

## CHAPTER V

## SUMMARY

## V.1 INTRODUCTION

The present study which is entitled as, 'An Investigation into the Questioning Patterns of the Social Studies and Science Teachers in the English Medium Schools' is an attempt to study the questioning behaviour of social studies and science teachers in English medium secondary and higher secondary schools of three major cities of Gujarat, viz., Ahmedabad, Baroda and Rajkot. All the teachers of social studies and science in the above mentioned schools have been observed through the modified version of Flanders Interaction Analysis Category System. Their teaching was observed in the real classroom settings. Then, the questioning behaviour has been studied in the context of teaching and in relation to certain variables which were thought to be associated with the questioning behaviour, viz., subjects, training and experience. The extent to which different kinds of questions are used in the classroom was also studied alongwith the preceding and succeeding events of different kinds of questions.

## V.2 RATIONALE OF THE STUDY

At present one of the burning problems is the inefficient organization of instructional situations to attain the educational

objectives. It indicates the inefficiency of instructional process which is one of the most important aspects of education. Any attempt at revitalizing the instructional process, will necessitated more dynamic and scientific methods of teaching to be followed. The problem can be solved only when some effective methods of teaching are identified through well designed research in teaching and steps are taken to disseminate and implement them. In this regard, work has already been started in India during the last decade and its importance has been recognized. The efforts have been made to improve the classroom teaching behaviour of teachers through research, considering it as one of the important areas. The research work completed in the area of teaching and teacher behaviour attempts to analyze and modify the classroom interaction in order to improve the instructional process.

The interaction which goes on in an instructional situation in a classroom is both verbal and nonverbal in nature. However, it is mostly verbal interaction that accounts for the major part of time spent in the instructional process. A careful analysis of any classroom instructional situation would obviously reveal that questioning is the most important aspect of verbal interaction as it provides directions to the instructional process and also guarantees overt involvement of the pupils in the teaching-learning process.

Through the teacher training programme, if teachers could be trained in the taxonomy of questions, then a teacher who has mastered the taxonomy of questions, can use it in a number of ways to improve the intellectual climate of his classroom. It offers a means for him to provide different kinds of intellectual experiences to the students as different kinds of questions require different kinds of intellectual process in order to be answered.

Questioning is used in the classroom to serve several purposes, viz., to motivate, to assess, to review, to summarize and to clarify. Also, it provides the teacher with a feedback as to the level of the students' understanding. In addition, teacher questions should attempt to stimulate and develop higher level of thinking. If one considers educational objectives particularly in the cognitive domain, viz., knowledge, comprehension, application, analysis, synthesis and evaluation which are to be achieved, there, questioning could be one of the most effective ways to achieve them. If the teacher prepares or designs questions corresponding to above mentioned objectives and utilises them in appropriate situations these objectives can be achieved. Researches have shown that different abilities can be developed and different objectives can be achieved by using different kinds of questions. Francis (1968) discovered that analysis and evaluation types of questions influenced pupils' achievement significantly. In the year 1970, he again found

that analysis and evaluation types of questions could develop the ability of critical thinking in VII grade pupils. Sharma (1972) found that broad questions are more effective in attaining comprehension objectives when compared to the narrow type of questions. Roy (1976) found that lecturing, questioning-response and questioning-response-feedback have equal effect on development of knowledge, application and on total achievement of pupils. But, in case of comprehension, lecturing style differed significantly from questioning-response-feedback and gains were in favour of questioning-response-feedback. Narlino (1976) found a significant gain in the development of student understanding of key biological concepts. It was found to depend on the level of questioning used in the classroom. Smith's (1975) results indicated that taxonomy groups who used higher level questions gained higher than two recall groups. He suggested that higher level questioning technique should be utilized. Tubb (1975) discovered that the students trained in problem-solving approach took significantly less time to solve the problems during their second trial than did other students.

