

**ANALYSIS
AND INTERPRETATION
OF DATA**

CHAPTER - V

ANALYSIS AND INTERPRETATION OF DATA

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CHAPTER - V

ANALYSIS AND INTERPRETATION OF DATA

5.1 INTRODUCTION

Based on the conceptual aspects developed in the preceding chapters, analysis and interpretations of the data collected have been presented in this chapter. As pointed out earlier the analysis and interpretations of the data based on objective from no. one to five would give thorough details objective no. II and IV for the corroborative evidences from teachers students and experts would reflect validity for the data collected based on the relevant objective. Last objective no. V would give an overall interpretation made based on certain well identified criteria. Content analysis have been carried out at manifest level as well as latent level to include the feeling tone within the analysis at the formal level. Content analysis based on strictly what is present in the textbooks it is simply a direct transcription of the content analysis at latent level is in contrast to former level. The researcher goes beyond the transcription of what was said directly in the textbooks and seeks to infer what was implied.

As pointed out in the preceding chapter criteria were identified mainly based on several relevant studies outlined in the earlier chapters as well as NCERT's guidelines. At times analysis and interpretation were also carried out using a serious and deep inspections concentrated attention and

deduction based on the several years of experience of the investigator in the field of teaching Mathematics (at primary level) and Mathematics education.

For all the objectives as far as possible all the available data and their interpretation have been placed in different columns and rows of the constructed tools structure of the content analysis sheets. Based on these content analysis sheets and the set criteria interpretations were listed in terms of positive aspect (coded as +ve) and negative aspect (coded as -ve) by reflecting the analysis at manifest level as well as latent level but some of the observations / interpretations were mixed type positive as well as negative because of their nature.

5.2 PRESENT SYSTEM OF TEXTBOOK PREPARATION AND PRODUCTION IN GUJARAT

The books under present investigation were the products of Gujarat State Board of School textbooks (GSBST) Gandhinagar which has the sole authority to prepare produce and distribute textbooks for schools throughout Gujarat. On the basis of NCERT 1986 syllabus Gujarat State Board of School textbooks also framed its own syllabus for standard I to XII. On the basis of the syllabus prepared by Gujarat State Board of School textbooks. Mathematics books for standard V, VI and VII were prepared and published in 1989 by Pravinsinh Chawda director on behalf of Gujarat State Board of School textbooks and standard VII in 1990 by J.K.Majmundar, Director on behalf

of Gujarat State Board of School textbooks. The Gujarat State Board of School textbooks published and introduced new textbooks step by step as stated below.

1. Mathematics textbooks of class V and VI were implemented in 1989 for English Medium.
2. Mathematics textbooks of class VII was implemented in 1990 for English Medium.

Mathematics textbooks for standard V, VI and VII were all written by Commissioned authors selected author from schools and some of them from Education colleges. Different chapters were written by different authors in the written manuscripts form and they were edited by subject experts. The tender for printing was invited from enlisted publisher and the printers of the Board through daily newspapers. After printing, books were stored and distributed among the pupils free of cost. In 1989, 1990 and 1991, 1992 onwards the books were distributed among pupils through book sellers in the state of Gujarat. The textbooks were first written in Gujarati i.e. State Language and then translated in English, Marathi, Hindi, Sindhi, Urdu. The translators translated the selected manuscripts in English and other languages. Then the scripts were corrected and passed for editing through Gujarat State Board of School textbook (GSBST) and finally for printing under the control supervision of GSBST.

According to the new syllabus an integrated Mathematics course was suggested based on the syllabus of NCERT. The

Mathematics books prepared by Gujarat State Board of School textbooks for class V, VI and VII were prepared for students in the state of Gujarat.

5.3 FULFILMENT OF CURRICULUM AND SYLLABUS REQUIREMENT

The Mathematics textbooks for standard V and VI were implemented in June 1989 in the State of Gujarat and standard VII in the year 1990. Study of these Mathematics textbooks was done in accordance with plan and procedure depicted in the previous chapter. The investigator prepared the analysis sheet according to the criteria given in the previous chapter. The names of the authors, translators, editors and subject experts were available from textbooks. On getting the names investigator herself met the subject expert and tried to get the details of the authors, translators, editors from the office of Gujarat State Board of School textbooks. The authors, translators, editors were different for standard V, VI and VII whereas artist being board artist and subject expert being board subject expert was one for all the three textbooks i.e. standard V, VI and VII.

5.4 BACKGROUND OF AUTHORS, REVIEWERS AND ARTISTS

For knowing the back ground information about authors, reviewers and artists the investigator collected data by personal contact and the interview was taken in informal way. Following were the questions asked to collect the information.

1. Professional qualifications and special field.
2. Experience as a teacher or administrator.
3. Their views on curriculum, syllabus.
4. Experience of writing or editing.
5. Remuneration paid for writing or reviewing the textbook.

Investigator collected the information from authors, reviewers and artist of the textbooks under study (list is given in the appendix L). The authors' and reviewers' group consisted of subject experts in mathematics. They all belong to subject of Mathematics. The authors and the reviewers of the books had experience of Mathematics teachings. The artist of the textbook was not a degree holder in fine arts but he was working as an artist with the textbook Board and had good experience in textbook line. The translator for all the three books were different. the books were translated from Gujarati to English.

It was found that authors reviewers were different for all the three books but artist was common for more than one book. while analysing the data regarding the experience of authors, reviewers and artists in textbook preparation and publication it was found that the authors and reviewers had enough about the subject matter but very little experience about school textbook preparation each of the author had previous experience of writing at least one book but not necessarily school textbook. The whole book was reviewed by two-three reviewers. The subject expert and co-ordinator had experience of editing the books earlier also. There was only

one artist for all the three textbooks . The artist being board artist had the previous experience of printing in Mathematics textbooks ranging from first to fourth.

The authors who wrote the textbooks of class V, VI and VII were from school, colleges, universities. There were translators. The textbooks were translated word by word from Gujarati to English.

5.5 ASSESSMENT OF THE BOOKS ACCORDING TO THE CURRICULUM REQUIREMENT

According to the plan and procedure in the previous chapter, a content analysis sheet was prepared by the investigator on the basis of criteria decided. The content analysis sheet had eight dimensions regarding physical aspect, academic aspect and end of chapter exercises. The information about the Mathematics textbooks for standard V, VI and VII were put in to separate content analysis sheet. It is to be noted that through the content of Mathematics for all classes covered three important and fundamental branches of Mathematics viz. Arithmetic, Algebra and Geometry.

Some facts about the facilities given to the authors, reviewers and artists by the Gujarat State Board of School textbooks (GSBST) were authors and reviewers were not supplied with any materials such as reference books etc. They had to make their own arrangements the time period given was very short. The financial assistance given by GSBST was in the form of remuneration was too low and not upto

satisfaction. The manuscript was collected in hurry and the reviewers' views were hardly put in to the practice the books were reviewed and to improve the quality of the textbooks they were tried out in different schools of the state for one year and then the textbooks were prepared considering all the suggestions received during the try out programme. But the try out programme was carried out with Gujarati books only.

Concerning the recommendation of syllabus of Gujarat State prescribed and content presented in the book shows that all three books had full and proper content out of the syllabus. The units or sub units were not omitted in any of the books under study. There were no much of teaching aids and teaching methods in the syllabus.

All the three textbooks under study consisted of title, page, preface and table of contents in the textbooks. The new terms were introduced directly in each chapter of the book.

5.5.1 TEACHERS' RATING ON MATHEMATICS TEXTBOOKS OF STANDARD V ON THE BASIS OF FULFILMENT OF THEIR NEEDS

Questionnaire for teachers had forty-five items with two alternate options of answering 'yes' or 'no' 'yes' representing favourable answer and 'no' representing unfavourable answer. The certain items represented 'yes' for unfavourable reply i.e. (b)5, (d)9. (e)3. Some other relevant questions (f) 1,2,3,4,5,6,7 were intended to collect opinions and suggestions with reference to some weak and strong points of the book have been pooled and presented. Scores for

standard V textbook were calculated and rated as 1 for favourable and -1 for unfavourable responses. The opinion of the teachers thus were analysed in terms of average rating score. The interpretations was made on the basis of the value of average ratings according to the following scheme.

1. The value of average rating within the range of 0.01 to 1.00 was favourable for the different aspects of the text.
2. The values of average rating from 0 to -1.00 was unfavourable for the different aspects of the text.

The average ratings of two hundred mathematics teachers teaching in standard V in the State of Gujarat their opinion for the Mathematics textbook of standard V regarding the various aspects of the book have been prescribed in the table no.1.

TABLE - 1

TEACHERS' VIEWS ON MATHEMATICS TEXTBOOK OF STANDARD V

		AVERAGE RATING SCORE
A.	<u>PLANNING OF THE BOOK</u>	
1.	Conformity of the prescribed syllabus	0.87
2.	Sequency of the chapters.	0.96
3.	Clearness of concept.	0.70
4.	Pattern of chapter organisation	0.76
B.	<u>PRESENTATION OF THE CONTENT</u>	
1.	Relevance of the content	0.80
2.	Correctness of the content	0.89
3.	Continuity and organic growth	0.96
4.	Concept related to previous knowledge	0.98
5.	Concept unnecessarily elaborated	0.72
6.	Helps for planning the lesses as per lesson plan	0.99
C.	<u>SELECTION OF THE CONTENT</u>	
1.	Length of the chapters convenient for teaching	0.92
2.	Covering of the course	0.90
3.	Discussion accordingto pupils maturity	0.93
4.	Suitability of the content	0.80
5.	Introduction of the topics	0.89
6.	Squencing of the content	0.92
7.	Organisation of the content.	0.90
8.	Logical development of the content	0.96
9.	Content bringing active involvement of the pupils.	0.20

D. <u>USE OF TEACHING LEARNING AIDS</u>		
1.	Adequacy of illustrations	0.82
2.	Adequacy of diagrams/graphs	0.81
3.	Use of symbols in algebra/geometry	1.00
4.	Accuracy in figures	0.94
5.	Emphasis on 'why' or 'how'	0.90
6.	Variety of problems	0.95
7.	Are students able to evaluate by themselves	0.02
8.	Language used for explanation (easy)	0.94
9.	Are activities provided in the textbook	0.94
E. <u>PHYSICAL ASPECT</u>		
1.	Is the size of the book appropriate	0.96
2.	Is the spacing between the words appropriate	0.99
3.	Is the quality of the paper good	1.00
4.	Are there printing mistakes in the textbook.	0.24
F. <u>EXERCISES IN THE BOOK</u>		
1.	Adequacy in the exercises given between and end of the chapters.	0.96
2.	Interspreading of the examples and problems in the exercises	0.96
3.	Exercises are graded for all students (average, above average, below average)	0.79
4.	Evaluation tools for students in the textbook.	0.10
G. <u>OTHER RELEVANT INFORMATION (IN GENERAL)</u>		
1.	Chapters which students find difficult	Area

2.	Chapters which teachers find difficult	Area
3.	Chapters which are real burden to students	Area
4.	Chapters which students find interesting	Percentage construction of triangles
5.	Inaccuracies in the textbook	-
6.	Suggestion by teachers	To remove area
7.	Suggestion received by parents to the teachers.	-

5.5.2 TEACHERS' VIEWS OF MATHEMATICS TEXTBOOK OF STANDARD V

The views of the teachers teaching Mathematics in the standard V (regarding textbook) on the basis of questionnaire have been presented in lines to follow.

