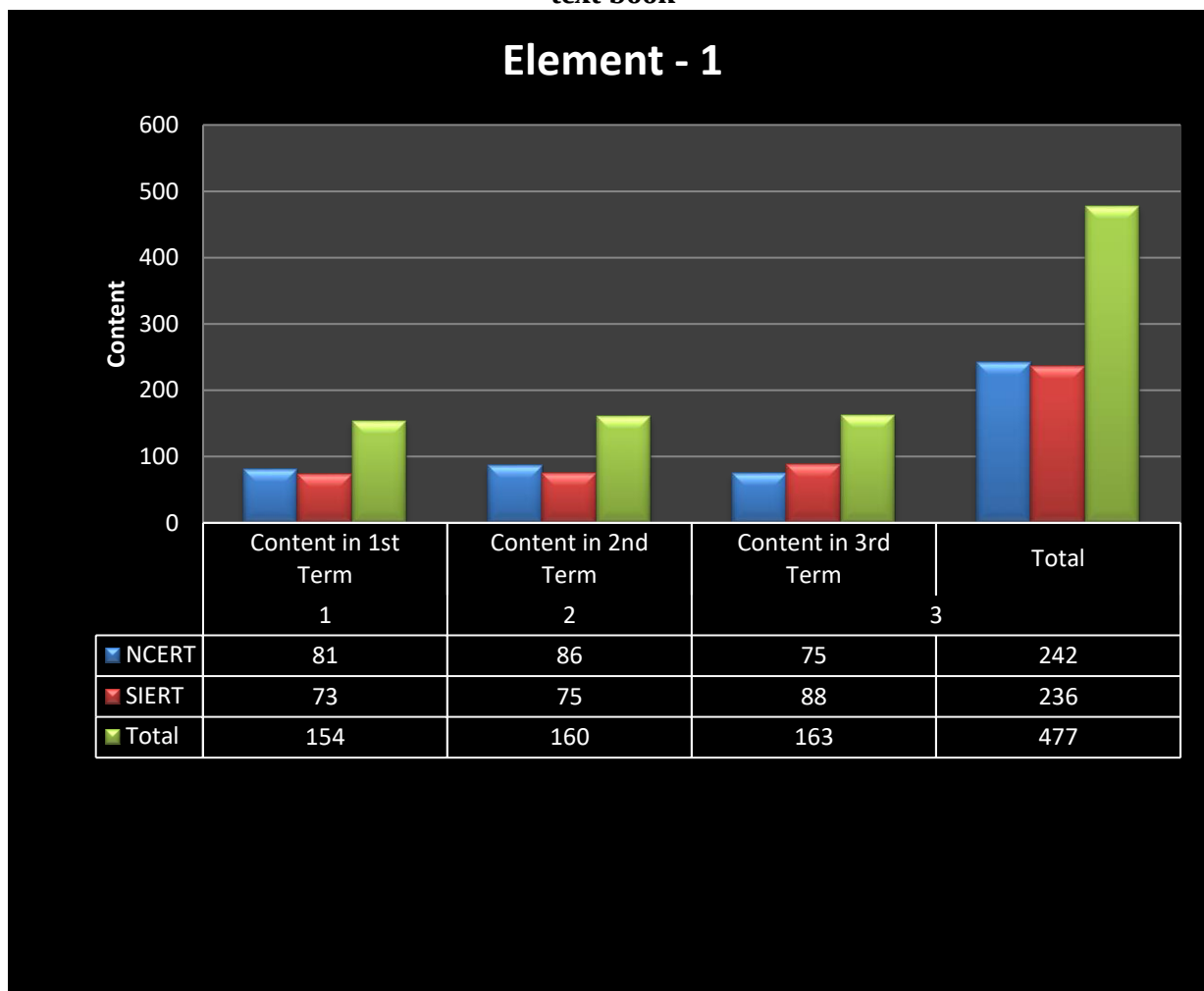
The cognitive, affective, and psychomotor domains of learning and its objectives are balanced equally for both male and female students. The cognitive inclusion was presented, and the students also received the experience of inclusion —the overall representation of the text in each unit reflecting the equity and equality approaches. The textual context develops the cultural, social, moral, aesthetic, and vocational values among students both in the NCERT and SIERT 4th STD Environmental Studies textbooks for both boys and girls. Images and pictures present in the textbook do not depict gender dominance; it is only the reflection of daily home environmental set up what we follow in our day-to-day lives. At present in the family, both father and mother start cooking, sharing their domestic works to enhance a healthy home environment and lead their life in a peaceful way. On viewing the picture and images in the grade 4 environmental studies textbook of both NCERT and SIERT, there is no gender stereotyping.