From the above discussion, it is evident that different objectives can be achieved through the proper utilization of different kinds of questions. So, the question arises whether the teachers are utilizing different kinds of questions or

not and to what extent ? Another aspect is to understand and improve the questioning behaviour, and to study the factors which may be associated with the questioning behaviour. Though, it may be difficult to state here which factors would be associated with the questioning behaviour, but, some of the factors which can influence the questioning behaviour may be subjects, professional qualifications, and experience of the teachers. In the present study, which is entitled as, 'An Investigation into the Questioning Patterns of Social Studies and Science Teachers in the English and Medium Schools' an attempt has been made to study, (i) the kinds of questions being used in the classrooms, (ii) the questioning in the context of other teaching behaviours, (iii) the association of questioning with certain other variables like subjects, professional qualification and teaching experience, (iv) the preceding and succeeding events of the different kinds of questions, and (v) the relationship of different kinds of questions with students' response and initiation.

### V.3 OBJECTIVES OF THE STUDY

The objectives of the study were :

1. To identify the classroom questioning behaviour of social studies and science teachers in the three major cities of Gujarat, viz., Ahmedabad, Baroda and Rajkot and to study it in the context of other teaching behaviours.
2. To study the questioning behaviour of social studies and science teachers.

3. To study the questioning behaviour of trained and untrained teachers.
4. To study the questioning behaviour of the teachers having experience upto 5 years and the teachers having experience above 10 years.
5. To study the preceding and succeeding events of the different kinds of questions of different groups.

#### V.4 HYPOTHESES

1. There is no significant difference in the questioning behaviour of social studies and science teachers.
2. The trained teachers will use questioning to a significantly greater extent than untrained teachers.
3. There is no significant difference in the questioning behaviour of the teachers having experience upto 5 years and the teachers having experience above 10 years.

#### V.5 METHODOLOGY

##### V.5.1 Sample

The investigator observed 205 teachers in 35 English medium high and higher secondary schools of Ahmedabad, Baroda and Rajkot. Out of these 205 teachers, 99 taught science and 106 taught social studies. It includes all the teachers of social studies and science in the above mentioned schools, who taught from VII class to XII class. In order to indentify the classroom questioning behaviour of social studies and science teachers and to study it in the context of teaching, entire population was taken into consideration.

From the above population different purposive samples were drawn in order to test the different hypotheses. A sample of 149 teachers was drawn to study the questioning behaviour of social studies and science teachers. To study the questioning behaviour of trained and untrained teachers a sample of 96 teachers was drawn. A sample of 82 teachers was drawn to study the questioning behaviour of the teachers having experience upto 5 years and the teachers having experience above 10 years. It is worth mentioning here that after drawing a particular sample, the teachers were replaced and then only the subsequent sample was drawn.

#### V.5.2 Data Collection

The data were collected with a modified version of Flanders Interaction Analysis Category System (FIACS) after checking it for its reliability. The investigator observed the classroom interaction of 205 teachers in the real classroom settings. Each teacher was observed twice for full periods. The duration of periods was about 30 minutes. The interaction was recorded in the form of code numbers.

#### V.5.3 Tabulation of Data

The series of code numbers of classroom observations were transformed into (12 X 12) matrix. It was done for all the 205 teachers. Adding all the 205 matrices cell by cell a master matrix representative of all the 205 teachers was prepared. In the same way master matrices were prepared for different groups, viz.,

social studies teachers, science teachers, trained teachers, untrained teachers, teachers having experience upto 5 years, and the teachers having experience above 10 years.

#### V.5.4 Analysis of Data

In order to identify the classroom questioning behaviour of the teachers and to study it in the context of other teaching behaviours the following operations were carried out with the help of Master Matrix :

- (i) Percentage of questioning from the verbal classroom interaction.
- (ii) Percentage of questioning from the teacher talk.
- (iii) Teacher Question Ratio ( T.Q.R. ).
- (iv) Percentage of different kinds of questions from the teacher talk.
- (v) Percentage of different kinds of questions from the total of questioning alone.
- (vi) Percentages of different kinds of questions followed by response and silence.
- (vii) Percentage of the extension of different kinds of questions.

