CHAPTER I

INTRODUCTION

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1.1 Background:

It is now accepted fact that Educational Technology has made a major break through in teaching-learning process of Education in developing countries. Educational Technology played a significant change in teaching-learning process in the developed countries like U.S.A., U.S.S.R., U.K. and Japan in the mid fifties. These countries have been trying frantically to make the learners at ease in their school achievement by the optimum use of Educational Technological findings. It has played deciding role in the vital aspects of teaching, learning and evaluative processes of Education in countries which have realised its importance. Developing countries cannot ignore its relevant importance in the
educational set up as they have come to know through the Educational technology that the desired behavioural changes taking place in the learners at the faster rate than ever before. Indian educationists, who participated in the educational exchange programmes with the developed countries could perceive the importance of educational technology and studied the literature of it and also viewed empirical findings of the intensive research work conducted on teaching learning processes. The model educational agencies like NCERT and Extension centres spread over the whole country started disseminating the ideas pertaining to Educational Technology in general and programme learning material in detail.

Technology is an applied science. Educational Technology is the application of educational science, to the Teaching-learning process. The development of research methodology in natural sciences and agriculture provided sufficient guidelines to the educational research and brought a tremendous change in the educational research. It is geared to experimentation. The development taken place in behavioural sciences also have left a tremendous direct influence on deciding the objectives of education and evaluative process. The
objectives of Teaching learning have become more pinpointed in the terms of desired behavioural changes in the learners. The entire system of educational process was to a greater extent guided by the behaviouristic wave. The direct interaction with behavioural sciences wave the educational process in the class room began to be led by the instructional objectives and a new awakening has taken place that all learning could be measured in terms of behavioural changes in the learners. And if the learning activities do not yield the desired behaviour in the learner the activities must not be controlled by the instructional objectives. Hence all learning could be measured in the light of pre-decided instructional objectives, and all the learning activities must be thoroughly controlled to do so. Through behavioural sciences it was established that all the social behaviours of human being in the society are acquired. The close examination how such behaviours are acquired could make them realise that the very sprout of desired behaviour must be guarded and strengthened and encouraged of its further speedy growth by way reinforcement technique.

Through experimentation the field of animal learning, the importance of reinforcement was realised.
Programme. In his programme the base is on the principle of reinforcement. It is the fundamental base of the programme learning approach. About five years after him in the year 1959 Crowder gave another form of Programme Learning which is known as Branching Programme. Hence two types of programme came into existence in the late fifties. They are known as follows:

1. Linear Programme based on Skinner style.
2. Branching Programme based on Crowder style.

In the Linear style, the subject matter is divided into small meaningful steps. These steps were graded and referred as frames. In each frame the student was expected to read, study and respond. His response must correspond to the provided correct response. In case his response is not very close to the provided response he is instructed before hand to go over the frame again. In Crowder style the student is exposed to a small discussion of the divided meaningful chunk of the learning material. After this a multiple choice testing item is supplied to test his/her learning of the material discussed. If his choice is correct he is led to the further division of small discussion to be learnt. If he fails to choose the correct response, he has to go
through the discussion in which he is provided with sufficient explanation why he is failure. He is than taken to original item and again allowed to select the right response.

In 1963 some research scholars under the guidance of N.E.C.R.T. started working on developing programme Learning Material to test the efficacy of the material they produce. After realising its efficacy and significant importance in area of making pupils learn, the concepts of the school subjects, they started disseminating the idea of programme learning to the Indian Educationists, teachers, defence personnel, individual workers and others who were interested in this new type of Technique of self learning. They organized number of seminars and workshops to provide them sufficient training in Programme Learning. The material prepared in Indian regional languages were published and scattered to the region-wise extension centres. Through these centres it reached to the educational colleges and some innovative schools.

In Gujarat state in 1966 Faculty of Education and Psychology of M.S. University of Baroda introduced a course of Educational Technology and Programme Learning
at M.Ed. level. Soon it started snow-balling in the educational training institutions of Gujarat state and it was introduced in the B.Ed. and P.T.C. curriculum also. In the centre of CASE of M.S. University, a number of studies were conducted in this field. The idea of Programme Learning became so popular that within a short span of a decade a number of M.Ed. dissertations and Ph.D. Thesis came out with encouraging findings in the favour of Programme Learning Technique. As a results of its increasing popularity, in 1967 an association under the name of Indian Association for Programmed Learning (IAPL) came into existence. In its annual conferences a number of research papers were read and discussed. Thus the IAPL played an important role in further popularising the idea of Programme Learning Material in India.