A. PLANNING OF THE BOOK

The average rating regarding conformity to the prescribed syllabus was 0.87, sequencing of the chapters 0.96, clearness of concept 0.7, pattern of chapter organisation 0.76 to 0.90. These scores showed that teachers felt the book was favourable so far planning was concerned.

B. PRESENTATION OF THE CONTENT

The average rating score regarding relevance of the content was 0.80 correctness of the content 0.89, continuity and organic growth of the subject 0.96, content related to previous knowledge 0.98, content free from major gaps - 0.94, helps for planning the lesson as per lesson plan 0.99. The score was highly favourable. In case of item no. (B) 5 the score was 0.72 in this case 'yes' represented unfavourable and 'no' represented the favourable responses. The score was ranging from 0.72 to 0.99 the score showed that presentation of the content was proper and suitable for that class.

C. SELECTION OF THE CONTENT

The teachers agreed that length of the chapters was convenient for them to teach, the average rating score was

0.92, which was highly favourable for the book. Covering of the course was 0.90, the discussion in the book was according to pupils maturity 0.93, suitability of content 0.8, introduction of the topics 0.89, sequencing of the content 0.92, organisation of the content 0.90, logical development of the content 0.96, content bringing active involvement of the pupils 0.20. Thus the average score ranges from 0.20 to 0.96. The score of the book was all positive and showed that teachers were satisfied with the content of the book.

D. USE OF TEACHING LEARNING AIDS

Textbook of class V had adequate illustrations. Variety of illustrations were presented in the text of V. Illustrations were effective. Quality of illustrations were found to be good. The average rating score for adequacy of illustrations was 0.82, adequacy of diagrams graphs 0.81, use of symbols in algebra/geometry 1.00, accuracy in figures 0.94, emphasis on 'why' or 'how' 0.90 variety of problems 0.95. Language used for explanation 0.94 regarding activities provided in the textbook the average rating score was -0.94 which showed that there was hardly any activity for students in the textbook of standard V. The average rating score for whether students are able to evaluate by themselves was 0.02. This showed that students were not able to evaluate themselves. But overall the average rating score was positive ranging from 0.02 to 1 except for item no.9 in (D). It is evident from the score that teachers perceived that the textbook fulfilled the aspects and favourability about the books.

E. PHYSICAL ASPECT

According to the teachers' rating the size of the book was suitable and convenient. The binding of the book was poor. The quality of paper was not good. The binding of the cover page was very poor hence durability was less. The teachers felt that type size of the text was satisfactory. The book was not free from spelling mistakes. The rating score for all the items except for item no. (E) 3 was positive. The score of item no.3 in (E) was -1. This showed that entire sample teachers population felt that the quality of the paper used was not good.

F. EXERCISES IN THE BOOK

A large number 90% of the teachers felt that exercises given in the textbook were adequate. There were examples for all students (average, above average, below average). The average rating score for adequacy in the exercises given between and end of the chapters was 0.96, interspreading of the examples and problems in the exercises was 0.96, regarding grading of the exercises (average, above average and below average students) as 0.79 evaluation tools for students in the textbook was 0.10. The average rating score of the teachers was from 0.79 to 1. This indicates positive and favourable opinion for the exercises in the book.

G. OTHER RELEVANT INFORMATION (IN GENERAL)

The items under this were analysed qualitatively - the 100% teachers felt that 'Area chapter in standard V was found

difficult for students. The teachers too found difficult to teach 'area' chapter in standard V. The teachers felt that students find 'Area' chapter as burden. At the same time, students found 'percentage' and 'construction' of triangles' very interesting. 100% teachers found that there were no inaccuracies in standard V textbook. More than 80% of the teachers teaching in standard V suggested to remove area chapter from standard V and put it in standard VI textbook. There were no suggestions by parents about the textbook of standard V

It was evident from the above interpretation that the teachers teaching in standard V perceived a good number of such aspects which had been fulfilled by the textbook. The teachers felt that the book was suitable only the course was too lengthy.

5.5.3 INTERVIEW WITH TEACHERS FOR CLASS V TEXTBOOK

From the interview with the teachers from different schools of Gujarat State data analysed showed the following facts.

The 100% of the teachers felt that there was a co-ordination between what the students had studied upto IV and what they had to study in standard V

The 75% of the teachers felt that the content was very mechanical. It does not develop any logical thinking in students.

The course in standard V was too vast and time given was less, therefore teachers were not able to complete the course and even if they complete the course, there was no line left for revision.

100% of the teachers population felt that 'area' topic needs more time, students are not able to follow the concept properly. The problem sums become too difficult for them to solve.

More sums should be introduced so that students get enough practice.

I. SUGGESTIONS GIVEN BY THE TEACHERS OF STANDARD V

On the basis of interview and questionnaires the teachers' suggestions were -

- Syllabus of standard V should be restructured in such a way that they are able to complete course in given time.
- As 'Area' topic was found difficult to students to learn and teachers to teach, it can be remove from V and same can be included in standard VI.

5.5.4 STUDENTS' RATING ON MATHEMATICS TEXTBOOKS

Questionnaire for students had twenty items with two alternative options 'yes' (Y) and 'no' (N). 'Yes' represented favourable and 'No' represented unfavourable responses. The questionnaire included some items having noteworthy aspects

of the book. The average score for the textbook of standard V was calculated and rated for favourable responses it was from 0.01 to 1 and for unfavourable 0 to -1. The responses of the students were analysed in the terms of average rating score have been presented in the table no.2.

TABLE NO. 2

STUDENTS' VIEWS ABOUT MATHEMATICS TEXTBOOK STANDARD V		AVERAGE RATING SCORE
A.	<u>PHYSICAL ASPECT</u>	
1.	Size of the book (appropriate)	0.80
2.	Any difficulty in reading	1.00
3.	Printing mistakes in the book	0.50
4.	Highlighting of important statement by unchanging type size	0.30
5.	Quality of paper (appropriate)	1.00
B.	<u>ACADEMIC ASPECT</u>	
1.	Continuity in the content	0.92
2.	Introduction of the chapter	1.00
3.	Are the emphasis sufficient	0.80
4.	Clearness of concept	0.92
5.	Are showed examples sufficient for self study	0.96
6.	Is help from teachers/parents needed	1.00
7.	Is language simple	1.00
C.	<u>THE EXERCISES GIVEN BETWEEN AND END OF THE CHAPTER</u>	
1.	Are the exercises sufficient	0.90
2.	Need for extra book	1.00
3.	Is the course lengthy	0.80
4.	Are the examples well graded	0.80
D.	<u>GENERAL</u>	
1.	Chapters easy to understand	Percentage
2.	Chapters difficult to understand	Area
3.	Do you find interesting	Eg. from per- centage
4.	Do the teachers complete course in time.	Yes

5.5.5 STUDENTS' VIEWS ON MATHEMATICS TEXTBOOK ON THE BASIS OF FULFILMENT OF THEIR NEEDS OF STANDARD V.

A. PHYSICAL ASPECT

Regarding the size of the book the students felt that percent size of the book was appropriate. The score 0.8 showed a favourable opinion about the size of the book. The students did not find any difficulty in reading printed material. The students agreed that there were many printing mistakes in the textbook. The average rating score for highlighting of important statement by changing type size was 0.30 that a positive score which opines that important statements were highlighted by changing type size. The negative average rating score -1.00 for 'quality of the paper' showed that students felt that the quality of paper was not good and even binding was very poor.

B. ACADEMIC ASPECT

The average rating score 0.92 for continuity in the content showed that there was a continuity in the content. The average rating score 1.00 for introduction of the chapter showed that the chapters were properly introduced. 98% of the students felt that course was lengthy but still there were no sufficient examples in each exercise. The average rating score 0.92 for 'clearness of concept' shows that the concept for most of the chapters was clear. The Average Rating Score 0.96 showed that examples illustrated were sufficient for self study. The average rating score 1.00 for item no.6 in

academic aspect showed that students need help from teachers or parents to solve the examples. The average rating score 1.00 for language aspect showed that language was simple and easy to understand.

C. THE EXERCISES GIVEN BETWEEN AND END OF THE CHAPTER

The average rating score 0.9 regarding 'Are the exercises sufficient' cleared picture that students found exercises to be sufficient but examples were not sufficient in each exercise. The average rating score 1.00 for 'need for extra book made a clear cut picture that as there are not sufficient examples for practice there arise a need for the extra practice book. The item number 3 in 'the exercises at the end of each chapter' tells you that the course was lengthy. The average rating score 0.8 for, 'the examples well graded' showed favourable opinion that examples were well graded though they were not sufficient.

D. GENERAL

More than ninty percent of the students felt 'percentage' was the easiest chapter to understand and they were interested in doing the sums as well as problems on percentage. 100% of the students felt 'Area' as the difficult topic. The students felt that teachers do complete the course in time but there was no much time for revision. The students felt that teachers have to stick to the time limit in which lesson planning was done in order to complete the course.

5.5.6 INTERVIEW SCHEDULE FOR THE STUDENTS OF STANDARD V

An interview schedule was held with the students of different schools of standard V. The teachers concerned for the class helped the investigator. The investigator requested the teachers to select few above average and average students from the class so that they would answer the questions of the investigator. The students of standard V were not nervous but the investigator asked the questions in an informal way, later on it took a proper shape. The students became familiar with the investigator and opined that though the course was too lengthy they enjoyed doing. They loved the topics like ratio, proportion, percentage but at the same time they found 'Area' topic to be too difficult and confusing. As the investigator went for the interview at the end of the academic year so the students were acquainted with the textbook and were able to respond to the investigator. The investigator noted their responses as the users of the textbooks are supposed to be very important.

TABLE - 3

**CLASSIFICATION OF QUESTIONS/EXAMPLES IN EXERCISES ACCORDING
TO OBJECTIVES OF STANDARD V TEXTBOOK**

CHAPTER NO.	EXERCISE NO.	TOTAL NO. OF EXAMPLES	NO. OF EXAMPLES BELONGING TO KNOWLEDGE COMPREHENSION APPLN.		
1.	1	18	10	4	4
2.	2.1	7	7	-	-
	2.2	1	1	-	-
	2.3	4	4	-	-
	2	7	4	-	3
3.	3.1	24	24	-	-
	3.2	4	2	-	3
	3	5	2	-	3
4.	4.1	20	14	-	6
	4.2	17	17	-	-
	4.3	16	12	-	4
	4	19	11	4	4
5.	5.1	20	13	2	5
	5.2	22	19	3	-
	5.3	30	24	5	1
6.	6.1	24	21	3	-
	6.2	24	17	2	5
	6	17	13	4	-
7.	7.1	5	-	5	-
	7.2	9	6	2	1
	7.3	6	-	6	1
	7	8	3	5	-
8.	8.1	12	5	7	-
	8.2	5	-	4	1
	8	10	4	6	1
9.	9.1	5	3	-	2
	9.2	12	12	-	-
10.	10	7	7	-	-
11.	11	7	5	2	-
12.	12	10	6	3	1
13.	13.1	2	2	-	-
	13.2	2	2	-	-
	13.3	2	2	-	-
	13.4	2	2	-	-
	13.5	2	2	-	-

5.5.7 CONTENT ANALYSIS FOR STANDARD V

One of the objectives of this study was to analyse the content of Mathematics textbook of standard V. An attempt was made by the investigator herself to analyse the content and realise the extent of some of the other aspects which had not been covered through other tools of the study.

