

CHAPTER - 4

DEVELOPMENT OF INTERVENTION PROGRAMME

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4.0.0 Introduction

The intervention programme was based on ten chapters of 'paryavaran' the text book published by Gujarat Textbook Board for standard IV. The basic purpose of this intervention programme was to bring qualitative improvement in the academic achievement of students. The details regarding the development of intervention programme are discussed in following paragraphs of this chapter.

4.1.0 The Students in the Sample and Their Family background

In any educational research on teaching - learning it is extremely important to study family background. This is because academic performance is a function of school and home environment. Home environment is significantly affected by family background. To study the family background of the students of standard IV. The researcher collected data regarding students' family background through information schedule. (Appendix 4). The schedule covered the following aspects regarding the family background. Such as occupational status and educational qualification of parents, number of sibling and nature of residence. The data was analyzed with the help of percentage. It was found that 66.7% of students' fathers were doing one or other kind of job, while 23.33% were doing business and 10% of students were fatherless. When further investigated regarding the nature of the jobs, performed by students' fathers, it was found that large majority of them were engaged in lowly paid jobs such as scooter mechanic, rickshaw driver, sweeper, ward boy, peon and fourth class employee.

With regard to business they were found engaged in activities like road side hawkers, cycle repair shop, egg seller etc.,

Thus, this clearly shows that majority of the students did not have very good economic background in terms of their fathers' earning. It was found that 93.3% of students' mothers were engaged in full-time household activities, while only 6.67% were doing one or another kind of job. When further probed, it was found that both these women were serving as maid servant.

Thus, this clearly shows that except in case of two students, in all other families, father was the sole earner. This seems to be one of the major factors for their poor academic performance reflected in the pre-test scores. 10 % of students did not have their fathers. 16.66% of students' fathers were having education upto primary level. While 73.33% had education upto secondary level and since majority of them were engaged in one or other type of job it was almost necessary to have this much education for their jobs. Another probable reason could be that though they belong to poor economic background but because they stay in urban area, they were able to get this much education.

Thus, it can be said that although majority of students' fathers are engaged in lowly paid jobs but their educational level was not that low. This could be one of the important factors on their part for sending their children to the school. It can be inferred that 50% of the students' mothers were having education upto secondary level and 33.33% of students' mothers had primary education and 16.66% of students' mothers were illiterate. This shows that though half of the students mothers have secondary level education but the number is lesser than

that of fathers. Similarly percentage of illiterate mothers is also not very small. This finding is in consistency with the figures of women's literacy at national and state level which shows that women are still lagging behind men in matter of literacy.

Thus, on the whole with regard to parental education of students, it can be inferred that the situation in this regard is not as poor as it is in case of their economic background. This could be one of the major factors on their part to send their children for school education. The enrollment of children depends to a great extent on parents' educational level as reflected in findings of studies conducted by Chatterji (1971), Chaudhari (1975), Agarwal (1975), Ojha (1979).

The 70 % of students had three or more then three siblings in their family, while 23.33% had two siblings, 3.33% had one sibling and rest 3.33% had no sibling. That majority of students had large size of family. It becomes crystal clear that their economic background is poor as their parents were employed in lowly paid jobs.

Thus, the poor economic background along with large size of family affected the amount of educational facilities which they could get at their homes.

53.33% of the students were staying in rented houses and 46.67 % were staying in their own houses. This shows that majority of students were staying in rented houses. It might be due to their poor economic background. The gap between those who have their own houses and those who don't have their houses is not very large.

Thus, from the analysis of the data collected it clearly emerges that the students had lower economic background. At the same time, it was found that parental educational status was not very low. This has led them to send their pupils for school education but because of their lower economic position they had some distinct disadvantages for getting proper educational facilities.

4.2.0 Academic Achievement of the Students on Pre-test

The researcher had administered the pre tests for all the seven units on the sample of thirty students. These tests were of three types written, oral and activity. They were administered along with one comprehensive test comprising of oral written and activity related items and covering all the seven units. The detailed score sheet is attached in the Appendix No. 5.

Table 4.1 Mean Pre-test and Post test Scores for Seven Units on Three Types of Tests.

Serial Number	Unit Number.	Mean written 1	Mean Oral 1	Mean activity 1
1	I	4.35	1.7	22.8
2	II	3.43	0.8	17.23
3	III	12.07	0.9	1.2
4	IV	4.32	0.2	5.62
5	V	11.7	2.83	13.93
6	VI	6.8	2.10	7.07
7	VII	6.53	1.57	10.43
8	comprehensive	8.53	1.83	6.15

From the above table, it can be interpreted that with regard to written test mean scores for all the seven units, the lowest performance of students was in case of unit no. II viz. Plants and animals. When further probed, the students revealed that they got confused between plant and animal products. While in case of oral

test, the poorest performance was there in case of unit no. 4, i.e. Soil. When further probed, it was found that vital concepts in this chapter like erosion of soil, and fertility of soil were taught orally by the subject teacher, which the students were not in a position to comprehend. Whereas in case of activity test, the lowest mean score was found in unit three Earth and sky. It was observed by the researcher that the students were not able to draw the specified objects such as sun, moon, saturn, satellite etc., as their teacher had taught them orally.

