REVIEW OF THE RELATED LITERATURE

CHAPTER - III

REVIEW OF THE RELATED LITERATURE

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CHAPTER - III

REVIEW OF THE PREVIOUS RELATED LITERATURE

3.1   INTRODUCTION

Review of the previous related studies in an essential part of any investigation as it provides the 'feel' of the field in advance where the investigator would be working on. It gives the investigator a background of thinking of a problem area, the clear prospective of the problem under the study, helps in planning the study properly and selecting or developing tool for data collection, and adopting techniques for the analysis and interpretation of date. In this chapter an attempt has been made to present the previous studies in brief, which have bearing on the present investigation in the area of the textbook. The review has enriched the investigator with new understanding and insight in the concerned area which led the present investigation into fruition.

Several research activities had already been undertaken in the area of textbook by researchers abroad and few at home. The textbook research has been marked as an important area of educational research abroad. A lot of work has been carried out in different area of textbooks in general. The review of researchers already done on textbook has been presented in two heads.

1.   Researchers abroad

2.   Researchers in India

3.2   RESEARCHERS ABROAD

Textbook research has been marked as an important area abroad.   A lot of work has been carried out in different areas of textbooks in general. Here an attempt has been made to present an account of the researches done which have bearing on present study. In order to do this thorough search has been made to trace out the related literature from all the available resources. The review is made under following different categories :

1.   Content analysis

2.   Studies on readability and comprehension

3.   Studies on illustration

4.   Studies on the end of the chapter exercises

5.   Status survey of textbooks

6.   Evaluation of textbooks

3.2.1 CONTENT ANALYSIS

This section presents content analysis of textbooks in different subjects in the dissertation Abstracts- and Year books of the National Society for the study of Education, U.S.A.   So far 56 studies were reviewed which the majority were on history textbooks (17),   followed by social studies (10), language and literature (6) science (4), mathematics (4), textbook of other fifteen subjects (6), and textbooks of some independent subjects were (9). Content Analysis of mathematics textbook isn't enough in compare to history and social studies textbooks.

MATHEMATICS TEXTBOOKS

Sangviriyaku (1978) analysed the content of mathematics and found that there are different level of discrepancies in the content in between the two categories of books. Connel (1978) analysed the content of mathematics textbooks for grade IV, V, and VI for examining the content available for instruction for the grades in different topics. Myles (1976) analysed the content of geometry to determine the concepts and King (1955) studied the concept of algebra textbook to find the trends of content changes. Mathematics in elementary and secondary schools consists of arithmetic, algebra and geometry and trigonometry. Therefore studies on the content analysis of mathematics texts covered all the areas concerned. The studies were carried out by content analysis method page by page analysis of content.

SCIENCE TEXTBOOKS

Rinaldi (1976) attempted to analyse the content of six elementary science series for level one, three and five for the treatment of creative thinking. He developed categories for evaluation based on the theory of creative learning process identified by E. Paul Torrance and R E Myers, process in the act of ,learning by Jerome S.Nurner, and summary solving methods by J H McPherson. It was found that the textbooks placed only minor emphasis on the development of creative thinking.

Lucas (1978) analysed selected elementary science textbooks and laboratory programmes from grades one to six to investigate specific concepts of life science developed amount and method of concepts developed in those books. It was found that there was a great discrepancy in number of concepts and methods utilization varied greatly among the programmes. Stuart (1980) found the single greatest concentration of life science concepts in all textbooks of lower grades (7-9) was ecology, but for higher grades (10-12) it was physiology. Both of the researchers followed content analysis. Kilbourn (1974) developed a conceptual framework based on Stephen C Pepper's world hypothesis. This was also content analysis research on biology textbooks. He analysed the book on the basis of the potentiality of the world new as a concept for understanding important issues in science education. He found that the analytical scheme can be used to detect the projection of works views to students in science teaching.

HISTORY TEXTBOOKS

Briggs (1975), Boulding (1979), Lawson (1976), Jenkins (1974), Fedyek (1980), Bantug (1976), Berman (1975), Eichner (1977), Pearson (1976), Perez (1979) and Shanoski (1977) attempted to study the content of history textbooks for different purposes. But major theme of their studies were to analyse the content of the books to determine to compare different treatments like female personality, political leaders, different nations, race or ethnic groups etc.