The systematic and detailed report of the content thus analysed have been presented in Appendix E. Content analysis revealed a number of facts regarding the textbook of standard V.

CHAPTER - I

WHOLE NUMBERS

INTRODUCTION : In this chapter the introduction given was very clear and up to the mark. The chapter is related to standard IV chapter 'Whole numbers'.

CONTENT : The content in the chapter was just enough so far first part of the chapter was concerned but the later part regarding properties was not properly followed by the students. It was not very clear.

PRESENTATION : The properties of whole numbers was completely new for the students but the properties were directly presented by giving one example.

ILLUSTRATIONS : There were illustrative examples but investigator felt that they were not enough. There is only one illustrative example for each property shown of whole

numbers. They could have easily given at least two three examples so that it would have been more clear.

LANGUAGE : Language was very simple and it was easy to follow for the students of standard V.

LENGTH OF CHAPTER : Length of the chapter was appropriate.

EXERCISES : Exercises given at the end of the chapter were very short. They could have easily given more examples for practice.

CHAPTER - II

PRIME FACTORS OF NUMBERS

INTRODUCTION : Prime factors of numbers are introduced in standard IV and related to it, it was introduced very well in standard V. The introduction was good and creates interest.

CONTENT : The content given was sufficient to understand the concept of prime factors of given numbers and divisibility rules. Divisibility rules given were only up to 12 in which divisibility by 7 and 8 were missing.

PRESENTATION : The presentation of the content was good enough and very easy to understand. The matter presented is systematically. Students too found chapter interesting.

ILLUSTRATION : The illustrations for all the divisibility rules with the examples were there but they were not sufficient. Some more examples would have been given to make the topic still easier for the students. Even more

divisibility rules could have been introduced. Examples are not able to develop problem solving ability.

LANGUAGE : Language was clear simple and easy to understand. The examples given were in simple language and students could follow it easily.

LENGTH OF THE CHAPTER : Length of the chapter was appropriate so far the topic was concerned.

EXERCISES : The exercises given at the end of the chapter were not enough for the practice. Exercises given were clear and started with simple examples and then forwarding the students skill to solve the complex examples.

CHAPTER - III

HIGHEST COMMON FACTOR AND LEAST COMMON MULTIPLE

INTRODUCTION : In this chapter there was proper introduction. It was done in a very formal way. It was started by showing what is LCM and what is HCF in revision form.

CONTENT : The content was proper and systematically. This content of previous class was repeated and then linked to standard V. But more importance should have been given to HCF by division method.

PRESENTATION : The presentation of the matter was clear and students could easily follow it. But there was necessity for putting little more efforts to make HCF - continuous divisions easy.

ILLUSTRATIONS : The illustrative examples given were enough so far LCM and HCF sums were concerned but there were hardly two examples illustrated so far find the least and greatest number leaving remainder...by HCF division method. This was bit confusing for the students.

LANGUAGE : Language used was very simple, good and it was easy to understand.

LENGTH OF THE CHAPTER : Looking to the concept of LCM and HCF investigator felt the chapter too be very short.

EXERCISES : The exercises are up to the mark so far LCM sums were concerned but HCF by division method was introduced for the first time so they would have given more sums for the practice. Even in exercises they would have added few more HCF sums to find the greatest number that leaves remainder...X and find the greatest smallest number that leaves the remainder....X.

CHAPTER - IV

FRACTIONS

INTRODUCTION : The introduction given is not proper. There should be little information about fractions and then they would have come to fractions.

CONTENT : The content in the chapter was found to be okay. It was enough. The concept was clear to students.

PRESENTATION : The chapter at later part was presented well except in the beginning it required little more clearness.

ILLUSTRATION : Illustrative examples given were sufficient. Illustrative examples were clear and students were able to follow. Moreover this chapter contained addition and subtraction of fraction in first part but illustration on division were lacking.

LANGUAGE : Language was simple and easy to understand.

LENGTH OF THE CHAPTER : Length of the chapter was proper as per the topic concerned.

EXERCISES : Exercises given at the end of the chapter were very short. The mixed simplification sums were very few. The exercises given were just not sufficient for practice. There should be more examples for the students to do.

CHAPTER - V

DECIMAL - 1

INTRODUCTION : This chapter is in continuation with the chapter done in standard IV where students have learnt about various operations of decimals. The concept of addition and subtraction of decimals was properly introduced. The approach to divide chapter. Decimal Fractions in two parts was good. The first part contained addition and subtraction of decimals whereas second part contained multiplication and division of decimals.

CONTENT : The content about addition and subtraction of decimal was clear and easy to follow.

PRESENTATION : The presentation of the content was clear and up to the point. Students were able to follow and they found the chapter to be interesting.

ILLUSTRATION : The illustrations for each exercise was given before the beginning of each exercise such as 5.1, 5.2 and 5.3. Therefore the chapter was interesting.

LANGUAGE : The language used was simple and easy to understand.

LENGTH OF THE CHAPTER : The length of the chapter was appropriate as the chapter was divided into two parts.

EXERCISES : There were very few exercises with very few examples. The examples were not enough for the practice.

CHAPTER - VI

DECIMAL-2

INTRODUCTION : This chapter was in continuation with the previous chapter i.e. Chapter V. Here multiplication and division of decimal was introduced. Multiplication of decimal was clearly introduced but division of decimal was not clear.

CONTENT : Content was appropriate neither too long nor too short and all points were covered in the chapter.

PRESENTATION : The presentation of the content was in a nice manner, but students were confused in simplification sums where everything was mixed. Mixed simplification examples could have been presented in better way with the help of 'BODMAS' which is commonly used.

ILLUSTRATIONS : There were many examples on multiplication and division of decimals. The examples on 'recurring decimals' on page 66 were clear. But there were very few illustrations on mixed simplification.

LANGUAGE : Language was simple and easy to understand.

LENGTH OF THE CHAPTER : Length of the chapter was appropriate.

EXERCISES : Exercises given at the end of the chapter were not sufficient. Especially in exercise six, they could have added few more sums on simplification of decimals (mixed sums). There are very less sums of simplification of addition, subtraction, multiplication and division (mixed) and that is not sufficient for the practice.

CHAPTER - VII

RATIO PROPORTION

INTRODUCTION : There was no formal introduction. This chapter was completely new for the students. The introduction of this chapter was started with examples. Thus a concrete fact was explained before generalisation was made. Thus inductive method of teaching was used.

CONTENT : The content of the chapter was divided into three parts. First part contained only finding of ratio, i.e. exercise 7.1, second part contained direct proportion i.e. exercise 7.2 and third part contained inverse proportion i.e. exercise 7.3 and one exercise i.e. exercise 7 was with mixed examples.

PRESENTATION : The overall presentation was well and clear. But in some of the problem sums of inverse proportion and direct proportion the matter was bit confusing.

ILLUSTRATIONS : The chapter consists of good amount of concrete illustrations at the starting of each exercise. Because of the good illustrations students could understand the examples well.

LANGUAGE : The language was simple and easy to understand.

LENGTH OF THE CHAPTER : The chapter was not too long nor too short. The length of the chapter was appropriate.

EXERCISES : Exercise 7.1 was very short with just five examples, which were not at all sufficient for practice, Exercise 7.2. contained only nine examples on direct proportion and exercise 7.3. contained six sums with just one sub question for first sum. The miscellaneous exercise 7 contained only light sums with short sub question for question number one and two.

CHAPTER - VIII

PERCENTAGES

INTRODUCTION : This chapter was introduced to make the students understand the concept of 'percentage'. The chapter was introduced directly by giving practical illustration. This illustration could clear the idea of percentage.

CONTENT : The content seemed to be appropriate. The content was put in a proper form and made the chapter very interesting.

PRESENTATION : The presentation of the content was good and easy to follow. The presentation of the matter made the chapter interesting to the students.

ILLUSTRATION : There were several illustrations at the beginning or say before each exercise. The illustrations were of the sums of similar type from the exercises. Student too found the illustrations to be appropriate.

LANGUAGE : The language was simple, aimed for understanding of concepts.

LENGTH OF THE CHAPTER : The chapter seemed to be Okay for beginners. **EXERCISES :** There were only three exercises at the end of the chapter i.e. 8.1, 8.2 and 8. The examples in the exercises were not at all sufficient for the practice. Moreover sums in the exercises were not of application type students could follow the chapter very easily and solve the examples without any difficulty.

CHAPTER - IX

AREA

INTRODUCTION : The chapter was introduced directly without considering any questions on entry behaviour. Though the introduction was in informal way showing different shapes and sizes the concept was bit difficult for the students to understand. Though several attempts were made to introduce the chapter to clear the concept of 'Area' ultimately the chapter was not found interesting.

CONTENT : The content was enough but still students did not find the content proper.

PRESENTATION : The chapter is presented very well but looking to the maturity of the students of standard V the chapter was difficult to understand. The presented matter does not give clear cut idea about different terms used. Though efforts were put to make the chapter easy and simple it was found to be beyond the understanding of students at this level.

ILLUSTRATION : There were several illustrations but the illustrations were not very clear and was found to be beyond the understanding of students at fifth standard level. The illustration presented gave only one way of solving the examples. If two or three ways are given then students find bit easy.

LANGUAGE : The language used in the chapter was not very simple. In some of the examples language was not even followed properly unless read for two, three lines.

LENGTH OF THE CHAPTER : The chapter was too long compared to other chapters.

EXERCISES : There were three exercises 9.1, 9.2 and 9 in which all mixed type of sums were there. All the three exercises contained lot of problem sums. The sums were of mixed type. They were not difficult in general but they were difficult for the students of fifth standard.

CHAPTER - X

TYPES OF PAIRS OF ANGLES

INTRODUCTION : With this chapter, geometry was introduced to the students of fifth standard. Introduction was appropriate. The concept of 'Line' was directly approached and slowly pairs of angles were introduced.

CONTENT : The content was appropriate and students of standard V could easily follow it. The content was well spread.

PRESENTATION : The presentation of the content was done very nicely. The students found the presentation very clear and easy to understand.

ILLUSTRATIONS : The illustration for each type of angle was given. Few more illustrations could have been introduced to make the chapter more simpler. But there were enough illustrations on vertically opposite pairs of angles.

LANGUAGE : The language used in the chapter was easy and simple.

LENGTH OF THE CHAPTER : Length of the chapter was found to be appropriate.

EXERCISES : There was only one exercise and that too very short just with seven examples which was not at all sufficient for practice.

CHAPTER - XI

CIRCLE

INTRODUCTION : Introduction was given in a very appropriate manner by recalling the memory of the students giving simple concrete examples of 'a bangle' a wheel, a coin of a rupee, etc. to clear the concept of circle.

CONTENT : The content of the chapter was very clear as there was nothing much then a circle.

PRESENTATION : The content was presented well with the help of the examples.

ILLUSTRATIONS : The chapter was based on illustration. The illustrations provided were appropriate and effective.

LANGUAGE : The language was simple and clear.

LENGTH OF THE CHAPTER : Chapter was very short but clear.

EXERCISES : There was only one exercise with two examples. First contained of five fill in the blanks and second of two sub examples. The examples were not sufficient.

CHAPTER - XII

TRIANGLES

INTRODUCTION : Introduction started with the revision of triangle done in the previous classes. Triangle was introduced very well. Though there were no questions on entry behaviour. Students could catch up the concept of triangle. At later state types of triangle was also clear and well introduced with definitions.

CONTENT : There was enough content and it was clear. The definitions were put in a proper form in the front of the figures. The content made the chapter too interesting.