Because of its encouraging results in the area of learning it became popular with defence academy and industry in 1969. The Army Cadet College, Poona conducted a full course in Programme Learning at Poona in 1969. Some result oriented prominent industrial concerns like TISCO, TELCO, Gujarat State Fertilizers Company Ltd., Gujarat Refinery and Jyoti Ltd. of Baroda used Programme Learning material extensively for their trainees.
1.2 Relevance of Programme Learning Material in the present context:

Our Young enthusiastic beloved Prime Minister of India proclaimed in the year 1985 that India should speed up to catch up with the developed nations in all kinds of technology. Thus, we have to have more and more well educated skilled workers who must be inculcated in the spirit of continuing learning. It is necessary for workers and organizers of industry to get opportunity to be educated in various areas of requirement and of their interest. Of late in this country the ideas of continuing education and open university have been widely accepted. Hence the people of different age, interest and motivation would rush to educational institutions. To provide them with instructors and learning material is a stupendous task. Instead of spending for material and instructors if such material be prepared in the way of programme learning Technique has suggested it could save time and money and energy.

Property motivated, intelligent, matured personnel in the organization with balanced personality and adjustment could seize the opportunity of continuing education
for their further professional growth by the way of Programme Learning Technology. As per our policy of total development the government is committed to universal compulsory education, professional efficiency, in-service training, adult literacy and also liberal education. We want more skill oriented/professionally grown up personnel in every area of productional aspects. If one goes with the traditional method of instruction conducted and largely dominated by the teacher would be too expensive, because of the requirement of more personnel properly trained to handle the learning procedure in the class. The programme Learning Technology would to a larger extent eliminate this factor and provide self learning opportunity to such persons. It is proved through many research projects that outcome of learning is more effective than the traditional approach of handling the learning situation of the teacher.

If the programme Learning Material assigned to the learner taken by him earnestly, he is more benefitted in many ways; firstly he becomes a self learner— or independent learner, secondly he learns material at his own speed; and thirdly he gets mastery of the learnt material
in tune with his need, interest and motivation. In programme Learning Technique the first condition is that the learner must possess the basic abilities like reading, writing and mathematical operations. This abilities are generally acquired up to their primary school stage, i.e. at the end of the first four years of schooling experience. After that he can learn many school subjects with Programme Learning Material and a little guidance from a teacher. In our country in the school stage of primary education one teacher has to teach more standards at a time. Understanding physical limitations of the teacher it is not possible to handle learning process by traditional method. Here if the Programme material thoroughly devised is supplied in some subjects, the students would master the subjects. It means the level of achievement in school subject definitely increase. Besides this, there are other reasons too. In village schools the students are found irregular due to socio-economic reasons and in such circumstances, they could make up the studies by attending school in their own time. In the case of solving problem the wastage and stagnation, the failure students be given the material to learn of their own. They could catch up spending some additional time. In the new concept of
mastery learning and criterion reference testing the Programme Learning Teaching Technology is much more suitable.

Recently self learning material supplied to the students is gaining more popularity as it helps them make up in the studies. The assignment technique is also proved to be more fruitful if it is carried out with a thoughtful planning and administration. However, due to certain lacking in conduction of the assignment and proper feed back it has not yielded the fruits it is expected to. In its place if Programme Learning Material is supplied it may serve the purpose of gradation, thoughtful division into small steps of the course, use of past experiences and built in feedback.

According to some of the experts in the field of Programme Learning Material technique, some of the significant advantages over the conventional teaching technology have been viewed by many experts in the field of Programme Learning Material.

- The students learn the material at their own speed.
- Small amount of material is focussed for a short span of time.
- All the frames must be attended very carefully
and that amount of division of the content is expected to be learnt, must be mastered.

- The students remain active throughout their participation in Programme Learning.

- It acquaints the student with the result which serves as a feedback and helps students to evaluate himself.

- The evaluation has been considered as the integral part of the instruction in the Programme Learning Technique.

- The quality of learning is ensured.

- The learning is to a large extent well controlled.

The new pattern of $10 + 2 + 3$ has been adopted to provide possible help to the learners. In the second stage of this pattern the students are to choose their streams of academic learning and vocationalization. The students of this stage are sufficiently matured, motivated, interested in their respective branch of learning and are equipped with the basic skills required for further learning. Hence if they are given programme learning teaching technique to be adopted at this stage the learners would be immensely benefitted. A subject of art and of commerce faculties could easily be handled with the Programme Learning Material Technique. Hence the researcher of this
project decided to take up a commercial subject and prepare two types of programme learning material on the same topics to compare their relative effectiveness.

As it has been discussed that there are two types of programmes like Skinnerion type and Crowder type, the researcher decided to compare them and find out which of the two significantly yield higher results, in the commercial subjects. Number of studies have been conducted in this type of studies. However they are found lacking something from the point of view of preparation of programme, handling of the programme, criterion and entering behaviour testing, analysis of the data and interpretation of the inferential findings. The researcher decided to evolve out a research design in which controlling variables be harnessed and checked so that they may not leave their concomitant effect in the development of criterion behaviour through the types of Programme Learning Material Techniques.