Finding of these studies focussed on the trends or changing pattern· of treatment over different periods, or positive or negative bias in content regarding the themes mentioned.

SOCIAL STUDIES TEXTBOOKS

There were two studies on social studies textbooks which reviewed cover page of social studies textbooks. The themes of content analysis of social studies textbooks were very much similar to that of history textbooks. Singler (1979), Jarrar (1976), Protincky (1979), Akoa Mongo (1977), Sentell (1974), Horner (1975), Ferriera (1979) Hogi (1978), Padgett (1974) analysed the content of the textbooks. They were on different treatments in the texts· like Middle Eastern Arabs, Latin's, American's, African's career information, career concepts and values. Techniques used in these studies were mostly the review of the content. Tools used were questionnaire, cheklist, rating scale. The broadly used method was content analysis.

TEXTBOOKS OF OTHER COMBINED SUBJECTS

Most of the investigators analysed the textbooks of one subject but some investigators have analysed content of all books for a school or of 2-3 books of different subjects taking one issue under consideration. Saltionstall (1974) analysed content of 186 secondary level textbooks of world history, economics, authropology to examine explanation of poverty and international development. Stindt (1976) studied the content of more than 300 textbooks of post secondary

level in U.S.A. Edword (1976) analysed all textbooks to asses the obscenity issues in the texts to explore the value conflicts in education. Ramler (1976) analysed the sample of 137 social studies and science textbooks in the world to find out the amount of nature of conversation environmental education content in them. Wijesinghe (1979) analysed the content of history in grade VII to XII to identify the quantity and quality of population content.

3.2.2 STUDIES ON READABILITY OF THE TEXTBOOKS

The studies on readability also covers the researchers on vocabulary, comphehensibility and some physical aspects of textbooks material which act as a factor of effective reading. Physical aspects of readability change reported that a result of a study of the relative merits of horizontal and vertical lines in reading Chinese print showed that horizontal arrangement of characters offers definite advantages over the vertical. Tinker (1963) and Paterson found that effectiveness of black print on white background is more than red print in green background. They found that non-optimal typography (white prints, long lines, small type, set solid) was read slower than optimal typography (ten point type, nineteen point line width, two point leading) printed black on white. Extensive research relating to the print, paper and lighting and rearrangement of the materials to be, read, both efficiency and preference of readers being considered, revealed that in general black print on white dull finished (off white) paper has been found best (Tinker

1963). While considerable latitude available in print style, 10 point type with a moderate line width of about 19 pica and 1 point leading was recommended. Somewhat larger type and shorter lines are used for younger children. In addition, even distribution of light without glare has been recommended. Illumination of 20-30 feet candles has been found to be adequate for reading. Besides, physical characteristics the importance of language and the presentation of content has been developed in the field of readability research. Scientific study of comprehensibility of written communication has been developed through vocabulary research and readability formulae. Rinkin (1930) carried out a study of recurrence of works in certain primers, dealt with relative size vocabularies compared vocabularies with standard list and studies the manner in which vocabularies were manipulated. Through extensive research by the researchers like Thorndike (1921), Dale (1931), Stopcker (1971-72) Brown (1965), Holmquist (1968) has been developed the standard list of vocabulary in general for the classes at primary level. Development of close procedure by Taylor (1953) appeared to improve comprehension testing. Taylor (1953) divided the word 'closure' from Gestlalt Phychology meaning the human tendency to close or complete an incomplete circle or any other similar pattern. A group of researchers compared readability index of textbooks with grade placement of reading ability of students. They used different formulae for measuring readability or reading level of the text materials on subjects like social

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sciences, mathematics, accounting, language and literature. Smith, Thompson, Leigh, Tignor Bertalan, Hopking, Kilian, Meshkani, Fleming and Clark attempted to measure and compare readability and reading grade of tests. They used Dale-Chall, Flesch reading case, Nelson Danny reading Test B, Dalieson Brayan readability level of the texts and diffenent comprehension test, teacher made tests for measuring student's comprehension or readability. The trends of their findings revealed that either the text are suitable for assigned grade or there is no relation between reading level and reading ability of the students. Johnson (1980) found that factors which significantly affect the readability are word frequency, sentence length and sentence structure. Walchak (1955) found that there is a tendency for the number of indexed words to increase from one grade to the next. Park, Nyugen and Henkin (1982) attempted to develop new readability formulae for the text written in Korean and Vietnamese respectively. The first formulae contained easy words, different words, different hard words, simple sentences and pronounces. The second formula contained the length of the word and the length of the sentence.