PRESENTATION : The chapter was presented in a simple manner, Therefore it was effective and easy to follow.

ILLUSTRATIONS : The chapter was full of illustrations and that too very clear and in nice form.

LANGUAGE : Language was clear and easily understandable.

LENGTH OF THE CHAPTER : The length of the chapter was appropriate.

EXERCISES : There was only one exercise on page 135-136. The exercise covers all types of triangles but there should have been few more examples for practice.

CHAPTER - XIII

CONSTRUCTION OF TRIANGLES

INTRODUCTION : Chapter was introduced with construction of line segment and then construction of triangle. The stress on construction was given more. The chapter in the beginning only was introduced with steps of construction. The introduction was appropriate.

CONTENT : The content was clear and full of construction of triangle. The steps of construction were also put in appropriate way.

PRESENTATION : The content was presented in simple and proper manner.

ILLUSTRATION : The chapter had lot of illustrations. Thus the construction of triangle was clear.

LANGUAGE : Language was simple and clear.

LENGTH OF THE CHAPTER : The chapter was appropriate for standard V.

EXERCISES : The exercises in this chapter were more than all other geometry topics. The exercises 13.1, 13.2, 13.3, 13.4, 13.5 and 13 covered each and every corner of construction of triangle.

5.6 TEACHER'S RATING ON MATHEMATICS TEXTBOOK OF STANDARD VI ON THE BASIS OF FULFILMENT OF THEIR NEEDS.

Questionnaire for teachers had forty five items with two alternate options of answering 'Yes' or 'No'. 'Yes' representing favourable answer and 'No' representing unfavourable answer. The certain items represented 'Yes' for unfavourable reply i.e. (b) 5 (d)9 (e)3. Some other relevant questions (f) 1,2,3,4,5,6,7 were intended to collect opinions and suggestions with reference to some weak and strong points of the book have been pooled and presented.

Scores for standard VI were calculated and rated as 1 for favourable and -1 for unfavourable responses. The opinion of the teachers thus were analysed in terms of average rating scores. The interpretations was made on the basis of the value of average ratings according to the following scheme.

1. The value of average rating within the range of 0.01 to 1.00 was favourable for the different aspects of the text.
2. The values of average rating from 0 to 1.00 was unfavourable for the different aspects of the text.

The average ratings of two hundred mathematics teachers teaching in standard VI in the state of Gujarat, their opinion for the mathematics textbook of standard VI regarding various aspects of the book have been prescribed in the table no.4.

TABLE - 4

TEACHERS' VIEW ON MATHEMATICS TEXT BOOK OF STANDARD VI

		<u>AVERAGE RATING SCORE</u>
A.	<u>PLANNING OF THE BOOK</u>	
1.	Conformity of the prescribed syllabus	0.90
2.	Sequence of the chapters	0.85
3.	Clearness of concept	0.68
4.	Pattern of chapter organization	0.80
B.	<u>PRESENTATION OF THE CONTENT</u>	
1.	Relevance of the content	0.87
2.	Correctness of the content	0.90
3.	Continuity and organic growth	1.00
4.	Concept related to previous knowledge	0.90
5.	Concept unnecessarily elaborated	0.88
6.	Content free from major gaps	0.94
7.	Helps for planning the lessons as per lesson plan	0.94
C.	<u>SELECTION OF THE CONTENT</u>	
1.	Length of the chapters convenient for teaching	0.63
2.	Covering of the course	0.88
3.	Discussion according to pupils maturity	0.86
4.	Suitability of the content	0.72
5.	Introduction of the topics	0.9
6.	Sequencing of the content	0.81
7.	Organization of the content	0.96
8.	Logical development of the content	0.94
9.	Content bringing active involvement of the pupils	0.40

D. USE OF TEACHING LEARNING AIDS

1.	Adequacy of illustrations	0.25
2.	Adequacy of diagrams/graphs	0.62
3.	Use of symbols in algebra/geometry	1.00
4.	Accuracy in figures	0.96
5.	Emphasis on 'why' or 'how'	0.99
6.	Variety of problems	0.05
7.	Are students able to evaluate by themselves	0.96
8.	Language used for explanation(easy)	0.97
9.	Are activities provided in the textbook ?	-0.20

E. PHYSICAL ASPECT

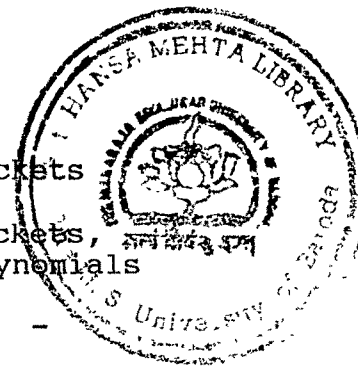
1.	Is the size of the book appropriate ?	0.99
2.	Is the spacing between the words appropriate ?	0.91
3.	Is the quality of the paper good ?	-1.00
4.	Are there printing mistakes in the textbook ?	0.35
5.	Two parts in the textbook	0.04

F. EXERCISES IN THE BOOK

1.	Adequacy in the exercises given between and end of the chapters	0.04
2.	Inter spreading of the examples and problems in the exercises	0.72
3.	Exercises are graded for all students (average, above average, below average)	0.95
4.	Evaluation tools for students in the textbook.	1.00

G. OTHER RELEVANT INFORMATION (IN GENERAL)

1. Chapters which students find difficult : Brackets
2. Chapters which teachers find difficult : Brackets, Polynomials
3. Chapters which are real burden to students : -
4. Chapters which students find interesting : Simple interest
Triangle Profits & Loss
5. Inaccuracies in the textbook : -
6. Suggestion by teachers : More examples could be added.
7. Suggestions received by parents : -
to the teachers



5.6.1 TEACHERS' VIEWS OF MATHEMATICS TEXTBOOK OF STANDARD VI

Teachers' views of Mathematics textbook based on questionnaire are given in lines to follow :

A. PLANNING OF THE BOOK

The average rating regarding conformity of the prescribed syllabus was 0.90, sequencing of the chapters 0.85, clearness of concept 0.68, pattern of chapter organisation 0.80. These scores showed that teachers felt the book was favourable so far planning was concerned.

B. PRESENTATION OF THE CONTENT

The average rating score regarding relevance of the content was 0.87, correctness of the content 0.90, continuity and organic growth of the subject 0.96 content related to previous knowledge 0.90, content free from major gaps 0.88, helps for planning the lesson as per lesson plan 0.94. The score was highly favourable in case of item no. (h) 5 the score was 0.96 in this case 'Yes' represented unfavourable and 'No' represented the favourable responses. The score was ranging from 0.87 to 1.0. The score was highly favourable and showed that presentation of the content was proper and suitable for the class.

C. SELECTION OF THE CONTENT

The teachers agreed that length of the chapters was very short. The average rating score was 0.63 which was not

highly favourable suggest that teachers felt that chapters were too short and could finish before time. Covering of the score was 0.88 which showed that teachers could complete the course easily. The average rating score for discussion according to pupils maturity was 0.72, Introduction of the topics was 0.90, sequencing of the content was 0.81, organisation of the content was good and average rating score was 0.96 which was highly favourable. Logical development of the content was 0.94, content bringing active involvement of the pupils was 0.40. This average rating score showed that the involvement of the pupils was there but it was fairly good. The score regarding selection of the content was all positive which means teachers' were satisfied with the textbook.

D. USE OF THE TEACHING LEARNING AIDS

Textbook of class VI had no adequate illustrations. 0.25 shows a very poor average rating score. There were very few illustrations one or two chapters had enough but other chapters did not had sufficient illustrations. Adequacy of diagrams/graphs scored 0.62 which was positive but fairly good. Use of symbols in algebra/geometry average rating score was 1.00 which was highly favourable. Accuracy in figures was 0.96, emphasis on why or how scored 0.99 which was a positive, score. Variety of problems average rating score was 0.05 which again was positive but a poor score. Regarding students whether they were able to evaluate by themselves was 0.96, Language used for explanation was very easy and simple

the score for this item was 0.97. Regarding activities in the textbook the score was -0.2 which was a negative score. There was hardly any activity provided in the textbook.

E. PHYSICAL ASPECT

According to the teachers' rating the size of the book 0.99 which showed that present books were convenient for the teachers to handle and even comfortable to the students. The binding of the textbook was very poor. The cover page was bound so loose that it could easily come out. The books were to be bound again. The paper used inside was of very poor quality. therefore durability was less. The average rating score was negative i.e. -1 which showed that entire teacher population was against the paper. Though the cost of the book was low because of the poor quality binding students had to go for two copies in a year. The spacing between the words were appropriate. The score 0.91 was a favourable score. The book was not free from the printing mistakes. The average rating score 0.35 was a positive but not a healthy score.

F. EXERCISE IN THE BOOK

More than ninety percent of the teachers felt that exercises given in the textbook were inadequate. The average rating score for this item was 0.4, Some of the chapters had only one or two exercises. Interspreading of the examples and problems in the exercises scored 0.72. This showed that examples were interspread in the exercises. Item no. (f)3 had average rating score as 0.95 which showed that exercises in

the textbook were graded for all students (average, above average and below average). Evaluation tools for students in the textbook were answers at last and revision test after every three-four chapters. Average rating score for this was 1.00. This score was highly favourable.

G. OTHER RELEVANT INFORMATION IN GENERAL

The items under this were analysed qualitatively. More than 80% teachers felt that 'Brackets' chapter in standard VI was found difficult for students to learn. The teachers were able to explain but students could not understand easily. Therefore teachers' found it difficult to teach. There were no chapter which was difficult and real burden to students. Teachers' found that students were interesting in doing simple interest and profit-loss sums. They also found 'Triangles' to be interesting. Teachers' did not find much of inaccuracies in the textbook except one or two here or there. 100% teachers' suggested for adding more examples for the practice. More examples for the practice. No parent gave any sort of suggestion neither positively nor negatively.

It was evident from the above interpretation that the teachers teaching in standard VI perceived a good number of aspects which had been fulfilled by the textbook. 100% teachers felt that course for standard VI was too short.

5.6.2 INTERVIEW WITH TEACHERS' FOR CLASS VI TEXTBOOK

From the interview with the teachers from different schools of Gujarat State data analysed showed the following facts.

The large population about 96% of teachers felt that there was no co-ordination between what the students had studied up to V and what they had to study in standard VI.

The 80% of the teachers felt that the content was not mechanical for all the topics. The topics of algebra which were introduced in standard VI were completely new to the students. 'Brackets' 'Polynomials' Indices and powers' they were all new and required logical thinking in students. The students did find them interesting.

The course in standard VI was too short and time given was more therefore teachers were able to complete the course and do revision in time.

100% of the teachers felt that all the topics in the book were wind up in short just putting few sums. The topic like 'Bracket' where more practice was needed was only with eleven sums which under any circumstances was not enough for the practice.

SUGGESTIONS GIVEN BY THE TEACHERS OF STANDARD V

On the basis of interview and questionnaires the teachers' suggestions were as follows.

- Syllabus of standard VI should be restructured in such a way that students should get the practice of doing the sums by adding more examples to the exercises.

- 100% of the teachers suggested for adding few more chapters to the book or adding more examples to the exercises given at the end of the chapter.

