

CHAPATER – 3

DESIGN OF THE STUDY



CHAPATER – 3

DESIGN OF THE STUDY

3.0 INTRODUCTION:

“Research design is the plan, structure and strategy of the investigation conceived so as to obtain answers to research questions and to control variance”. – F.N. Kerlinger.

This chapter is dealt with the details of the research design used in this study, sample and tool etc.

3.1 RESEARCH DESIGN:

Students’ understanding about the concepts of the Moon and the Sun were studied. Students’ responses were analyzed to study the levels of understanding and misconceptions about these two concepts.

The design of the present study was experimental, in which pre-test and post-test design was adopted. Intervention, in between, was given to study whether misconceptions can be modified or not.

Table: 3.1 Research Design

Entering behaviour	Pre-Test
Treatment	Intervention
Terminal behaviour	Post-Test



3.2 SAMPLE OF THE STUDY:

The present study was planned to investigate the concept of the Moon and the Sun of students studying in class IV, V and VI. Eighteen students from Demonstration Multipurpose School, Bhopal were selected for the study i.e. six students from each class in which three girls from each class were selected.

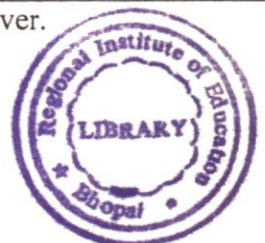
The main criteria of selecting the sample was that the student was ready to participate in the research study. Further, achievement, gender and verbal ability of students was also taken into consideration. From each class two high achievers, two average achievers and two low achievers were selected, hence the sample was purposive.

Since the students selected for the study were not only high achievers, it can be said that sample was representative of a heterogeneous population.

Table: 3.2: Sample of the Study:

Class	Boys				Girls				Total
	LA	AA	HA	total	LA	AA	HA	Total	
IV	1	1	1	3	1	1	1	3	6
V	1	1	1	3	1	1	1	3	6
VI	1	1	1	3	1	1	1	3	6
Grand Total									18

LA = Low Achiever, AA = Average Achiever, HA = High Achiever.



3.3 TECHNIQUE USED IN THE RESEARCH:

Interview technique was used by the researcher to collect data through direct verbal interaction between individuals and the researcher. There was high response rate. Misunderstandings of subjects could be removed and also handwriting difficulties of class IV and V students could be avoided.

3.4 TOOL OF THE STUDY:

Keeping in view the objectives of the study, "Interview Schedule" was prepared by the researcher. For preparing the tool following steps were followed by the investigator:

Step – I : NCERT books of EVS/Science were studied to find out what content has been prescribed related to the concept of the Moon and the Sun.

Step- II: Eight students studying in different classes were asked to formulate questions related to the Moon and the Sun.

Step – III: Keeping in view the content prescribed in the books and the questions raised by the students an "Interview Schedule" was prepared. In the initial formats there were 43 items.

Step – IV: This interview schedule was discussed with the three subject experts. Out of 43 items in the final form 31 items were retained.



3.5 DATA COLLECTION:

Since the study was experimental, following steps were followed for collecting the data –

3.5.1 Pre-Testing:

The data was collected by interviewing individual using the structured interview schedule. The medium of the interview was Hindi, the mother tongue of the subjects but some English terms were also used for better understanding. Small interval, in between, was also given for relaxation.

Students responses were recorded on response sheet by the investigator and audio recorder was also used to record the responses. This was done to make a comprehensive study of the responses. These responses were transcribed and analysed to study the level of understanding and misconception in the sample under study.

3.5.2 Instructional Strategies as mode of intervention:

Keeping in view of responses of the students, different activities, demonstrations and explanation were planned to develop better understanding and to modify misconception related to the concepts under study. The Instruction was given in the resource room of Geography.



3.5.3 Post-Test:

After intervention, the post-test was conducted by using the same tool. Later, the responses of post-test were also transcribed and then analysed.

3.6 SCORING PROCEDURE:

For scoring purpose, "Interview Schedule" was divided into four sections -

Section – 1: Question for warming up the students i.e. item No.1 and 2.

Section – 2: Questions based on knowledge of concepts i.e. item No. 4,8,9, 14,19,20, 21, 23 and 28.

Section – 3: Question based on understanding of concept i.e. item No. 3,6, 7,10,15,17,26,29 and 30.

Section – 4: Question based on reflective (creative) thinking of concept i.e. item No. 5,11,12,13,16,18,22,24,25,27 and 31. (See Appendix 1)

Items of first section were not used for analysis purpose. Remaining three sections were analyzed and scored according to the level of understanding suggested by William and Mark (1998). Originally they suggested five levels of understanding but for present study the investigator reduced them into three levels viz., right response, wrong response and no response.



- A) **Right Response:** Responses showing all elements of validated response for that particular statement or scientifically consistent response, i.e. sound understanding level of William and Mark.
- B) **Wrong Response:** Responses which are scientifically inconsistent are placed into this level.
- C) **No Response:** The no response was characterized when student simply restated the question or replied “I do not know”.

For studying the misconceptions the “wrong responses” were further divided into three levels:

- i) **Partial understanding** – If the student gives at least one but not all the elements of the validated response representing sound understanding of that concept.
- ii) **Partial understanding with misunderstanding** – These type of responses showed some understanding of the concept but also made a statement which demonstrated a misunderstanding of the concept.
- iii) **Complete misunderstanding** – None of the elements of the validated response for sound understanding was demonstrated.



3.7 OBSERVATION DURING THE EXPERIMENT:

Following difficulties had been faced by researcher during the collection of data of present study –

1. Students of class IV took more time during interview than the estimated time.
2. Researcher faced difficulty in taking students of class IV into the subject.