3.2.3 STUDIES ON TEXTBOOK ILLUSTRATIONS

Illustration is one of the most important elements of the mathematics Textbook. it presents the material in the proper form (sums, problems solutions) and lends easy way for solving the examples in the real mathematical way. Good illustrations not only complement to the textbook but also

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supplement proper explanation. Therefore studies in textbook illustration is also important. But there are very few studies on textbook illustrations.

Lane (1981) investigated the illustrations of secondary science textbooks. It was found that designed factors caused errors in interpretation of illustrations and the poor designed factors in illustrations could be identified by analysis of students test and interviewing them. Wardle (1975) attempted to determine the predicted and actual contribution of science textbook illustrations to reading comprehension of pupils of varying the reading ability. It was an experimental study but no relationship was found. Tryon (1925) studied maps in history texts to determine the geographical phase of the historical content for junior high schools grades. It was found 42 books had coloured maps and 44 books had black and white maps by periods. Clienti found that science texts of grades first to nineth used 4 main types of labelling system ie. superimposed, adjustment connected with line. His attempt to ascertain the relative effectiveness of various labelling methods in the associative learning with the help of illustrations remained undecided.

3.2.4 STUDIES ON END OF CHAPTER EXERCISES

Normally for the effective evaluation of learning certain exercises are given at the end of the each chapter of the textbook. So there are different queries about the purposes, accuracy, relevancy, adequacy of those exercises.

Researches on end of chapter exercises shows the following trend. Engalhhardt analysed the questions of social studies textbooks to find out percentage of different categories of questions according to the content and taxonomic category of cognitive level objective of education. Usha analyses the end-of-chapter exercises of six Thai books in terms of knowledge, cognitive levels of questions quantified on the basis of Solon's taxonomy. It was found that knowledge questions were highest in number and irregularly distributed and a very low percentage of higher order questions indicated inadequate opportunities of the textbooks to develop the desirable scientific literacy.

3.2.5 STATUS SURVEY OF TEXTBOOKS

Historical and descriptive studies on the textbook production publication and distribution system forms a type of research in the area of textbook which is known as status survey of textbooks. These status survey of textbooks have no direct relation on present study. Status surveys of the textbooks were conducted by different agencies, institution and by the researchers for fulfilment of Ph.D degree. A few studies are mentioned here. These were attempted by the New York State development of efficiency and economy (1915). Davis, Kreiner (1930) Ponarty (1980), Waldron (1955) Kay (1977) and Eichelman (1975) studied a status survey of textbooks in New York. The main focus of these studies included the cost of textbook refining the selection practice and procedure of textbooks. These studies were descriptive

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and historical and adopted the method like case study, content analysis or opinion survey through questionnaire. The finding suggested necessary recommendations for the improvement of the on going process and practice. Lade (1977) found that the revision becomes necessary due to pedagogical or economic reasons but not due to the change of ownership or management of publishing company.

3.2.6 **EVALUATION OF TEXTBOOKS**

The studies on textbooks evaluation may have much to tell the investigation of the present study. This is because the methods of evaluation of mathematics textbooks and other subjects have direct relation with present studies. Though the researches on content analysis, measuring comprehensibility, assessment of exercises and illustrations and the status of survey all are directed to evaluate different aspects of textbooks still there are some investigation directly or indirectly titled as 'Textbook Evaluations. Han (1977) analysed and evaluated the second year Korean science textbooks using Piagetian concrete and formal operational thinking patterns. The investigator analysed the learnability of science content in terms of educational objectives, and learnability was measured through an achievement. It was found that there was a gap between the cognitive developmental levels of the students and the science content being taught to them.

Jones (1978) developed and evaluation instrument for High School Biology textbook by review and analysis of previously developed instruments and rating sheets of the State Department of Education, U.S.A and applied it to evaluate nine selected biology texts. Farag (1978), Parr (1978), Branch (1980) and Rice (1980) evaluated social science textbooks for school levels. Purposes of their studies were to determine the value of textbooks in terms of vocabulary, suggested activities, inquiry approach, problem solving disciplines included in the textbooks. They had used survey method utilizing questionnaire, rating scale and getting the opinion of experts as well as the response of teachers and students. The major findings of these studies were that pupil's perception could indicate some necessary change in the textbook materials and the way their leathers use the textbook material. A single textbook is not the most appropriate book for a school district and development of criteria is the tools of social science textbook evaluation is urgently necessary.