5.6.3 STUDENTS' RATING ON MATHEMATICS TEXTBOOK OF STANDARD VI

Questionnaire for students had twenty items with two alternative options 'Yes' (Y) and 'No' (N) 'Yes' represented favourable and 'No' represented unfavourable responses. The questionnaire included some items having noteworthy aspects of the book. The average score for the textbook of standard VI was calculated and rated. For favourable responses it was from 0.01 to 1 and for unfavourable 0 to -1 : The responses of the students were analysed in the terms of average rating score have been presented in the table no.5.

TABLE-5

STUDENTS VIEWS ABOUT MATHEMATICS TEXTBOOK OF STANDARD VII

A. <u>PHYSICAL ASPECT</u>	AVERAGE RATING SCORE
1. Size of the book (appropriate)	0.84
2. Any difficulty in reading	1.00
3. Printing mistakes in the book	0.60
4. Highlighting of important statement by exchanging type size	0.88
5. Quality of paper (appropriate)	-1.00
B. <u>ACADEMIC ASPECT</u>	
1. Continuity in the content	0.94
2. Introduction of the chapter	1.00
3. Are the emphasis sufficient	-0.50
4. Clearness of concept	1.00
5. Are showed examples sufficient for self study ?	0.80
6. Is help from teachers/parents needed?	1.00
7. Is language simple?	1.00
C. <u>THE EXERCISES GIVEN BETWEEN AND END OF THE CHAPTER</u>	
1. Are the exercises sufficient?	0.92
2. Need for extra book	1.00
3. Is the course lengthy?	0.96
4. Are the examples well graded?	0.72

GENERAL

- | | |
|--|--------------------------------|
| 1. Chapters easy to understand | Simple Interest
Polynominal |
| 2. Chapters difficult to understand | Brackets |
| 3. Do you find interesting? | Simple Interest |
| 4. Do the teachers complete
course in time? | Before time |

5.6.4 STUDENTS' VIEWS ON MATHEMATICS TEXTBOOK ON THE BASIS OF FULFILMENT OF THEIR NEEDS OF STANDARD VI

A. PHYSICAL ASPECT

Regarding the size of the book the students felt that present size of the book was convinient. The average rating score for this item was 0.84 a favourable score. This shows that the size of the textbook of standard VI was appropriate. The average rating score for diffculty in reading was 1.00. This was a positive score and said that the students did not find any difficulty in reading printed material. The average rating score for printing mistakes in the book was 0.6 which showed that the textbook was not free from printing mistakes. The score for highlighting of important statement by enchanging type size the average rating score was 0.88 a positive favourable score. The negative average rating score-1 for quality of the paper showed that the paper used for the textbok was of very poor quality.

B. ACADEMIC ASPECT

The average rating score 0.94 for continuity in the content showed that there was a continuity in the content matter. The average rating score 1.00 for introduction of the chapter showed that the chapters were properly introduced. A negative score -0.5 showed that the emphasis was not sufficient in all the chapters. The average rating score for clearness of the concept 1.00 showed that concept was clear

in all the chapters. Examples given in the book were sufficient for self study as the score for this item was 0.8. The average rating score 1 for help needed from teachers and parents showed that teachers and parents were guide to the students without them students could not follow. The language used in the textbook was very simple and easy to follow. The average rating score for this item was 1.00, highly favourable score.

C. THE EXERCISES GIVEN BETWEEN AND END OF THE CHAPTER

The average rating score 0.94 regarding are the exercises sufficient cleared a picture that students found exercises to be sufficient but examples were not sufficient in each exercise. The average rating score 1.00 for need for extra book made a clear cut picture that examples for practice were not sufficient, there arise a need for extra, practice book. The item no.3 in the exercises at the end of each chapter tells you that the course was too short. The average rating score was 0.36. The average rating score 0.72 showed a favourable opinion that examples were well graded though they were not sufficient.

D. GENERAL

More than 90% of the students felt that simple interest and profit and loss were most interesting and easy chapters to understand. The students felt that though the examples were less they were interested in solving the same. 88% of the students found 'Bracket' and 'Polynominals' chapters to

be bit difficult at the same time they found 'Simple Interest' chapter to the most interesting.

100% of the students felt that the course for standard VI was completed before time even after doing revision. The examples in the book are less so teachers revise the topics with the help of extra practice book.

5.6.5 INTERVIEW SCHEDULE FOR THE STUDENTS OF STANDARD VI

An interview schedule was held with the students of different schools of Standard VI. The teachers concerned for the class helped the investigator to select some of the average and above average students of their classes. Based on the performance in mathematics the teachers selected some of the students. While interviewing the students from different schools one point was found to be very common. More than 90% of the students were of the opinion that the course of standard VI was too short compared to standard V. There were few topics on End-of-Chapters exercises. The students freely opined that textbook was cheap cost wise but they had to buy practice book of 'Vikas' or 'Navneet' publisher for extra practice. The chapter like 'Brackets' which was suppose to be new and introduced for the first time was introduced briefly and ended with eleven examples.

The students felt algebra part to be interested but they were confused with uses of different signs at different places. Had this been in detail there would not have been much confusion. The students felt that they could have

definitely put some more examples in the exercises of standard VI. Some of the bright students in three schools said that 'Area' chapter should have been in standard VI whereas one of the schools named 'Vidya Kunj' of Baroda already cancelled the topic 'Area' from standard V and put it in standard VI. This topic was not difficult as such but the students were getting confused with certain examples. standard VI course was so short that it could get completed by second week of February i.e., two months earlier than actual academic year.

TABLE - 6

CLASSIFICATION OF QUESTIONS/EXAMPLES IN EXERCISES ACCORDING
TO OBJECTIVES OF STANDARD VI TEXTBOOK

CHAPTER NO.	EXERCISE NO.	TOTAL NO. OF EXAMPLES	NO. OF EXAMPLES BELONGING TO KNOWLEDGE COMPREHENSION	APPLN.
1.	1	12	2	6 4
2.	2.1	7	-	3 4
	2.2	5	3	2 -
	2	11	1	8 2
3.	3	11	3	8 -
4.	4.1	7	7	- -
	4.2	5	5	- -
	4.3	3	1	- 2
	4.4	3	3	- -
	4.5	1	1	- -
	4	7	4	- 3
5.	5.1	4	4	- -
	5.2	3	2	- 1
	5.3	6	6	- -
	5	8	5	- 3
6.	6	6	4	- 2
7.	7.1	6	3	- 3
	7.2	2	1	- 1
	7.3	2	2	- -
	7	14	12	- 2
8.	8	11	11	- -
9.	9.1	8	8	- -
	9.2	8	8	- -
	9.3	14	14	- -
	9	9	4	1 4
10.	10	5	-	- -
11.	11	6	-	- 6
12.	12	6	-	- 6

5.6.6 CONTENT ANALYSIS FOR STANDARD VI

One of the objectives of this study was to analyse the content of Mathematics textbook of standard VI. An attempt was made by the investigator herself to analyse the content and realize the extent of some of the other aspects which had not been covered through other tools of the study.

The systematic and detailed report of the content thus analysed have been presented in Appendix E.

Content analysis revealed a number of facts regarding the textbook of standard VI which have been presented in lines to follow.

CHAPTER - I SIMPLE INTEREST

INTRODUCTION : The introductory part given was very short and without any entry behaviour questions. The introduction started with example. Though the example was from day to day for explanation of interest, it was not very effective.

CONTENT : This chapter was completely new for the students so content should have been little more and effective. The content seemed to be very short and not very clear.

PRESENTATION : The whole chapter was presented in short. The presentation was done only with the help of the examples.

ILLUSTRATIONS : There were only four illustrations for the whole chapter, whereas chapter contained the examples with

years, days, months date and days. The illustration given for date and days was one which was not at all sufficient even for understanding. There could have illustrated few more examples to make the chapter easier.

LANGUAGE : Language was simple but students found the language used little confusing at certain places, especially in problem sums.

LENGTH OF THE CHAPTER : Chapter seemed to be very short.

EXERCISES : In this chapter variety of examples could have been put but there was only one exercise with just twelve sums.

CHAPTER - II

PROFIT AND LOSS

INTRODUCTION : The introductory part given in this chapter was quite informative. Relation of cost price, selling price, actual price, profit, loss were introduced very well bringing awareness among the students of market and importance of profit and loss.

CONTENT : Content was enough for understanding the concept. Students could very well understand the significance of selling price being greater than cost price, cost being greater than selling price, when there is profit and when it loss.

PRESENTATION : Content was presented in a very appropriate manner. Moreover the presentation was found to be very effective.

ILLUSTRATIONS : Illustrations were enough. There were seven different illustrations. Illustration number 6 on page 12 was correct but instead of showing loss as Rs. 45 the loss showed at one place was Rs.45 and in final answer Rs. 75.

LANGUAGE : Language was simple and easy to understand.

LENGTH OF THE CHAPTER : The chapter was short looking to its importance.

EXERCISES : The chapter contained only three exercises; Exercise 2.1, 2.2 and 2 with 7, 5 and 11 sums respectively.

CHAPTER - III

VOLUME

INTRODUCTION : Entry behaviour was not present properly it was taken with direct statement and knowledge of line segment, square, cuboid. Introduction was effective. There were examples taken from smaller classes for introduction.

CONTENT : Though there was lot to say, content was present in short. The content covered the formulae of different volumes to be found. The content was clear.

PRESENTATION : Presentation of the content was clear and effective. The students were clear with the formulae presented. The formulae presented was universally accepted.

ILLUSTRATIONS : The chapter was full of illustrations but they were not big in number. There were just five illustrations for finding five different volumes. The illustrations were clear and easily understandable.

LANGUAGE : Language was not difficult but little confusing. Looking to the age group of students of standard VI.

LENGTH OF THE CHAPTER : Chapter seemed to be very short.

EXERCISES : There was so much to ask and give in the form of end-of the chapter exercises but there was only one exercise given on page 22 and 23 with just eleven examples. The problem sums given were not at all problem. They were easy and they could be solved very easily.

CHAPTER-IV

INTEGERS

INTRODUCTION : Introduction was given with examples. The deduction method of teaching was used i.e. first examples were given and then generalisation was made. It was an effective way of explaining integers. The introduction was very clear and interesting.

CONTENT : There was enough content and clear. The content was up to the point. The content was presented by giving examples on positive integers and negative integers with the help of number line.

PRESENTATION : The content was presented in a nice manner.

ILLUSTRATIONS : There were sufficient illustrations. This was the only chapter with 19 illustrations of different aspects of integers. The 'integers' chapter was made very easy to follow with the help of these illustrations. The illustrations very effective and clear. It created interest among the students though at certain places they were confused for the signs '+ve' '-ve'.

LANGUAGE : It was simple and easy to follow.

LENGTH OF THE CHAPTER : The chapter was appropriate.

EXERCISES : There were enough sums given in the exercises at the end of each chapter. There were sufficient exercises 4.1, 4.2, 4.3, 4.4 and 4.5 and 4. This gave enough practice to the students of standard VI.

CHAPTER V

INDICES AND POWERS

INTRODUCTION : Introductory part was very very short. Student could follow but the chapter was started just without any entry behaviour questions. In the beginning the starting was made straight with Base, Index and Power but there was no much definition in details. It was just given with showing some examples.

CONTENT : The content was too short looking to the importance of the chapter.

PRESENTATION : The presentation was appropriate for average and above average students. The exercise 5.1 was presented in a simple form but there was no consistency till the end.

ILLUSTRATIONS : The illustrations given were four. They were clear but not sufficient.

LANGUAGE : Language used was simple but looked as if every thing was translated from Gujarati to English i.e. while multiplying two or more powers of the same base indices are added, but the base remaining the same. the undersigned statement should have been 'the base remains same'.