1.3 The Problem:

"Investigation into the effectiveness of Linear Programmed Material and Branching Programmed Material in the subject of commerce std. XI in relation to certain variables."
In this study, the investigator has prepared two types of programmed learning material and validated it by the proper process. For the second part of the study, the effectiveness of the prepared PLM in relation to some certain variables has been dealt with.

1.4 **Definition of Some Terms** :

The following terms involved in the problem have been defined with a view to making the work more exact and meaningful.

1. Investigation
2. Effectiveness
3. Programmed Learning Material
4. Linear Programmed
5. Brandhing Programmed
6. Commerce

**Terms Defined** :

1. **Investigation** :

"A formal or official examination or study, as by the police or a government body, or the act of investigating."¹

¹ Funk & Waynalls: Standard Desk Dictionary, Radhakrishna Prakashan, Delhi-6, P. 342
2. **Effectiveness**: 

Effectiveness aim of measuring the effect of learning in terms of acquisition and retention with the use of programmed material for developing skills in reading. ²

3. **Programmed Learning Material (PLM)**: 

As defined by Gible "PLM is a carefully planned, highly structured, sequential series of learning activities designed so that the learner is guided to the achievement of specified learning outcomes through interaction with material."³ This definition was accepted for the PLM developed for this investigation.

4. **Linear Programme**:

This is a programme especially devised to advance the student step by step to his learning goal, and so organised that he will make minimum errors.⁴

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2. Ibid. 64
3. Ibid. 65
5. **Branching Programme**

The techniques usually associated with the Branching style are derived from "the principles that different students need different instructional material that the students can learn from their own errors."\(^5\)

"The student is given the material to be learned in small logical units and tested on each unit immediately. The test result is used automatically to conduct the material that the student sees next. If the student possess the test question he is automatically given the next unit of information and the next question. If they fail the test question, the preceding unit of information is reviewed, the nature of the error is explained to them and retested. The test questions are multiple choice questions and there is a separate set of correctional materials for each wrong answer that is included in the multiple choice alternative."\(^6\)

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6. **Commerce**

In the words of Prof. Palekar, "In the wider context, commerce includes all activities connected with exchange of goods and service."  

Prof. James Stevens has defined commerce thus:

"The sum total of all those economic activities carried on for the removal of difficulties of persons, (Trade) places (transport), risk of loss (Insurance) and time (ware housing) in the Exchange (banking and finance) of commodities."  

1.5 **Importance of the Study**

Various studies have shown the utility of programmed Learning in teaching. The effectiveness of programmed technique, in terms of pupils achievement and its efficiency in terms of time taken to learn a particular topics has been proved better by studies in India as well as abroad.

7. Organisation of Commerce Std. XI, Gujarat State Board of School Text-books, Old Assembly Bldg. Sector 17, Gandhinagar, p.5

8. Ibid, p. 6
The present study deals with not only the effectiveness of programmed learning but also relationship between the types of programmed learning and certain variables. The investigator has used the Experimental method for the study so as to focus its implications in the field of Education.

1.6 Objectives of the Study:

Objectives of this study are as follows:

1. To develop Programmed Learning Material in 'commerce' for higher secondary students of std. XI.

2. To compare the achievement in commerce of students learning through linear and Branching programmed learning material.

3. To study the achievement of learners through linear and branching programme controlling Psycho-Socio factors as mentioned below:
   (1) Personality traits such as:
       (a) Emotional stability
       (b) Suggestibility
       (c) Radicalism
       (d) Self-dependency
(ii) Adjustment such as;
(a) Social
(b) Vocational
(c) Educational
(d) Familiar
(e) Personal

(iii) Social Maturity
(iv) Socio-Economic status
(v) General ability

4. To compare the achievement in commerce of boys and girls through types of programmed learning.

1.7 Limitations of the Study:

The present study has the following limitations:

1. It is confined to commerce for Std. XI.
2. The Experiment has been performed on nine higher secondary schools selected on the basis of being in urban and rural areas, mixed schools and the strength of the higher secondary schools.
3. The higher secondary schools belonged to Kaira district.
4. Of some certain variables, the consideration given in the present study is limited to:
(a) Personality traits such as:
   (i) Emotional stability
   (ii) Suggestibility
   (iii) Radicalism
   (iv) Self dependency

(b) Adjustment such as:
   (i) Social
   (ii) Vocational
   (iii) Educational
   (iv) Familiar
   (v) Personal

(c) Social Maturity
(d) Socio-Economic status
(e) General ability

1.8 Conclusion:

The present chapter has discussed the significance of the Programmed Learning Material in the present context. It also discussed the important terms, topics comprised in the title of the problem. The objectives and limitations of the study are presented to make the following treatment of the study to be viewed in a proper perspective.