CHAPTER - 3

RESEARCH METHODOLOGY

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3.1 INTRODUCTION

This chapter deals with the method employed to achieve the objectives of the study. In this study, the steps involved were the selection of sample, preparation of the study material, learning strategy and treatment to study the effect of Programmed learning strategy. Pre – test and post – test was given before and after the treatment.

3.2 SAMPLE

The research work can not be undertaken without the use of sampling. W.G.Cocharn defined the term sampling "In every branch of science we take the resource to study more than a fragment of the phenomenon that might advanced our knowledge."

The subjects of the study were the student of class VI of Demonstration school, Bhopal. Sampling technique adopted was purposive sampling.

There were 40 students in each section. They were matched by pairing in terms of their pre – test score. Finally 26 students for experimental and 2 for control group were selected but one was absent during experiment so there were 25 students were left in control group.

Table:-1 Details of sample

Groups	Boys	Girls	Total
Experimental Group	12	14	26
Control group	13	12	25

3.3 RESEARCH TOOLS

In this study the pre – test post – test equivalent group design was used to evaluate the effect of programmed learning strategy in mathematics on achievement with respect to conventional method of teaching. The criterion of the programmed learning material is the pupil knowledge and understanding which is measured by self learning testing programme. For this purpose investigator employed pre – test, post – test and programmed learning unit, which were constructed for fulfilling the objectives of the study.

For fulfilling the nature and requirement of the study following tests and self learning material were constructed

- Pre – test
- Programmed learning unit
- Post – test

3.3.1 Construction of pre – test

Before starting the treatment for the experimental group pre – test was administered to both experimental and control group. The test consists of true and false statements, multiple choice question, fill in the blanks and match the column.

3.3.2 Development of programmed learning unit

The process of developing a programme is highly dynamic, challenging and time consuming exercise. In writing a programme the programmer must be skill full and pragmatic. The content structure must be linked with the terminal behaviour.

Programme writing has four major stages

(a) Selection of the unit
(b) Developing the unit
(c) Trying out the unit
(d) Development of the final unit

(a) Selection of the unit

There are several essential factors involved in this step. A unit namely "Integers" in mathematics from the syllabus for class VI of Central board of secondary education was selected. This is an interesting unit as it provides a general idea of how four operations namely addition, subtraction,

multiplication and division can be used. Since the student have already learned the integers, the unit was prepared assuming that the student have clear knowledge of integers.

(b) Developing the unit

The unit thus selected was then developed on the line of programmed learning approach. The objectives of study were defined in behavioural term. Then subject matter was presented in frames. A frame is a small segment of subject matter which calls for particular students responses. Care was taken to see the proper sequence was followed i.e. student must learn gradually from simple to that which is more complicated.

The whole unit was divided in to four programme. Each programme contains the knowledge in the form of frames followed by few questions. Questions selected were directly related with the content material.

The subject matter expert has checked the technical accuracy of the information presented in each frame and made sure that the statements of laws, facts, concept and definition were acceptable.

(c) Try out of unit

The programme was tested for validity in two different phases. The first phase was individual try out and then tried out on a small group of 10 average students for whom the programme is written.

(d) Development of final unit

After the try out, some minor mistakes were found, these mistakes were rectified. The unit was shown to some teacher after examining it they found it to be quite satisfactory and interesting, thus modified and final unit was prepared.

3.3.3 Development of evaluation unit

After the transaction of the unit the achievement test was again administered as the post – test to both experimental and control groups.

The purpose of the post test was

- To know weather there is significant difference between programmed learning method and conventional method.

- To know there is a significant difference between performance of boys and girls of experimental group and control group separately.

The questions in post test were directly related to the final unit they have covered during the experimentation. On the whole this test was based on the specification of the objectives of the programme.

3.4 ADMINISTRATION OF THE RESEARCH TOOLS

Firstly the pre – test was conducted in order to record the achievement level of the students in both the sections of VI class. Before administrating the test students were told that the result will not have any effect on their school marks. Clear instructions were given regarding the test.

On the basis of achievement in pre – test two homogeneous groups were made. 26 students group was selected for experimental group and taught by programmed learning method and 26 students group was selected for the conventional method and was named as controlled group but one student was absent during the experiment so 25 students left in controlled group. Both the group was matched as far as possible in all the respect such as average, age, achievement level and sex.

Table:-2 Sample Distribution

Place of study- Demonstration school, Bhopal

Total no of students- 51

Section-A Experimental group	Section-B Control group
Boys 12 Girls 14	Boys 13 Girls 12

Now section "A" was given finally prepared programmed learning unit. In one day one teaching point or programme was completed thus it took four days to complete the whole units, this was followed by the post – test or

evaluation of work done for the last four days. The achievement was recorded.

In the same way the unit prepared on traditional method was taught to section "B" by expository method. Here also each teaching point was taught in one day thus it also took four days to complete the units. This was also followed by the same post test.