LENGTH OF THE CHAPTER : The chapter could have been explained and discussed in more detail but the investigator found it to be just winded.

EXERCISES : There were total four exercises at the end of each chapter i.e. 5.1, 5.2, 5.3 and 5. The exercises contained sums which were solved by students mechanically without any application of knowledge.

CHAPTER - VI

UNKNOWN NUMBERS

INTRODUCTION : The introductory part given in the chapter was very difficult. It was started just by giving concrete statements of the examples to explain the facts. At later stage the unknown numbers were introduced with properties of unknown numbers.

CONTENT : The content was very very short and not at all effective.

PRESENTATION : The presentation was average.

ILLUSTRATION : There were only three illustrations that too very short on page 57. The four illustrations were so short that they just fitted on three fourth page of the book.

LANGUAGE : Language was simple and easy to follow but not effective.

LENGTH OF THE CHAPTER : This chapter could have been elaborated but it was very very short.

EXERCISES : There was only one exercise i.e., exercise six with six examples. Question four and five had sub questions. Questions were very very short and easy. Even below average students could solved the chapter well.

CHAPTER - VII

POLYNOMIALS

INTRODUCTION : Introduction was given with examples. The deduction method of teaching was used i.e., first examples were given and then the generalisation was made. It was an effective way of explaining.

CONTENT : Mostly the content was full of definitions and explanations. The content was short.

PRESENTATION : The matter presented was very short and in a hotch potch way. The beginning was well with definitions of monomials, Binomials and Trinomials.

ILLUSTRATIONS : Looking to the importance of the chapter the illustrations presented were only four in the beginning of exercise 7.1, two illustrations before exercise 7.2 and three illustration before exercise 7.3 and three for exercise 7. The illustrations were given with the explanation but the investigator felt that they were beyond the capacity of students VI to understand it.

LANGUAGE : The language was simple and easy to understand.

LENGTH OF THE CHAPTER : Lot of things were put in short form. Thus chapter was found to be short.

EXERCISES : The exercises were not found to be sufficient looking to the types of examples discussed. There were very few sums. This type of chapter needs more practice.

CHAPTER - IX

EQUATIONS

INTRODUCTION : Introduction was very short. This chapter was in connection with the chapter 'unknown numbers'. Where the students learnt how to convert incomplete sentences in to its symbolic form. In this chapter study about open sentences in symbolic way was given.

CONTENT : The content of the chapter was sufficient and easy to follow.

PRESENTATION : The presentation of the content was appropriate. The content was presented in a very simple manner!

ILLUSTRATION : There were many illustrations in the chapter. Almost fourteen illustrations in the text on equation covered the entire chapter.

LANGUAGE : Language was simple and clear.

LENGTH OF THE CHAPTER : Chapter was appropriate in length.

EXERCISES : There were five exercises with variety of examples. The examples were interesting and students loved to do it.

CHAPTER - X

PERPENDICULAR LINES

INTRODUCTION : With this chapter geometry was introduced to the students. There were no questions on entry behaviour. Chapter was started straight with the examples showing perpendicular lines.

CONTENT : Content was enough to know the perpendicular lines. Students could follow the content well as it was clear.

PRESENTATION : The presentation of the content of perpendicular lines was clear and well done. Students could follow the matter presented well and it made the chapter interesting.

ILLUSTRATION : The illustrations were well and presented in concrete facts. The chapter was full of illustrations and gave clear idea of the concept.

LANGUAGE : The language was simple and easy.

LENGTH OF THE CHAPTER : Chapter was very short but everything was presented in a proper form.

EXERCISE : There was only one exercise and that too very very short on page 88 of the textbook.

CHAPTER - XI

PARALLEL LINES

INTRODUCTION : Introduction was appropriate. The concept of parallel lines was directly introduced by giving examples and concept was made clear.

CONTENT : The content was sufficient and clear. It was up to the point to understand for the students of standard VI.

PRESENTATION : The presentation of the content was from general examples to specific. This made the presentation very easy and interesting.

ILLUSTRATIONS : The illustrations were not given separately. The chapter itself was presented with the help of figures and definitions. The properties given with the figures was enough to understand the concept of 'parallel lines'.

LANGUAGE : Language used was very simple and clear.

LENGTH OF THE CHAPTER : The chapter was clear. The length of the chapter was appropriate.

EXERCISES : There was only one exercise on page ninety seven with six examples. The exercise was very simple and easy. Students did not apply any knowledge for solving.

CHAPTER - XII

CONGRUENCY OF TRIANGLES

INTRODUCTION : The introduction was appropriate. The introduction started with figures of congruency of two different shapes and later it was through to the triangles. The concept of congruency of triangles was directly approached after the introduction of congruency of different shapes.

CONTENT : The content was appropriate, clear and simple. The content was not very long but appropriate to know and understand the concept.

PRESENTATION : The concept was presented in a appropriate manner. The content of congruency of triangles was simple and easy to understand because of its presentation.

ILLUSTRATIONS : Illustration were sufficient but they were not direct illustrations but in the form of definitions, conditions figures of different conditions. These facts were presented in different form like content but they were illustrations only.

LANGUAGE : Language was common, simple, clear and easy.

LENGTH OF THE CHAPTER : Length of the chapter was appropriate.

EXERCISES : Exercises were not sufficient for practice of congruency. There was only one exercise i.e., exercise twelve with six examples, five blanks for question three and six reasons for question six.

5.7 TEACHERS RATING ON MATHEMATICS TEXTBOOK OF STANDARD VII ON THE BASIS OF FULFILLMENT OF THEIR NEEDS

Questionnaire for teachers had forty-five items with two alternate options of answering 'yes' or 'no'. yes representing favorable answer and no representing unfavorable answer. The certain items represented 'yes' for unfavourable reply i.e (b) 5 (d) 9 (e) 3. Some other relevant questions (f) 1,2,3,4,5,6,7 were intended to collect opinions and suggestions with reference to some weak and strong points of the book, have been pooled and presented.

Scores for standard VII were calculated and rated as I for favorable and -1 for unfavorable responses. The opinion of the teachers thus were analysed in terms of average rating scores. The interpretations was made on the basis of the value of average ratings according to the following scheme.

1. The value of average rating within the range of 0.01 to 1.00 was favorable for the different aspects of the text.

The value of average rating from 0 to -1.00 was unfavorable for the different aspects of the text.

The average ratings of two hundred mathematics teachers teaching in standard VII in the state of Gujarat their opinion for the mathematics textbook of standard VII regarding various aspects of the book have been prescribed in the table no. 7.

TABLE - 7

TEACHERS' VIEW ON MATHEMATICS TEXT BOOK OF STANDARD VII

		AVERAGE RATING SCORE
A.	<u>PLANNING OF THE BOOK</u>	
1.	Conformity of the prescribed syllabus	0.96
2.	Sequence of the chapters	0.97
3.	Clearness of concept	0.88
4.	Pattern of chapter organization	0.86
B.	<u>PRESENTATION OF THE CONTENT</u>	
1.	Relevance of the content	0.90
2.	Correctness of the content	0.92
3.	Continuity and organic growth	0.97
4.	Concept related to previous knowledge	0.96
5.	Concept unnecessarily elaborated	0.91
6.	Content free from major gaps	0.90
7.	Helps for planning the lessons as per lesson plan	0.99
C.	<u>SELECTION OF THE CONTENT</u>	
1.	Length of the chapters convenient for teaching	0.84
2.	Covering of the course	0.98
3.	Discussion according to pupils maturity	0.95
4.	Suitability of the content	0.79
5.	Introduction of the topics	0.82
6.	Sequencing of the content	0.96
7.	Organization of the content	0.80
8.	Logical development of the content	0.83
9.	Content bringing active involvement of the pupils	0.58

D.	<u>USE OF TEACHING LEARNING AIDS</u>	
1.	Adequacy of illustrations	0.89
2.	Adequacy of diagrams/graphs	0.77
3.	Use of symbols in algebra/geometry	1.00
4.	Accuracy in figures	1.00
5.	Emphasis on 'why' or 'how'	0.96
6.	Variety of problems	0.93
7.	Are students able to evaluate by themselves	0.98
8.	Language used for explanation(easy)	0.96
9.	Are activities provided in the textbook ?	0.54
E.	<u>PHYSICAL ASPECT</u>	
1.	Is the size of the book appropriate ?	0.99
2.	Is the spacing between the words appropriate ?	0.98
3.	Is the quality of the paper good ?	1.00
4.	Are there printing mistakes in the textbook ?	0.46
5.	Two parts in the textbook	0.04
F.	<u>EXERCISES IN THE BOOK</u>	
1.	Adequacy in the exercises given between and end of the chapters	0.32
2.	Inter spreading of the examples and problems in the exercises	0.91
3.	Exercises are graded for all students (average, above average, below average)	0.95
4.	Evaluation tools for students in the textbook.	1.00

G. OTHER RELEVANT INFORMATION (IN GENERAL)

1. Chapters which students find difficult : Volume, surface area of cylinder
2. Chapters which teachers find difficult : Surface area of cylinder
3. Chapters which are real burden to students
4. Chapters which students find interesting : Compound interest
Expansion
Factors
5. Inaccuracies in the textbook
6. Suggestion by teachers : Geometry portion could be added.

5.7.1 TEACHERS VIEWS OF MATHEMATICS TEXTBOOK OF STANDARD VII

Teachers views of mathematics textbook based on questionnaire given in lines to follow.

A. PLANNING OF THE BOOK

The average rating score for conformity of the prescribed syllabus was 0.96, sequencing of the chapters 0.97, clearness of the concept 0.88 and pattern of the chapter organization 0.96. The scores were ranging from 0.86 to 0.97, a highly favorable positive attitude showed that the teachers felt the book to be good so far planning of the book was concerned.

B. PRESENTATION OF THE CONTENT

The average rating score regarding relevance of the content was 0.90, correctness of the content 0.92, continuity and organic growth 0.97, concept related to previous knowledge 0.96, concept unnecessarily elaborated 0.91, content free from major gaps 0.90, helps for planning the lesson as per lesson plan 0.99. The average rating scores ranged from 0.90 to 0.99 which was positive and highly favourable and brought out the fact that presentation of the content was good and easy to follow.

C. SELECTION OF THE CONTENT

The average rating score for length of the chapters whether convenient for teaching was 0.84 covering of the

course 0.98, discussion according to pupils maturity 0.95 showed that content was discussed properly. The content was suitable for the students. The average rating score 0.79 tells about the suitability, the topics were well introduced, the average rating score for this item was 0.82. Sequencing of the content scored 0.96 showed that the content was in sequence. The average rating score for organization of the content was 0.80, logical development of the content 0.83, content bringing active involvement of the pupils 0.58. The average rating score regarding active involvement was bit low. As such there was hardly anything to change the mind of the students so to create interest in them regarding the subject. Otherwise the overall score ranging from 0.58 to 0.98 gives a favourable opinion about the book, the content was felt to be sufficient for standard VII students.

D. USE OF TEACHING LEARNING AIDS

The average rating score for adequacy of illustrations was 0.89 which showed that there were plenty of illustrations. Regarding diagrams/graphs adequacy the score was 0.77 which just favourable. Use of symbols in algebra/geometry the average rating score was 1.00 which as highly favorable. The score presents that all the figures in the book were accurate the score 1.00 was a good score. Emphasis on why or how was scored 0.96 variety of problems 0.93, whether students were able to evaluate by themselves 0.98, language used for explanation was simple corrupted and easy the average rating score was 0.96. There was hardly any

activity in the textbook except for geometry lessons. The score for this item was 0.54, a positive but not very encouraging. The overall average rating score varied from 0.54 to 0.98 favouring the book.