Morant (1977) developed practical criteria for both students and teachers to evaluate the text of history and provided a usable model for black people and minorities. The tools developed were information data sheet and comparative analysis chart.

Vega (1978) evaluated fifty eight books to determine how valuable Spanish teacher judged their books to be helping students to attend certain activities proposed by Department

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of Education. He used three questionnaires each utilizing a list of books and objective and likert type scale. Stewart conducted a study to develop procedure and criteria of evaluation of Basal Reading Textbooks. A questionnaire was developed and were rated by principals and teachers of elementary schools.

Takshashic (1979) evaluated selected world history and geography books through the students entrusts and expression in the study of Japan. He used to questionnaire to obtain data of high school students interest.

3.3 RESEARCHES IN INDIA

The investigator would like to present the review of the researches conducted on textbooks in India.

There are quite a few studies conducted in India in the area of 'textbook'. As was expected, the NCERT took the lead in this direction. A programme to evaluate textbooks in all languages in the country was undertaken by NCERT. The department of textbooks, NCERT (1970-72) conducted studies and developed the basic principles and procedure in the preparation and evaluation of textbooks. Maharastra State Bureau of Textbooks also conducted researches in the field of textbooks. There are Ph.D and M.Ed. studies also in the field of textbooks. All such studies have been reviewed here under different categories.

3.3.1 CONTENT ANALYSIS

The Maharastra State Bureau of Textbook Production and Curriculum Research (MSBTPCR, 1976) analysed the content of all Marathi textbooks from grade one to ten in the state to determine the position of women in eight different aspects : character, depicted, pictorial, illustrations, fictions and mythology, biography, authorship, recreational activities, professional role and character traits. The procedure adopted was to scan the text lessonwise and record the presentation of male and female. It was found that there was definite sex bias but that could be unintentional. Nischol (1976) similarly analysed English textbooks in search of sexist bias or stereotype inconsistent with the principle of equality between sex. He detected that the texts emphasized the male tremendously. Sarang, Jadhav and Mulye (MSBTPCR, 1980-87) critically analysed geography and emotional integration and international understanding. The researchers found that none of the textbook under study contain anything detrimental to National Integration, the former , however doesn't find it sufficiently effective in promoting National Integration. Vaishampayan, Mate and Chavan (MSBTPCR, 1986-87) analysed the content of Balbharati Marathi Textbook for standard V, VII from the point of view of National Emotional Integration and International understanding. In their opinion, National Emotional Integration and International understanding have not been given the attention though deserve none of three books contained any matter harmful to the concept.

Chandra (1985) studied the representation of the national movement in the social studies textbooks of standard X of Central Board of Secondary Education (CBSE), Gujarat State Board of Secondary Education (GSBSE), Uttar Pradesh Board of Secondary Education (UPBSE). In her comparatives study of the textbooks, it found that the quality of content matter, language and presentation of unit of national movement in the CBSE textbook is much superior to that of GSBSE and UPSBSE. Karim (1982) assessed through content analysis the extent to which the history textbooks promoted national integration. It found that while instances of obscurantism, communalism and regionalism were rare, the content of the texts was not intended to promote national integration consciously.

Joshi (1972) analysed the content of the forth standard general science textbook to examine suitability of content, explanations and illustrations provided in the text and to ascertain the appropriateness of language and vocabulary used in the text. The study was carried out adopting the technique of the content analysis. It was found that the contents were suitable, sequence and presentation of units were quite proper, contents were free from factual errors, some of the illustrations were not accompanied by defiant description and instructions regarding what to look for, and there was need to increase the coloured pictures.

Reading speed is high when different content are printed in two narrow columns with 14 pt type of letters. It was revealed that reading comprehension is positively influenced by size of letter but not only by type of format ten point was found better for history.