Looking at the overall performance of the students in case of all the three kinds of test, the data presented in the table clearly indicates that on the whole, students performed best in case of activity test, followed by written and finally oral test. The reason for the oral test results could be lesser interaction between students and teacher during classroom instructional process and for written test students were more acquainted with it. It was activity test, which was enjoyed by them as it provided scope for creativity, and independent work. Activities of different types aroused their interest. These findings supported the researcher's hunch that the activity oriented teaching learning results into better performance. Therefore while developing the intervention programme utmost care was taken to incorporate as many activities as possible.

Thus, from the family background and the Pre test scores of the students it was decided to develop the intervention programme for the students belonging to the aforesaid type of group.

4.3.0 Content

The investigator, after intensive discussions with the students and subject teachers selected ten chapters. These ten chapters were selected on the basis of their importance in the entire textbook and their linkage with upper primary classes and difficulties faced in understanding as well as teaching. (Lalitha in her study on empowerment of primary school teachers has also found the hardspots in environmental studies in Mysore in the year 1997. They are plant parts, earth sun relationship, day and night occurrence, occurrence of seasons, usefulness of air, usefulness of water and how air and water gets polluted). Moreover, these were the chapters in which students had a high level of curiosity to know more and more, regarding the happenings which takes place around them everyday - in and out. The teachers felt, that it was not possible for them to give proper justice to their inquiries within given school schedule due to paucity of all types of resources. Further, the investigator found that teachers themselves were not fully equipped with the necessary resources like teaching aids, additional reference material for the subject. They neither had motivation nor sufficient time in order to conceive and implement innovative projects or practises.

Keeping in mind all these factors, the investigator decided to develop the intervention programme for the ten chapters, viz., The Living world, Plants and animals, Earth and sky, Our directions, Moon view, Weather, Soil, Our food, Forms of matter and Forms of water.

These chapters on the basis of their content were rearranged and categorised into seven units.

Unit I	* Living-Nonliving
Unit II	* Plants and Animals
Unit III	* Earth and Sky.
Unit IV	* Soil
Unit V	* Weather
Unit VI	* Our Food
Unit VII	* Matter.

These seven units were related to students' environment. The first unit had some basic concepts to deal with, living and nonliving things around the students were mentioned. The second unit dealt with the harmful and useful plants and animals. It also discussed different products available from plants and animals directly and indirectly as well as how to take care of plants and animals. Conservation of forest was also covered. The third unit described Earth and Sky, the different celestial bodies in the sky like planets, comets, galaxies, polestar, meteors and satellites. Both satellites were covered - natural and artificial. The fourth unit was soil which had a direct link with Earth, wherein the different crops grown in different kinds of soil were discussed along with conservation and preservation of soil. The fifth unit covered weather and seasons like winter, summer, monsoon, and their characteristic features. It also emphasised on precautions to be taken in three seasons. The sixth unit namely Our Food dealt with different types of food to be taken in different seasons, factors polluting food and water, the diseases caused by polluted food and water and necessary precaution to be taken. The seventh unit dealt with three

different forms of matters that is solid, liquid and gaseous. It also discussed forms of water in solid, liquid and gaseous state.

As it has been mentioned in the previous paragraph by the investigator, students had higher level of curiosity for the content covered in these chapters. Investigator, while developing the intervention programme decided to achieve the instructional objectives not only related to cognitive abilities but also related to metacognitive abilities, psychomotor skills and aspects related to affective domains.

Thus, the investigator concentrated not only on the lower level cognitive objectives like recall and recognition, understanding and application, but also on metacognitive abilities such as creativity, critical thinking, thinking to think, aspects related to affective domain such as interest, motivation, sharing of feelings, co-operation, tolerance, etc., It was also decided to involve students into different activities during instructional process, in order to develop some psychomotor skills.

4.4.0 Logical Sequencing of Sub Units

All the seven units were reorganised in such a way that it would facilitate the learners to understand and comprehend the content easily. (This organisation was based on principles of psychology that is from simple to complex and from concrete to abstract).

Further, each unit was divided into number of sub units. While doing this, it was kept in mind to maintain logical sequence with in each unit. Since the investigator had a wide range of instructional objectives, in order to achieve them

effectively, investigator had supplemented textbook content with information collected from other sources, wherever it was necessary.

Table 4.2 Units and Sub Units Covered in the Intervention Programme.