In order to test the different hypotheses the totals of questioning categories in the master matrices of different groups were taken into consideration. To test the significance of difference between the respective groups under a hypothesis the chi-square test was employed.



To study the magnitude of different kinds of questions from the total questioning the percentages were calculated for each type of question for different groups.

To study the preceding and succeeding events of different kinds of questions, the observations in the different master matrices for the columns and rows of different kinds of questions were converted into percentages.

#### V.6 MAJOR FINDINGS

The present study reveals that :

1. The teacher dominates the classroom interaction and about 71.37 per cent of the total time is used by the teacher. Of this teacher talk questioning forms only 6.09 per cent.
2. The teacher question ratio is found to be 6.69.
3. The different kinds of questions, viz., memory, translation, interpretation, application, higher order and routine contribute only 4.60, 0.34, 0.72, 0.16, 0.61 and 0.26 per cent respectively towards the teacher talk.
3. The extension of questions gets increased with the increase in the level or complexity of questions.
4. The possibility of a question to be followed by response gets decreased with an increase in the level or complexity of questions.
5. The time required to think in order to respond a question gets increased with the increase in the level or complexity of questions.

7. The questioning behaviour of social studies and science teachers differs significantly. The science teachers used total questioning, and translation, interpretation, application and higher order questions to a greater extent and memory and routine type of questions to a lesser extent than social studies teachers.
8. The questioning behaviour of trained and untrained teachers differs significantly. The trained teachers used total questioning and different kinds of questions to a greater extent.
9. The questioning behaviour of the teachers having experience upto 5 years and the teachers having experience above 10 years differs significantly. The teachers having experience above 10 years used total questioning and different kinds of questions to a greater extent.
10. The extent of memory, translation, interpretation, application, higher order and routine type of questions of social studies teachers in the total questioning was found to be 76.636 per cent, 5.559 per cent, 10.307 per cent, 2.548 per cent, 0.00 per cent and 4.951 per cent respectively.
11. The extent of memory, translation, interpretation application, higher order and routine type of questions of science teachers in the total questioning was found to be 72.894 per cent, 6.366 per cent, 12.90 per cent, 4.17 per cent, 0.445 per cent, and 3.225 per cent respectively.
12. The extent of memory, translation, interpretation, application, higher order and routine type of questions of trained teachers was found to be 78.118 per cent, 5.418 per cent, 1.206 per cent, 2.268 per cent, 0.042 per cent, and 3.948 per cent respectively.

13. The extent of memory, translation interpretation, application, higher order and routine type of questions of untrained teachers in the total questioning was found to be 79.448 per cent, 6.107 per cent, 10.746 per cent, 0.352 per cent, 0.058 per cent, and 3.288 per cent respectively.
14. The extent of memory, translation, interpretation, application, higher order and routine type of questions of the teachers having experience upto 5 years in the total questioning was found to be 78.743 per cent, 6.12 per cent, 10.984 per cent, 1.311 per cent, 0.164 per cent respectively.
15. The extent of memory, translation, interpretation, application, higher order and routine type of questions of the teachers having experience above 10 years in the total questioning was found to be 69.573 per cent, 5.419 per cent, 15.906 per cent, 5.068 per cent, 0.468 per cent, and 3.626 per cent respectively.
16. Different kinds of questions succeeded mostly lecturing, students' response and motivational behaviour. The questions were also used after giving pauses. The behaviour generated by questioning to the greatest extent was found to be the students' response. The questions also made students think about the solutions of the problems and the correctness of the responses.
17. The questions of the science teachers, trained teachers and the teachers having experience above 10 years in certain situations could generate students initiative too.
18. Different kinds of questions bear relationship with students' response and initiation. The increase in the use of questioning increases the students' response and initiative.