3.3.3 STUDIES ON END OF CHAPTER EXERCISES

Sharma and Saxena (1978) analysed the questions of science textbooks according to Bloom's Taxonomy and categorized as knowledge, understanding, application and creativity. It was found that knowledge questions were more in all the books, other categories were there but they were less. The second study was conducted by Vaghamare (1971) revealed that desired wieghtage for knowledge understanding, application, skill and personal development categories of questions were 40%, 45%, 3%, 5% and 7% respectively and that for objective, short answer, activity, essay and dramatization type were 40%, 45%, 5%, 5%, and 5% respectively for history text of class iv. Iyer (1984) analysed the level of questions and activities of the science textbooks for standard VIII published by Gujarat State Board of School Textbooks, Maharastra State Bureau of textbook and Central Board of School Textbooks. It was found that Knowledge questions were more than the understanding and application types of questions in all the three textbooks. It was also found that Gujarat State Board of School Textbook had the least number of chapters and questions of knowledge, understanding and applicational types.

3.3.4 EVALUATION OF TEXTBOOKS

NCERT (1970-72) undertook nine studies on preparation and evaluation of textbooks in mother tongue, second language, English, History, geography, Social studies, general science, Physics and biology at middle school stage. The major purpose of these studies was to develop the basic principles and procedures in preparation subjects. The purpose of evaluation of textbooks was selection, improvement and research in the area of textbooks. Different tools developed and used were - report card, scoring card, scoring sheet, information sheet, profile, observation schedule, analysis sheet, evaluation proforma, questionnaire checklist, and rating scale. Some of the major procedures adopted were evaluation by panel of experts, tryout of books, pooling the opinions of teachers, supervisors, pupils, content analysis and action research technique. Rastogi (1975) and others in one study developed the the principles for preparation of textbook of mother tongue as also the tools and techniques for evaluating them. The tools developed were an analysis, an evaluation proforma to evaluate the textbooks for selection as well as improvement.

Pattabhiram (1973) evaluated the nationalized social studies texts the secondary stage of Andhra Pradesh. Criteria taken for this study was content of the text and layout of the book. The study was carried out with the co-operation of teachers, headmasters, students, teacher educators, administrators and educational publishers. It was

found that nationalized textbooks were better in quality in comparison to old textbooks but was enough scope of improvement. Kher (1972) evaluated the history textbook of standard VI to find out their consistency with syllabus and suitability to pupils needs. The investigator used questionnaire and interview for surveying the opinion of teachers, parents and subject experts and pupils. It was found that the textbook was useful and suitable for pupils, approximately followed the syllabus, rich in visual aids but there were several factual mistakes and inadequacy of exercises. Ponkshe (1972) evaluated the geography textbooks of standard VI with similar purpose. Tools used were also similar. The study found the textbook in consonance with the objectives prescribed in syllabus except for recognition of cause and effect relationship, stimulation of the power of observation and encouragement of the use of the maps. In another study conducted by MSBTPCR (1986-87) Chaware, Kambale, Bharati, Sarawade, Wakade and Kulkarni evaluated the geography textbook for standard III separately. The tools used to elicit opinion from teachers, experts and pupils were questionnaire and interview. They found that the textbook was in consonance with the prescribed syllabus, contained some in accurate statements and the content was suitable to age-range of the pupils of standard III.

Rastogi (1975) and others made a comparative study of textbooks in mother tongue in Bengali, Gujarati, Hindi, Telugu and Urdu for primary sections. The main focus of this

study was on lessons, exercises, illustrations, auxiliary materials, physical aspects and the content of the textbooks. Chowdhary (1976) evaluated the nationalized Hindi textbooks of classes I to VIII in the terms of strength and weakness, values needs and themes by opinions from teachers, students and experts at the same time analysed the end of chapter exercise on the basis of cognitive level of questions. Godhole, Bhoile and Marodkar (MSBTPCR 1986-87) evaluated the Balbharati Marathi textbook of standard VI to find if the textbook is in consonance with syllabus and suitable to the pupils needs. Questionnaire and interviews were used to elicit opinion from teachers, experts, parents and pupils. They found that text was in conformity with the syllabus, some lessons were very difficult and exercises at the end of the chapter did not exhibit sufficient variety. A similar study was taken up by Tharyani and Bhatta (MSBTPCR 1986-87) to evaluate Balbharati, Hindi and Gujarati text of standard VII respectively. The former found that the textbook was not very much in line with the syllabus, the language and the vocabulary are not suitable and appropriate. In the later case it was found that the textbook was written in accordance with the age group of the pupils, the style of the language was difficult at some places but it is fluent in general.