Comparative Analysis – 1

Table: 2 Distribution of content weightage between the NCERT & SIERT EVS text book

S.No.	Element – 1	NCERT (%)	SIERT (%)	Total
1	Content in 1 st Term	81	73	154
2	Content in 2 nd Term	86	75	160
3	Content in 3 rd Term	75	88	163
	Total	242	236	477

Figure:1 Graphical representation of content weightage between the NCERT & SIERT EVS text book



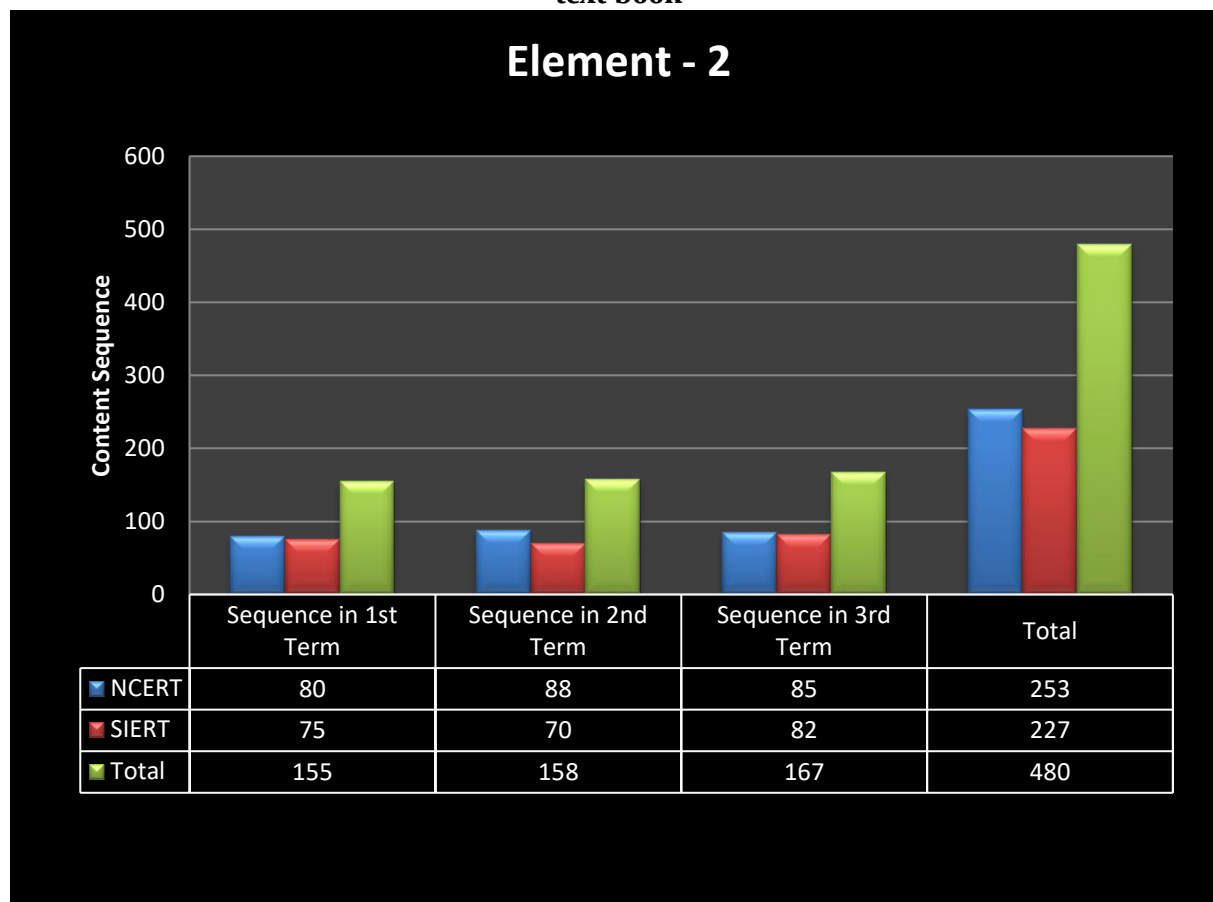
The above table and graph depicted the content weightage both in NCERT & SIERT present in the Environmental studies textbook. The content weightage in the NCERT textbook in term 1 is (81), term 2 is (86), and term 3 is (75). The content weightage in the SIERT textbook in term 1 is (73), term 2 is (75), and term 3 is (88). The comparison between both NCERT & SIERT revealed that in term 1 and term 2 the presence of content weightage is high in NCERT, in Term 3 the presence of content weightage is high in SIERT. The overall comparison report indicated that there are only slight differences in the presence of content both in the NCERT & SIERT Environmental Studies textbook in 4th grade.