## V.7 CONCLUSION

From the earlier results, it can be said in brief that in the classroom, teacher dominates the classroom interaction. Out of the teacher talk questioning is used to a very small extent. The results indicate, that, whatever time is devoted for questioning, the memory questions form the major part of it. Out of the total time devoted for questioning 76 per cent is devoted for memory type of questions. The application questions were used to a very small extent and the higher order questions were completely avoided by the teachers. The results also indicate, that, the possibility of questions being followed by response is decreased when the level or complexity of questions is raised. The extension of questions and the possibility of being followed by silence gets increased with an increase in the level or complexity of questions. When different groups of teachers were compared, it was found that social studies and science teachers, trained and untrained teachers, and the teachers having experience upto 5 years and the teachers having experience above 10 years differed significantly. The science teachers, trained teachers and the teachers having experience above 10 years used total questioning, interpretation questions, application questions and higher order questions to greater extent than their counterparts. They also have a tendency to use memory questions to a smaller extent than their counterparts. In addition to this it was found that different kinds of questions succeeded mostly lecturing, students' response, motivational behaviour and silence. The behaviour generated by questioning to the greatest extent was found to be students' response. The questions made students think and generated to some extent motivational behaviour too. The questions of the science teachers, trained teachers and the teachers having experience above 10 years generated students' initiation also. It is also revealed that increase in the use of questioning increases students' response and initiation. The educational implications of these results are discussed in the subsequent section.

## V.8 EDUCATIONAL IMPLICATIONS

It is perhaps trustworthy to say that the business of education is carried out mainly through the process of teaching. Any meaningful piece of research in the area of teaching and teacher behaviour should, therefore, be expected to have some educational implications. The present study has its implications for the teachers, administrators, teacher educators and researchers in the area of teaching.

The primary responsibility of the classroom teacher is to guide learning activities of children. Through these activities the teacher aims at developing certain abilities in the children like knowledge, comprehension, application and the like. Questioning is one of the important activities to develop these abilities. The present study provides an analytical picture of their questioning behaviour which indicates that memory questions are being over emphasized which only require to recall the earlier imparted information and other categories like application and higher order are neglected. It means only knowledge is being provided in the class-rooms and the abilities like comprehension, application and other higher abilities are neglected. Therefore, it provides them the guidelines to improve their questioning behaviour and to have further insight into the teaching-learning process. It should aim at developing above mentioned abilities. In fact, no nation can

prosper unless its citizens, by and large, are educated in the manner that they are in a position to apply the required knowledge to the solution of practical problems. In achieving this objective teachers can make use of questioning in a properly planned manner.

Teacher education programmes in this country are in a process of change. This study indicates that training has an impact on the questioning behaviour of teachers. But, along with this, it indicates that most of the teachers devote maximum percentage of time (75 per cent) for memory questions. It is a kind of challenge for teacher educators. The study suggests that the teacher training programmes particularly with regard to development of questioning behaviour in the teacher trainees should be reviewed; efforts should be made to develop the ability of using application and higher order questions.

If one thinks of modifying the questioning behaviour of teachers, the factors associated with the questioning behaviour have to be considered. The present study has urgent implications in this regard as it indicates that the subjects, training, and experience are associated with the questioning behaviour. The knowledge of these factors may facilitate the selection procedures for the administrators as they can consider these factors at the time of recruitment of teachers.

Every research study raises more issues than it proposes to solve. It has been found in this study that efforts made by

the researchers in developing the approaches to improve the questioning behaviour of teachers have failed. Which technique actually contribute to the development of questioning behaviour is a challenging issue which the researchers in this area may concentrate on. Developing and experimenting on a new style of training and putting that to test in the actual training situation is by far the most urgent implication of this study for the researchers in the area.

#### V.9 SUGGESTIONS FOR FURTHER RESEARCH

Some of the suggestions for further research emerging from this study are as under :

- (a) Whether the questioning behaviour of teachers is stable for a long time or it changes as a result of school environment, changing curriculum and accumulated experience.
  - (b) To identify the effective programmes of school-based inservice programme to change the questioning behaviour of teachers.
  - (c) To investigate into the abilities of different kinds of questions for realizing various instructional objectives.
  - (d) To investigate into the variations in the questioning behaviour of teachers which may be due to the content.
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