Walvalkar (1971) attempted to find out the errors, examine the suitability, examine the suitability of Mathematics textbooks for standard II - IV. Tools of the study were questionnaire for teachers and parents and as set

of achievement tests for pupils. It was found that the text material had relevance to daily life and was suited to the capacity of the pupils. MSBTCR (1974) studied primary school teachers views about Mathematics syllabus in Maharastra. It was revealed that majority of teachers found the modern mathematics portion of the syllabus was difficult.

SIE, Orissa (1975) evaluated the effectiveness of the experimental textbook "Science is doing" for standard III prepared by NCERT for the students of Orissa. Questionnaire was used to have the opinion of sample teachers. It was found that Physical aspects except the get up of the book were good. Some experiments set in the book were considered difficult for pupils, illustrations were inadequate and the extra work under caption. "Things to do at home" were found to be dissatisfactory.

Joshi (1979) developed an "edit code" for evaluating school science textbooks. Four studies were completed as a part of this research (1) development of categories. (2) content analysis process (3) Establishing the validity of edit code (4) demonstrating the utility of content of the study were edit code can be used finding for improving textbooks through content analysis. In a project SCERT. Andhra Pradesh (1981) evaluated the textbooks prescribed for classes VI and VII and also analysed the views of the parents teachers and students about these textbooks by and large parents teachers and students found continuity in the development of content in the textbooks. Parent felt unable

to help the wards in solving problems included in mathematics textbooks.

Lalithamma (1981) undertook a study to develop criteria for the preparation of good mathematics text and to prepare an analysis sheet for the evaluation of the mathematics textbook based on the criteria developed. Secondary school mathematics teachers were administered questionnaire by the investigator. Criteria were identified and classified into two categories : (1) Physcial aspects (2) Academic aspects.

It was found that process operations were given more emphasis than the products topics were systematically correlated with proper grading and sequencing, exercises were sufficient in numbers, physical aspects were adequate.

Roy (1986) evaluated the high school general science textbooks in Bangladesh to asses the textbooks on the basis of curriculum objectives, to study its suitability to the pupils needs and to study the content exercises. Questionnaire were administered to authors, editors, illustrations, teachers and subjects. There were interview schedule for teachers and head. Analysis sheet cum Textbook Evaluation Diary was also developed for collecting information from teachers. Romey's test was used to measure students' involvement index. The end of chapter exercises were analysed according to the Bloom's Taxonomy. It was found that textbooks were written according to the requirement of curriculum. The study also revealed the

negligency of proof reaching. Questions of higher cognitive level were less in number in the exercises of all five texts. Indepth content analyses showed several details which are useful in future review of the books.

Joseph (1987) evaluated the physics textbooks of standard XI (Part I and II) of Gujarat State to find out the strength and weakness of different aspects of the textbook. The tools used were questionnaires and interviews. He found that textbooks were with consistency with the syllabus but did not help the students much for self study as there were ambiguous concepts and statements, misplacement of illustrations and wrong figures.

Kadam (1989) evaluated mathematics textbook on the basis of the syllabus to study the academic and physcial aspects and analyse the end of chapter exercises. Questionnaire was administered to teachers to collect their opinion. There were interview schedule for teachers and students. The content of the textbook was analysed by the investigator. The textbook was written according to the requirement of the syllabus. The study further revealed that there were conceptual gaps in the contents, several printing mistakes, exercises were not very challenging and the physcial aspect was not good enough.

Joseph (1990) evaluated social studies textbook on the basis of the syllabus to study the academic and physcial aspects and analyse the end of chapter exercises.

Questionnaire was administered to teachers to collect their opinion. There were interview schedules for teachers and students. The content of the textbook was analysed by the investigator. The textbook under investigation was written according to the syllabus but some content was inadequate in terms of subject matter. Hence the related concepts could not be understood well. The textbook clearly indicates the negligency of proof reading regarding spelling mistakes, misprints missing and captionless illustrations tec. The mistakes or deficiencies are due to lack of communication and co-ordination between the authors, illustrators and proof readers. Illustrations are without figures, hence the instructions given becomes meaningless.