E. PHYSICAL ASPECT

The average rating scale regarding the size of the book was 0.99. The teachers were satisfied with the present size of the textbook. The spacing between the words was appropriate and the average rating score for this item was 0.98. Regarding quality of paper the average rating score was -1.00. The teachers were unhappy about the quality of the paper used in the book. They felt the paper used was of very poor quality. The score 0.46 for item forth of physical aspect brings out the fact that book was not free from printing mistakes. The teachers were not very much interested in bringing out two parts of the textbook, the average rating score for this was 0.04.

F. EXERCISES IN THE BOOK

Adequacy in the exercises given between and end of the chapters was 0.32 tells that there were exercises but they were not enough, there could have been more exercises for the practice. The examples and the problem sums were inter spread in most of the exercises at the end of each chapter were graded properly, the teachers felt that the examples in the exercises were for average students, above average and below average student. The average rating was 0.95 a highly

favorable score. Evaluation tools for students in textbooks - the average rating score for this item was 1.00 a highly favorable score. There were answers at the back pages on the book. These answers given was an evaluation tool for students. They were able to check their answers and find out their own mistake.

G. OTHER RELEVANT INFORMATION (IN GENERAL)

The items under this were analyzed qualitatively 95% of the teachers felt that students find difficulty in following volume surface area of cylinder. They were able to understand for a while when they taught but they were getting confused while doing it later even if they knew the formula. The teachers did not find any difficulty in teaching the chapters in the textbook except surface area of cylinder this chapter too. They found it difficult because while teaching students could not follow it easily.

"Volume" and "Surface area of cylinder" these chapters were difficult but not burden. "Compound Interest", "Expansion and factors" were the chapters which were interesting for students. There were hardly any inaccuracies in the textbook. There was no suggestion received by parents to the teachers.

5.7.2 INTERVIEW WITH THE TEACHERS FOR CLASS VII TEXTBOOK

From the interview with the teachers from different schools of Gujarat State data analysed showed the following facts :

More than 90% of the teachers felt that there was a co-ordination between what the students have studied in standard VI and what they have to study in standard VII. The content was not mechanical though there was a good link between the chapters of standard VI and standard VII.

Arithmetic and Algebra portion in the textbook was up to the mark but there was very little Geometry portion (only two chapters). So when periods were divided into three, geometry was finished fast and earlier and then they occupied geometry periods for algebra.

100% of the teachers felt that topics were well introduced. There was no proper entry behaviour questions in the beginning of the introduction. Most of chapters were introduced taking previous knowledge of the students as entry behaviour questions but the introduction gave clear idea about the matter in the chapter. 100% of the teachers teaching mathematics in standard VII were interested in teaching mathematics for that class. But they suggested that few sums should be introduced in all the exercises for practice so that students need not have to go for extra practice books of private publishers.

SUGGESTIONS GIVEN BY TEACHERS OF STANDARD VII

On the basis of interview and questionnaires the teachers suggestion were :

- Syllabus of standard VII was up to the mark but few more sums could be added to each exercise in each chapter.

- Geometry portion being very less on two chapter, it could be expanded little by adding two more chapters to it.

5.7.3 STUDENTS RATING ON MATHEMATICS TEXTBOOK OF STANDARDVII

Questionnaire for students had twenty items with two alternative options "Yes" (Y) and "No" (N). "Yes represented favourable responses and "No" represented unfavourable responses. The questionnaire included some items having noteworthy aspects of the book. The average score for the textbook of standard VII was calculated and rated. For favourable responses of the students were analysed in the terms of average rating score have been presented in the table no.8.

TABLE-8

STUDENTS VIEWS ABOUT MATHEMATICS TEXTBOOK OF STANDARD VII

	AVERAGE RATING SCORE
A. <u>PHYSICAL ASPECT</u>	
1. Size of the book (appropriate)	0.92
2. Any difficulty in reading	1.00
3. Printing mistakes in the book	0.40
4. Highlighting of important statement by exchanging type size	0.60
5. Quality of paper (appropriate)	1.00
B. <u>ACADEMIC ASPECT</u>	
1. Continuity in the content	0.90
2. Introduction of the chapter	1.00
3. Are the emphasis sufficient	0.60
4. Clearness of concept	0.80
5. Are showed examples sufficient for self study ?	0.90
6. Is help from teachers/parents needed?	1.00
7. Is language simple?	1.00
C. <u>THE EXERCISES GIVEN BETWEEN AND END OF THE CHAPTER</u>	
1. Are the exercises sufficient?	0.64
2. Need for extra book	1.00
3. Is the course lengthy?	0.70
4. Are the examples well graded?	0.88

GENERAL

- | | |
|--|-------------------------------|
| 1. Chapters easy to understand | Compound interest,
volume. |
| 2. Chapters difficult to understand | Surface area of
cylinders |
| 3. Do you find interesting? | - |
| 4. Do the teachers complete
course in time? | Yes |

5.7.4 STUDENT'S VIEWS ON MATHEMATICS TEXTBOOKS ON THE BASIS OF FULFILLMENT OF THEIR NEEDS OF STANDARD VII

A. PHYSICAL ASPECT

Regarding the size of the book the average score was 0.92 a positive score and highly favourable. The present size of the textbook was found to be appropriate. Students did not find reading the examples in the textbook. The score for this item was 1.00 showing total positive attitude. The textbook of standard VII was not free from printing mistakes. 0.40 average rating score for this item sensed that there were printing mistakes. Average rating score 0.60 for highlighting of important statement by exchanging type size showed that at some places it was done but not in the whole book. The negative average rating score - 1.00 for quality of the paper used for the book and even the binding of book was very poor.

B. ACADEMIC ASPECT

Regarding continuity in the content the average value score was 0.90 which showed that there was a good continuity in the content. The average rating score 1.00 showed that the chapters were well introduced. A negative score-0.60 for sufficient emphasis showed that students felt that there was no proper emphasis. 0.80 score for clearness of concept tells about the concept was clear in most of the chapters. The examples showed were sufficient for self study. The score for this item was 0.90. 100% of the students felt that help from

teachers or parents was needed for solving the examples. The average rating score for this item was 1.00. The language used in the textbook was simple and easy to understand. The average rating score 1.00 for this item made a clear picture that language was very easy.

C. EXERCISES GIVEN BETWEEN AND END OF THE CHAPTER

0.64 average rating for the sufficient exercises showed that the students felt that present textbook has exercises but there should have been few more exercises.

100% of the students felt there was a need for extra textbook. The average rating score 1.00 showed that present book was not enough for the practice.

The negative score -0.70 gives a picture that item no. three whether the course was lengthy or not said that course was not at all lengthy on the contrary few more examples could have been added.

The examples in the exercises were well graded and spread all over for average above average and below average students.

D. GENERAL

More than 95% of the students felt that "compound interest" and "profit-loss" were easy to understand "volume" and "surface area of cylinders" were difficult to understand. Chapters found interesting were "compound interest" as it was

linked to simple interest studied in standard VII, "quadrilaterals" and types of quadrilaterals. 100% of the students felt the course was not so lengthy so the teachers could finish it in time with enough revision work.

5.7.5 INTERVIEW SCHEDULE FOR STUDENTS OF STANDARD VII

An interview schedule was held with students of different schools of standard VII. The teachers concerned for the class helped the investigator to select some of the average and above average students of that particular class. Based on the performance in mathematics the teachers selected some of the students. While interviewing the students from different schools it was found that more than 90% of the students replied positively except that of adding few examples to each exercise and poor quality of the paper. They exaggerated the quality of paper so much that even investigator felt there was a need for using little better quality of paper. Even the book use for evaluating was torn by cover pages in spite of taking lot of care by the investigator. The students were interested in algebra part but 'Rational numbers' chapter eleventh was bit confusing for them. Of course they did not show much grievances but still their answering way was such that investigators experience with primary students could get that they were confused.

Overall standard VII book was found to be easier than standard V and VI, this was the free opinion given by great range of students.

TABLE - 9

CLASSIFICATION OF QUESTIONS/EXAMPLES IN EXERCISES ACCORDING
TO OBJECTIVES OF STANDARD VII TEXTBOOK

CHAPTER NO.	EXERCISE NO.	TOTAL NO. OF EXAMPLES	NO. OF EXAMPLES BELONGING TO KNOWLEDGE COMPREHENSION	APPLN.
1.	1	10	4	6 -
2.	2	10	5	4 1
3.	3.1	10	10	- -
	3.2	5	3	- 2
	3.3	8	6	- 2
	3	11	9	- 2
4.	4	12	2	10 -
5.	5	9	2	7 -
6.	6	7	7	- -
7.	7.1	3	3	- -
	7.2	6	6	- -
	7.3	2	2	- -
	7.4	9	9	- -
	7.5	3	1	- 2
	7	7	6	- 1
8.	8.1	3	3	- -
	8.2	2	1	- 1
	8.3	2	2	- -
	8	3	2	- 1
9.	9.1	5	1	- 4
	9.2	10	10	- -
	9.3	4	4	- -
	9	6	2	- 4
10.	10.1	3	3	- -
	10.2	3	2	- 1
	10.3	10	10	- -
	10.4	14	-	- 14
	10.5	16	12	- -
	10.6	14	10	- 4
	10	5	3	- 2
11.	11.1	2	2	- -
	11.2	12	12	- -
	11.3	2	1	- 1
	11	4	3	- 1

12.	12.1	7	5	1	1
	12.2	8	8	-	-
	12.3	16	16	-	-
	12.4	11	8	2	1
	12	11	4	4	3
13.	13	9	-	-	9
14.	14.1	4	-	-	4
	14.2	2	2	-	-
	14.3	2	2	-	-
	14	2	2	-	-

5.7.6 CONTENT ANALYSES FOR STANDARD VII

One of objectives of this study was to analyze the content of mathematics textbook of standard VII. An attempt was made by the investigator herself to analyse the content and realize the extent of some of the other aspects which had not been covered through other tools of the study.

The systematic and detailed resort of the content thus analysed have been presented in appendix E.

Content analysis revealed a number of facts regarding the textbook of standard VII which have been presented in lines to follow.

CHAPTER - I

PROFIT-LOSS

INTRODUCTION : This chapter was just a revision of 'Profit Loss' studied in standard VI. This chapter being a revision there was no need for explanation in detail, the chapter was introduced as if it was a new chapter and students were not aware, there was no necessity to introduce it in detail.

CONTENT : There was no much like content. Whatever was there it was just the repetition of the work of profit-loss in standard VI book. The content was short but enough as it was a repetition chapter.

PRESENTATION : The presentation of the content was in short. But it was okay. The presentation too was the repetition of the matter done in standard VI except profit-loss was given in percent.

ILLUSTRATION : There were four concrete illustrations. They were enough as students had already learnt this chapter in standard VI. The concept of profit-loss was already cleared in standard VI so there was no much to make the concept clear.

LANGUAGE : The language of the textbook used for this chapter was easy and simple.

LENGTH OF THE CHAPTER : The chapter was very very short given in the form of revision.

EXERCISES : There was only one exercise with ten examples.

CHAPTER - II

COMPOUND INTEREST

INTRODUCTION : The introduction was good. The concrete was as used to introduce this chapter. The actual facts were given to create an atmosphere about the subject and to create interest in the students.