Comparative Analysis – 2

Table: 3 Distribution of level of Content Sequence in the NCERT & SIERT EVS text book

S. No.	Element – 2	NCERT (%)	SIERT (%)	Total
1	Content Sequence in 1st Term	80	75	155
2	Content Sequence in 2nd Term	88	70	158
3	Content Sequence in 3rd Term	85	82	167
	Total	253	227	480

Figure: 2 Graphical representation of content sequence in between the NCERT & SIERT EVS text book



The above table and graph depicted the content sequence both in NCERT & SIERT present in the Environmental studies textbook. The presence of content sequence in the NCERT textbook in term 1 is (80), term 2 is (88), and term 3 is (85).

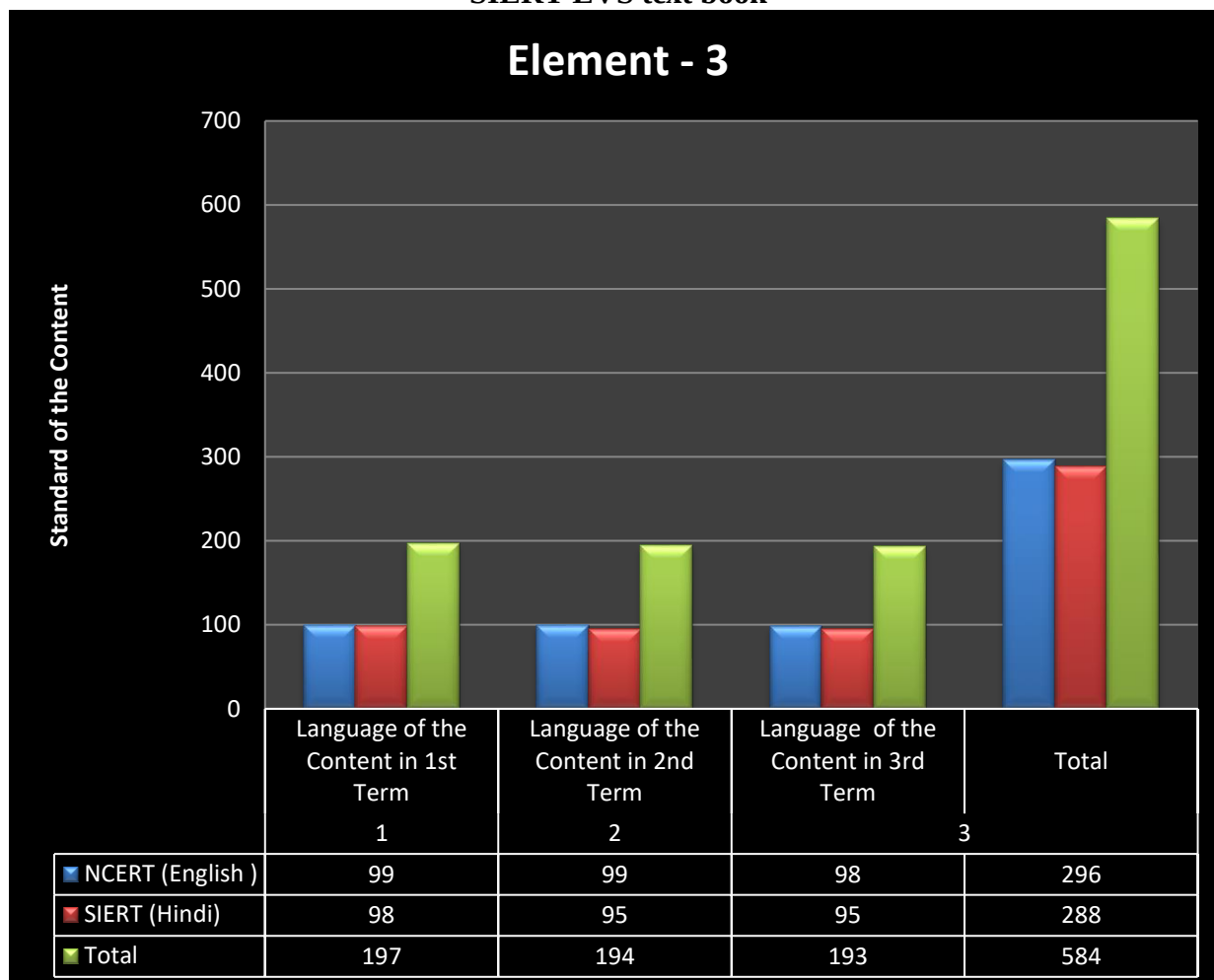
The presence of content sequence in the SIERT textbook in term 1 is (75), term 2 is (70), and term 3 is (82). The comparison between both NCERT & SIERT revealed that in term 1, term 2, and term 3, the presence of content sequence is high in NCERT with that of SIERT. The overall comparison report indicated that there is a mild difference in the presence of content sequence content both in NCERT & SIERT Environmental Studies textbook in 4th grade.

Comparative Analysis -3

Table: 4 Distribution of level of Standard of the Content NCERT & SIERT EVS text book

S. No.	Element – 3	NCERT (%)	SIERT (%)	Total
1	Standard of the Content in 1st Term	93	92	185
2	Standard of the Content in 2nd Term	95	97	192
3	Standard of the Content in 3rd Term	98	91	189
	Total	286	280	566

Figure: 3 Graphical representation of level of standard of the content between the NCERT & SIERT EVS text book