3.5 STATUS SURVEY AND MISCELLANEOUS STUDIES ON TEXTBOOKS

NCERT (1969-70) conducted a survey to find out the exact situation regarding textbooks at the school stage in the country. Tools and techniques used for the survey were questionnaire, interviews, documents and file analysis etc. MSBTCR (1974) conducted a state wide survey of use of textbooks, to find out percentage of pupils who had textbooks, second handbooks and non-textual materials produced by the Bureau. An information schedule was used as the tool for data collection from the students of the sample schools. An analysis of their view indicated that only a small percentage of teachers go through the textbooks thoroughly and assimilate concepts and method included in them. Karandikar (1973) studied the mathematical concepts in

syllabus and textbooks to examine whether the mathematics concepts mentioned in the syllabus for standard II to VII were in consonance with the intellectual maturity of the students. It was found that all mathematical concepts in the syllabi, except those of time and space, were in consonance with the intellectual maturity of the pupils.

Gopal Krishnan (1977) carried out a study on mathematics syllabus and textbooks, to find out how far the syllabus was adequate, the constraints that effect the implementation of the current syllabus. The study also compared the syllabus under study with that of the advanced countries. Tools used used in the studies were questionnaires and interviews. It was found that the structure and rigour of the mathematics textbooks were appropriate, the syllabus under study was better than that of the immediately preceding years and the Kerala syllabus differed from NCERT syllabus.

Mehta (1983) carried out a comparative study of textbook production setup as a process. The study intended to find out the best possible processes and setup as to improve the quality of the school textbooks . Chaudhri evaluated the school textbook improvement programme in India. It was found that the existing book and techniques of textbook evaluation were based on such principles, theories, approaches and criteria which were selection oriented and not the improvement oriented.

3.4 IMPLICATIONS OF RELATED PREVIOUS RESEARCHES FOR THE PRESENT STUDY

Review shows that researches on textbook of any dimension has a direct impact upon the improvement and development of educational programme at school level. The review draws the attention to need the level and importance of researches on textbooks. The question arises here, whether an aspect wise or integrated research approach on textbooks, which is important ? Undoubtedly, both are important but one cannot deny the immediate bearing of the integrated research on school level educational programme as it takes into consideration the textbook as a whole. A textbook with a good physical get up may not be effective due to its weakness in some other aspects like presentation of content, vocabulary etc. A textbook may fulfil the conditions of the syllabus but may not satisfy the need of teachers or students. Therefore it seems that textbook evaluation should take into consideration all possible factors influencing a textbook. From the review of related previous researches it is quite clear that the area of the textbook research has mainly the dimensions of content analysis readability or comprehensibility of the text and evaluation. The review gives a clear indication that an integrated study of the different aspects of the textbook has underscope as far as immediate educational programme at school level is concerned. It does not diminish the importance of aspectwise study on textbooks but

considers the need of the time as our endeavour in this area of research has not gained momentum.

The present investigation is an attempt to evaluate the textbook, taking the essential aspects of the process as far as possible. New textbook had been introduced in 1989 in standard V and VI for mathematics and in standard VII in June 1990 in the schools of Gujarat. So a series of questions arise concerning its adequacy of content, comprehensibility of contents, suitability of the academic and physical aspects, needs of teachers and learners, appropriateness of illustrations etc. The answers to these questions can be doubted only through the evaluation of the textbook. The present study is a modest attempt in this direction.

3.5 AN OVERVIEW OF THE RESEARCHES REVIEWED AND THEIR IMPLICATIONS FOR THE PRESENT STUDY.

Many studies abroad as well as in India made use of several international recommendations especially from UNESCO (1970) in connection with preparation evaluation, production and distribution of textbooks. Scene the establishment of NCERT in 1961 and national broad of school textbooks' in 1968 strongly influenced the carrying out of certain important surveys such as survey of school textbooks in India (1969-70) 'position of nationalised textbooks developed clear cut and detailed criteria of evaluation of textbooks and published brocheres in the subject of social studies, history, civics

grography, mathematics, general science, biology, language
and several relevant papers, NCERTs publication in 1987. A
study of evolution of textbook from ancient to the modern
period appears like a computer source book for Indian
textbook research workers. Several reference materials from
UNESCO as well as from many other studies referred earlier
have directly or indirectly helped researches in planning
present study.

Among the studies abroad the investigator has chosed in
include only those studies which had some impact directly or
indirectly on present study. The studies include in this
report were around twenty, starting from 1982 to 1991. In
case of Indian studies the investigator has included twenty
seven studies which were carried out during the period from
1971 to 1991. It was NCERTs efforts during 1970s which have
helped a lot to the research workers in the field of
textbook.