CONTENT : The content was very short. The content was linked with the chapter simple interest taught in standard VI. The content contained just the explanation of the subject.

PRESENTATION : The matter was presented in short but every thing was clear. The presentation was up to the point. The facts were presented step by step.

ILLUSTRATIONS : There were four illustration. The three illustrations were of similar type and one was showing difference between simple interest and compound interest.

LANGUAGE : Language was very simple and understandable.

LENGTH OF THE CHAPTER : The chapter was short but concept was clear. Students could follow the chapter.

EXERCISES : There was only one exercise with just ten examples which were not at all enough for the practice.

CHAPTER - III

AREAS OF TRIANGLES AND CIRCLES

INTRODUCTION : The chapter was started with few questions of entry behavior - the previous knowledge of the students of finding areas of rectangle, square and then immediately area of triangle was started by giving different examples.

CONTENT : The content of the topic as short. Formulae and units were given in a proper and easy way which everyone could follow. Both area of a triangle as well as circle was presented well.

PRESENTATION : The presentation of the content was done in a beautiful manner. Though the content was short it was presented in such a way there students could follow easily and teachers could explain well.

ILLUSTRATIONS : The illustrations were used for explanation. The illustrations were clear and easy to follow.

LANGUAGE : Language was simple and clear. It was easily understandable by students.

LENGTH OF THE CHAPTER : The chapter was not very short nor very long. It was divided into two parts. First part consisted of area of triangle and second consisted of area of a circle.

EXERCISES : There were three exercises with different examples on finding areas of triangles and circles.

CHAPTER - IV

SURFACE AREA OF A CYLINDER

INTRODUCTION : The introduction of the topic started with several examples of concrete facts but there was nothing like introduction as such. No question on entry behavior. The examples were from day to day things.

CONTENT : The content of the chapter was very short. The formula for finding surface area of cylinder was given and it was clear.

PRESENTATION : The presentation of the content was in short. The chapter being new to the students it could have been presented in detail instead of that chapter was presented with examples.

ILLUSTRATION : There were only four illustrations which were just not enough for the practice of course illustrations were clear and link to the examples given in exercise but they were few.

LANGUAGE : The language was not very clear in this chapter though it was simple. The content language was understandable but in example there was little confusion.

LENGTH OF THE CHAPTER : The length of the chapter was very short. There were many things to discuss but everything was winded short.

EXERCISES : Though the chapter was introduced for the first time there was only one exercise and hat too with only twelve sums without any sub question. This was just not enough for the practice and for making the concept clear.

CHAPTER - V

VOLUME

INTRODUCTION : There was no entry behavior as such, the previous knowledge of the students regarding volume was taken as entry behavior of students and chapter was introduced. Soon after that there were certain formula of volume of cube, volume of cuboid and its units.

CONTENTS : The content was all in hotch-potch manner. There were formulae, units of capacity, measures and volumes.

PRESENTATION : The presentation of the content matter was very short and not in detail. Only formulae and different units for measure were presented.

ILLUSTRATION : The chapter was new and little confusing. There were only three illustrations. Moreover illustrations

shown were very easy and did not match exactly with the examples in the exercise. As this chapter being new there should have been more illustrations.

LANGUAGE : Language used was mathematical. There was nothing much theoretical.

LENGTH OF THE CHAPTER : The chapter was short and not up to the expectations. The chapter could have been explained in detail and made interesting.

EXERCISE : The exercise given in the chapter was only one and that too with only nine examples.

CHAPTER - VI

COLUMN GRAPHS

INTRODUCTION : There was no entry behavior or introduction as such. The chapter was started straight away by giving examples on 'Histogram' and graph. But examples cleared the concept in the first phase itself.

CONTENT : Content was very clear. Most of the content was mathematical.

PRESENTATION : Presentation of the content was very well and easy to follow. The presentation was so well that students could do several other examples on graph.

ILLUSTRATIONS : There were two illustrations presenting histogram on graph. The illustrations were very clear and easy to follow.

LENGTH OF THE CHAPTER : The chapter was very very short. It was just like an introduction to graph.

EXERCISES : There was only one exercise with just six examples.

CHAPTER - VII

RATIONAL NUMBERS

INTRODUCTION : There was no entry behavior as such. The previous knowledge of the students regarding negative numbers was taken as entry behavior of students and the chapter was introduced soon after that there were illustrations.

CONTENT : There was enough content. Content was clear and easy to understand. There was a good amount of explanation before every exercise.

PRESENTATION : The presentation of the content matter was in detail followed by illustrations. So though the chapter had variety of sums on rational numbers students didn't find it is difficult to work out.

ILLUSTRATIONS : The chapter had variety of illustrations for all the type. The illustrations were clear and students could follow it very easily. They were interesting too. The students belonging to all different categories above average, below average and could understand the illustrations.

LANGUAGE : Language used was mathematical and easy to understand.

LENGTH OF THE CHAPTER : The length of the chapter was appropriate and content was enough.

EXERCISES : There were enough exercise with variety of examples. 7.1,7.2,7.3,7.4,7.5,7.6,7.6 and 7 all exercises belonging to this chapter were interesting.

CHAPTER - VIII

POWERS AND INDICES

INTRODUCTION : The previous knowledge of the students about powers and indices was taken as entry behavior of students. The chapter was introduced by linking it to the work done in standard VI. Just after the 2-3 lines of introduction the terms were defined in formal way with the examples.

CONTENT : There was enough mathematical content, nothing theoretical. Content was full of formula and illustrations.

PRESENTATION : The matter was presented well with the help of examples. Laws related to different examples were clearly presented. Even the rules were clear to understand.

ILLUSTRATIONS : There was good amount of illustrations. There was at least one illustration for one type of example. Thus illustrations in this chapter was really meaningful for the students to do the exercises.

LANGUAGE : Language was simple and clear. It was easily understandable by students.

LENGTH OF THE CHAPTER : Chapter was neither short nor long. It was appropriate and up to the mark.

EXERCISES : There were four exercises 8.1,8.2,8.3 and 8 but it covered all the examples. But if there would have been more examples students could have more practice.

CHAPTER - IX

SQUARES AND SQUARE ROOTS

INTRODUCTION : The introduction was fairly good. It was short but made the concept clear regarding square and square roots. The facts were given to create an atmosphere about the subject and interest in the topic.

CONTENT : The content was appropriate explaining square roots in various ways. eg. perfect square, square root of perfect square, square root by resolving in to prime factors, square and square roots of fractions.

PRESENTATION : Presentation of the content was very clear and easy to follow. The various examples were presented step by step.

ILLUSTRATIONS : There were enough illustrations. Moreover they were very clear and easy to understand. Illustrations given were as per the examples in the exercises.

LANGUAGE : Language used in the chapter was simple and easy to understand.

LENGTH OF THE CHAPTER : The chapter was appropriate covering all about the squares and square root.

EXERCISES : There were only four exercises 9.1,9.2,9.3 and 9 covering variety of sums on square root.

CHAPTER - X

EXPANSION

INTRODUCTION : Entry behavior of the students was knowledge of addition-subtraction of polynomials learnt in previous class i.e standard VI. Later the definitions of 'An unknown number' like terms; and 'unlike terms' was revised. After recalling what students learnt in standard VI. introduction.

CONTENT : The content was clear and appropriate. The expansion of different numbers was properly put in the content. Though there were so many methods the content covered it well.

PRESENTATION : The content was presented well and students could follow it easily.

ILLUSTRATIONS : Lot of illustrations were there. The formula was put with number of illustrations. Each formula was followed by one or two illustrations. Illustrations were used for explanation. The illustrations were clear and easy to follow.

LANGUAGE : Language used for mathematical but simple and easy to follow.

LENGTH OF THE CHAPTER : Chapter was appropriate as there were lot of formulae for various expansions.

EXERCISES : There were enough exercises but examples in the each exercise were not much.

CHAPTER - XI

FACTORS

INTRODUCTION : Introduction was very very short and not at all clear only at later stage there were certain illustrations and with the help of illustrations the examples were explained and chapter was introduced.

CONTENT : There was enough content explaining different factors, factors using distribution law, factorizing a polynomial by grouping of terms factors of polynomial which have perfect square and factors of difference of two perfect squares.

PRESENTATION : Presentation of chapter was in proper sequence and easily understandable. The factors were put very nicely and step by step for students to follow well.

ILLUSTRATIONS : There were several illustrations. The illustrations were clear and easy to follow. All illustrations were linked properly to the examples in the exercises.

LANGUAGE : Language used was mathematical easy and simple to understand.

LENGTH OF THE CHAPTER : The length of the chapter was neither very short nor very long. It was appropriate.

EXERCISES : There were enough exercises 11.1,11.2,11.3,11.4 and 11 and all the exercises contained variety of sums.

CHAPTER - XII

LINEAR EQUATIONS

INTRODUCTION : This chapter was already introduced in standard VI but it was type $X + 5 = 8$. So here the introduction of linear equation was given by recalling what was done in standard VI. But there were no entry behavior questions. Recalling work of standard VI was taken as entry behavior.

CONTENT : There was enough content, the content was clear and could be followed easily.

PRESENTATION : The content was presented in proper manner and in sequence. The content presented was in the common language of the students so it could be followed easily.

ILLUSTRATIONS : There were about eleven illustrations. Illustrations were all matched with the examples in the exercises. They were clear and easy to understand. Language used was easy and simple.

LANGUAGE : Language used in the chapter was easy to follow.

LENGTH OF THE CHAPTER : Chapter was appropriate looking to the students of standard VII. It was neither very short nor very long.

EXERCISES : There were enough exercises i.e. 12.1, 12.2, 12.3, 12.4, and 12. But sums in the exercises were few. They were not enough for the practice.

CHAPTER - XIII

QUADRILATERAL

INTRODUCTION : There were no entry behavior questions. Introduction was fairly good. Introduction was given saying "We are familiar with the figure of a quadrilateral, but 'Quadrilateral' was not there in previous classes ie. standard V, VI it was introduced in standard VII so where the question of familiarity lies".

CONTENT : The content was very short. It was clear but the explanation part was very less.

PRESENTATION : The presentation of the content was appropriate and easy to follow. The matter was presented with the figures so it was clear for students to understand.

ILLUSTRATION : There were only two illustrations and everything was winded in short. There could have been more illustrations.

LANGUAGE : Language used was easy and simple.

LENGTH OF THE CHAPTER : Though the chapter was newly introduced it was very very short.

EXERCISES : There was only one exercise just with examples, that too very easy. The examples were not enough for the practice.

CHAPTER - XIV

TYPES OF QUADRILATERALS

INTRODUCTION : There were no entry behavior questions. The matter learnt by the students in the previous chapter ie. chapter thirteen was taken as entry behavior.

CONTENT : The content was very short. Everything was explained in short way. The content was clear and could make the students understand the concept.

PRESENTATION : The presentation of the content was in appropriate form. Most of the properties of parallelogram was explained with the help of the figures.

ILLUSTRATIONS : The illustrations were very few. There were only three illustrations and everything was expressed through these illustrations.

LANGUAGE : Language used in the chapter was easy and simple. It could be followed very easily.

LENGTH OF THE CHAPTER : The length of the chapter was very short looking to the points taken in it for discussion.

EXERCISES : There were four exercises 14.1, 14.2, 14.3 and 14. All exercises had few examples. Rather than examples they were statements. There was nothing like applying much of knowledge.