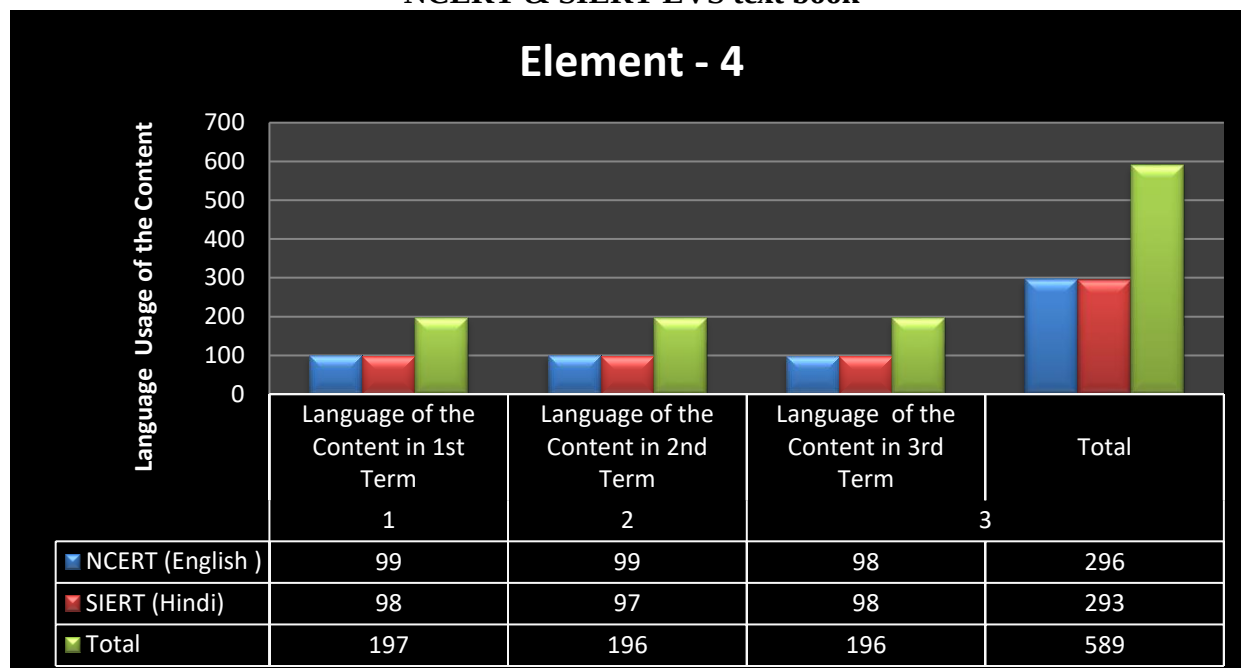
The above table and graph depicted the standard level of the content both in NCERT & SIERT present in the Environmental studies textbook. The presence of content sequence in the NCERT textbook in term 1 is (99), term 2 is (99), and term 3 is (98). The presence of content sequence in the SIERT textbook in term 1 is (98), term 2 is (95), and term 3 is (95). The comparison between both NCERT & SIERT revealed that in term 1, term 2, and term 3 the presence of standard level of the content is high both in NCERT and in SIERT. The overall comparison report indicated that there is a mild difference in the presence of standard level of the content both in NCERT & SIERT Environmental Studies textbook in 4th grade.

Comparative Analysis – 4

Table: 4 Distribution of level of Language usage in the content presentation NCERT & SIERT EVS text book

S. No.	Element - 4	NCERT (%) (English)	SIERT (%) (Hindi & English)	Total
1	Language of the Content in 1st Term	99	98	197
2	Language of the Content in 2nd Term	99	97	196
3	Language of the Content in 3rd Term	98	98	196
	Total	296	293	589

Figure: 4 Graphical representation of level of Language usage in the content between the NCERT & SIERT EVS text book



The above table and graph depicted the usage level language in the content preparation both in NCERT & SIERT present in the Environmental studies textbook. The presence of language usage in the content preparation in NCERT textbook in term 1 is (99), term 2 is (99), and term 3 is (99) both in Hindi and English language. The presence of language usage in the preparation of content in the SIERT textbook in term 1 is (98), term 2 is (95), and term 3 is (95) only in Hindi but in some text, the language used is in English. For Example, Outcome-Based Education is included in the topics and also in sub topics. The comparison between both NCERT & SIERT revealed that in term 1, term 2, and term 3 the language usage in the preparation of content is both Hindi and English Medium of instruction in NCERT, and in SIERT Hindi language is used for the medium of instruction. The overall comparison report indicated that the medium of language usage and its level are slightly similar both in NCERT & SIERT Environmental Studies textbook in 4th grade.

Conclusion

The development of academic independence, rational spirits of inquiry, commitment to excellence, and attainment of sound influence on students learning should be the goals of scientific education at the school level. The framework of textbooks should allow the curriculum to be applied to the future. After analyzing the content of NCERT and SIERT environmental studies, it has been discovered that almost all the topics in the Text Book of grade 4th Environmental Science produce a sound impact on students learning and the framework of the textbooks allows the curriculum to its applicability to the future. The paper concludes that the textbooks that follow both the NCERT and SIERT syllabi should encompass the four prime areas: content, sequence, standard, and language, which are very important for the efficiency of the textbook.

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