No.	Unit	Sub unit
1.	Living and Nonliving	Living Things
		Characteristic features of living things.
		Characteristic features of non living
		Difference between living and non living things.
2.	Plants and Animals	Importance of Plants
		Uses of Plants
		Harmful plants
		Preservation and conservation of animals.
		Animal and Plant care.
3.	Earth and sky	Various planets and sun
		Earth
		Moon and different shapes of moon
		Pole star
		Meteors
		Constellation
		Satellite
4.	Weather	Winter
		Characteristic of Winter season.
		Summer
		Characteristic of summer season
		Monsoon
		Characteristic of Monsoon Season
		Rain falls
Precaution to be taken in various seasons.		
5.	Soil	Importance of soil
		Different components of soil
		Different types of soil
		Different type of crops in different type of soil.
		Soil erosion
		Conservation and preservation of soil
	Our Food	Different types of food

		Components of food
		Balanced diet
		Food according to season
		Food and water pollution
		Diseases resulting from polluted food and water.
		Prevention of Diseases.
7.	Matter	Matter
		Types of matter
		Solid
		Liquid
		Gaseous
		Forms of water.

Thus, sub units in every unit were reorganised.

4.5.0 Selecting Appropriate Methods and Medias for Classroom Transaction of the Selected Content

After sequencing the different sub units in a logical sequence, investigator decided to select different methods and media's for transaction of all the units. In order to make the whole process of selection scientific, the methods and media's were selected on the basis of certain criteria's such as:

- a. Nature of content to be transacted.
- b. Instructional objectives to be achieved.
- c. Feasibility of using various methods and media's.
- d. Availability of various resources to use different methods and media's.
- e. Appropriateness of methods and media's for particular unit.

Table 4.3 Units Methods and Media

Sr.No.	Units	Method	Media
1.	Living and Non livings	Lecture and Demonstration	Pictures
2.	Plants and Animals	Story Telling	Flash Card
		Role Play	Chart
		Lecture	Model
		Dramatisation	Pictures
3.	Earth and Sky	Lecture	Tape recorder
		Demonstration	Chart
		Play way	Model
			Pictures
4.	Soil	Lecture	Pictures
		Demonstration	Chart
		Story telling	
5.	Weather	Lecture	Puppets
			Charts
6.	Our Food	Lecture	Video Cassette
			Puppets
			Flash cards
			Charts and Transparencies
7.	Matter	Lecture	Appratus
		Demonstration	

4.6.0 Validation of Text

The researcher in order to achieve the objective of improvement in quality of instructional process had developed the intervention programme for seven units spread over ten chapters. After preparing the first draft, it was given to five experts in the field. The experts were requested to give their opinion and suggestions regarding the programme developed in terms of comprehensive coverage of content, logical sequencing of units and sub units, appropriateness of methods and media's etc., After receiving their suggestions,

suitable modifications were done and the revised version of the programme was implemented in the pilot study.

4.7.0 Pilot Study

The investigator in order to conduct a pilot study, selected one Gujarati medium primary school having maximum number of students belonging to lower socio economic strata. In this school, standard IV had forty students belonging to lower socio-economic strata. The study was conducted for two months continuously, wherein all the seven units were taught with the help of different methods and media. After teaching was completed for all the units, opinion of teachers and students was collected and on the basis of that, some more modifications were done and thus final text was evolved. The pilot study brought forward a few issues.

1. The activity set in the pilot study were for four pupils to function at a time, which was found inadequate, so the number of sets were increased.
2. The instructional process did not pose any significant problem for students as well as the researcher.
3. Later on when the post tests were given (which were identical to pre-tests) the motivation was found less, for which an incentive was announced like if one would score high in the test or will show better achievement over the previous test by more than double, would get a prize. This also had a mixed reaction: who will write to get a pen or pencil or eraser, or a cut out of a tree, whereas some children had a good feeling about it, that teacher has recognised their potential

in the classroom. The pencil was not the source of motivation but the recognition by the teacher which was much more important for the students. The pilot study results showed significant improvement in pupils achievement. After modifying the intervention programme the final intervention programme was implemented.

4.8.0 Implementation of Programme for Final Phase

As it has been reported earlier in this chapter, the final text of intervention programme was evolved through a systematic process. It was implemented in a Gujarati medium school, viz. Sharda Mandir having maximum number of students from lower socio economic strata. The school where the pilot study was conducted was selected for final phase of study.

The final phase of study went on for two and a half month during which eighty two classes of half an hour each were utilised. As mentioned earlier, different methods and media's were used in order to achieve the predecided set of instructional objectives.

In order to measure the extent to which these objectives were achieved, the achievement tests were utilised. As mentioned earlier different methods and media's were used in order to achieve the pre decided set of instructional objectives. In order to measure the extent to which these objectives were achieved, the achievement tests were constructed by the investigator. They were administered on students after completion of each unit. Not only this but after completion of all the units, one comprehensive test was administered. The Detailed intervention programme is presented in Appendix No. 1

The scores thus obtained by the students on all these tests were analysed with the help of appropriate statistical techniques. The opinion of teachers and students were analysed quantitatively and qualitatively. The analysis and interpretation of the data has been presented in next chapter.