While going the studies in Indian and abroad in
chronological order apparently suggest that there were no
studies reported during certain periods, but this may not be
always the case-as this report consists only those studies
which are more or less relevant to the present investigation.
The reviewed studies have reflected on several issues and
helped in the present study. Among the research studies in
India and abroad qualitative method using, percentage and
frequencies have been found very useful for the purpose
content analysis and opinion surveys have been the two major

tools in the field of textbook research. Eventhough most of the studies being at doctorial level were incomplete in many respects as they treated only certain special aspect of textbook, such as certain content conceptualization, questioning stylkes end of the chapter exercises, languages etc. In fact there is a need to raise the status of such minor studies in to major ones, as the field of textbook is getting under day by day. In most of the cases the research was carried out for the existing textbooks having a comparative outlook to previous textbooks or previous syllabus or some other parallel curriculum in order to enable the textbook authorities to revise their products, after using for some years. But ideal time for a textbook research is immediately after the implementation of the textbook as in the case of present study.

Studies carried out to 1989-90 were the main basis on which the present study was proposed and started studies after 1990 also supported this study to some extent. Keeping in mind the five objectives of the present study, the following reviewed studies have been found useful. For the first objective, dealing with the actual academic content, studies such as Walwalkar (1971), Joshi (1972) Gopal Krishnan (1977), Lalithamma (1981), Roy (1986), Chiang Soong (1987) and Hehr (1988) have been found very useful to make use of content analysis as a tool. Actually these studies were also useful and have some effect on the other objectives also. Language aspect derived its methodology partly from reviewed

study such as Mukhopadhya (1983) and Strube (1989). The second objective on physical aspects of mathematics textbooks has been treated partly based on studies by Singh (1984) and Hartley (1990) third objective on evaluating the exercises at the end of each chapter has been supported by reviewed studies such as Vaghmore (1971) and Ponkshe (1972). Fourth objective to find out the opinion of teachers, students and experts gets its support from the studies used questionnaires interviews and content analyses. Fifth objective to assess the textbooks on the basis of the prescribed syllabus of Gujarat State, has been supported by several reviewed studies especially in content analysing the relevant documents and relating the issued together.

From the above discussions on reviewed studies especially which were at doctorial level it is implied that the methodology for the present evaluation of mathematics textbooks under study should be qualitative in nature using and should be based on the following tools content analysis sheet, questionnaire, opinionaire and interview schedules. The text chapter would enlighten more on the methodology and these tools for the five objectives of the study.

3.5.1 STUDIES IN INDIA OF TEXTBOOK EVALUATION

Textbook is one of the important components of curriculum, but out of 347 curriculum studies in India reported up to 1988 in fourth survey of Research in education only 26 (7.49%). Studies deal directly with textbooks,

however according to Dave and Dave in the India context textbook evaluation has acquired a distinct emphasis in educational research. During 1972-78 there were national level decisions to critically examine textbooks brought out hvt diferent states / union territories with reference to several issues and mainly from the point of view of national integration in the case of subjects in humanities and social sciences. During this period out of 71 studies in curriculum 9 studies were in area of textbooks. During 1978-1988 the percentage got reduced. Moreover, some of the studies were not complete textbook analyses in the sense that they touched content part only and that too mainly with the intention of looking at certain important aspects such as national integration in history textbook, role of women in social studies textbook etc.

3.5.2 STUDIES OUTSIDE INDIA ON TEXTBOOKS EVALUATION

Research studies available from outside India have been treated separately. Modern textbook research development and evaluation have had some influence especially from the developed nations such as U.K. and U.S.A. There were several studies available in the field of textbook research itself. Of course if we look at only mathematics textbooks and that too at elementary or say primary level there was not a single study available. The research done in mathematics textbooks were very few even at secondary level too. The invesigator felt that there was nothing wrong in getting the academic support from any field and from any level within the

framework of textbook research or sometimes even from the other frame work.

3.5.3 STUDIES IN GUJARAT ON TEXTBOOK EVALUATION

There were very few studies on textbook in Gujarat. Among the studies available most of them were in the field of science, language and social studies. There was only one study in mathematics available and that was at M.Ed. level - and it was on eleventh standard textbook of Gujarat state. There was not a single study on mathematics textbooks at primary level. Primary textbooks were completely neglected. Apart from mathematics there was no study on any other textbook at primary level. Therefore investigator was more keen in evaluating mathematics textbooks of standard V, VI, and VII used in the state of Gujarat.