CHAPTER VI

SUMMARY AND CONCLUSIONS

6.0.0 Introduction

The colossal wastage at the secondary stage year after year is but a lamentable reflection on our methods and mechanics of education. This, therefore, has seized the serious attention of the exponents in the field of education associated particularly with planning, practice, reform and research. It is being increasingly realised that educational research should serve now as a necessary counterbalancing force (Buch and Yadav, 1974). The essential priority should, however, be with the research on teaching effectiveness. This is extremely vital an area because this concerns with the relationship of the characteristics of the teachers, teaching tasks and their educational effects on classroom teaching (Flanders and Simon, 1969). This, therefore be termed as the teaching behaviour. Teaching behaviour, in turn, implicates an understanding of the complex processes of the teaching phenomenon that facilitate learning and leads to desirable

learning outcomes. This vital area has so far been neglected and disappointment overtakes when we learn that in India, out of more than 700 studies abstracted, twenty one only fall in the realm of teaching and teaching behaviour ? (Jangira and Sharma, 1972). However, the researches abroad by Amidon and Simon (1965), Bellack et al. (1940), Biddle and Soar (1964), Fattu (1962), Gage (1965). Howsam (1960), Medley and Mitzel (1967), and Ryans (1963) have provided valuable conclusions to the researchers, (i) even the best teaching may not indicate the theoretical basis for the most effective teaching ; (ii) more powerful statistical methods are required in identifying relationship between teaching behaviour and their effects; (iii) collection of observational data is but the most direct way of learning about teaching, and (iv) a conceptual framework for understanding research findings on teaching is a necessity. These conclusions have, however, given profitable lead to the researchers in the area of teaching skills and teaching effectiveness.

6.1.0 Search for Teaching Strategies

How to develop skills of teaching, has always been a serious concern of the teacher educators. Erstwhile belief has been that by observing and studying the performance of the critic teacher and by practising under his supervision the teacher-in-training would acquire the skill appropriate and adequate for the teaching task.

A major breakthrough in this conventional programme for training of teachers eventuated when teaching behaviour came to be conceived as a complex of skills that could be identified and practised systematically under specific conditions and eventually influence the pupil learning. It should, therefore, be an essential obligation for the researchers to conduct studies to determine the effects of various types of teaching behaviour upon pupils and to establish the skills of higher yield. This needs a systematic and scientific analysis of teaching. Research leaders in the field like Gage (1968b), Mitra (1972), Buch (1972) and others have focussed the attention of educational researchers to this aspect thereby generating a change in this direction of research. If the research on teaching are traced back since 1910 some trends in research would emerge. The earlier researches were presage-product studies and could not produce any consistent result.

There are few, if any, skills of teaching whose superiority can be counted as empirically established. All approaches, except correlational studies, have contributed knowledge of little worth to teacher education. And even correlational studies give only rough approximations to effective teaching behaviours. On realising the importance of the interaction in the classroom the process-product studies are recently emphasised. Most of the studies have dealt with affective or social variables as product.

Gage (1964) noticed this and urged the researches to take up cognitive variables as criterion or product variables. The Centre of Advanced Study in Education, Baroda has located gaps in research in the area of teaching in particular. It has been found that process-product experimental studies with the processes as independent variables, and products as dependent variables demand attention on a priority basis especially in the domain of cognitive learning outcome.

Acccordingly Sharma (1972), Padma (1975), Shaida (1975) and Roy (1976) attempted to identify certain effective patterns or styles of teaching behaviour. Sharma, Shaida and Roy attempted to identify the patterns or styles in terms of knowledge, comprehension and application objectives whereas in the case of Padma it was in the term of application objective only. Sharma (1972) and Shaida (1975) could identify effective patterns for knowledge and comprehension and Roy could do this for comprehension but no effective pattern or style could be differentiated for application objective. Same patterns or styles showed different results in different studies. Some of the patterns of teaching again, did not show effective results, notwithstanding their initial possibilities.

The investigator therefore tried to conduct an experiment based on the concept of Buch (1972) and Mitra (1972) together, and also on the concept of strategy of

teaching as derived from applied art and military science.

6.2.0 Statement of the Problem

The title of the present study reads as:'An Inquiry into Strategies of Classroom Teaching. It is an experimental study conducted in real classroom situation to find out the effects of three strategies of teaching on the development and retention of knowledge, comprehension, application and total achievement of pupils in a given teaching-learning situation. The pupils were of stahdard IX and the content of teaching was selected from geography.

6.3.0 Objectives of the Study

The study was undertaken with two broad objectives as follows :

(1) To find out the effectiveness of Strategy S_1 (Lecturing and Questioning-Answering), Strategy S_2 (Lecturing and Questioning-Answering by using Behavioural Objectives), and Strategy S_3 (Discussion by using Instructional Materials) on the development of knowledge, comprehension, application and total achievement in Geography of pupils of Standard IX, and

(2) to find out the effectiveness of Strategy S_1, Strategy S_2 and Strategy S_3 on the retention of knowledge, comprehension, application and total achievement in Geography of pupils of Standard IX.

6.4.0 Review of Related Literature

The investigator reviewed the related literature on the basis of treatment variables (Lecturing, Questioning and Answering, Behavioural Objectives, Discussion and Instructional Materials) and criterion variables (Knowledge, Comprehension, Application and Total Achievement) that have been taken into account in the present study. By considering the studies undertaken in India and abroad eight null hypotheses were framed.

6.5.0 Hypotheses

The study tested the following null hypotheses :

Hypotheses Related to Post-achievement :

H_1 - There will be no significant difference in the mean scores of the groups taught by using Strategy(S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives and Strategy (S_3) Discussion by using Instructional Materials in terms of pupils' attainment of Instructional Objectives at Knowledge level in Geography for students of Standard IX of the schools of Barrackpore Subdivision (North).

H_2 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives, Strategy (S_3) Discussion by using Instructional Materials in terms of pupils' attainment of Instructional Objectives at Comprehension level.

H_3 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives, Strategy (S_3) Discussion by using Instructional Materials in terms of pupils' attainment of Instructional Objectives at Application level.

H_4 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives, Strategy (S_3) Discussion by using Instructional Materials in terms of pupils' Total Achievement (Knowledge, Comprehension, Application taken together).

Hypotheses Related to Retention Test :

H_5 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives, and Strategy (S_3) Discussion by using Instructional Materials on retention of pupils' attainment of Instructional Objectives at Knowledge level.

H_6 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives and Strategy (S_3) Discussion by using Instructional Materials on retention of pupils' attainment of Instructional Objectives at Comprehension level.

H_7 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives, and Strategy (S_3) Discussion by using Instructional Materials on retention of pupils' attainment at Applicational level.

H_8 - There will be no significant difference in the mean scores of the groups taught by using Strategy (S_1) Lecturing and Questioning-Answering, Strategy (S_2) Lecturing and Questioning-Answering by using Behavioural Objectives, Strategy (S_3) Discussion by using Instructional Materials on retention of pupils' Total Attainment (Knowledge, Comprehension, and Application taken together).

6.6.0 Assumptions

1. There is no carry-over effect in the teacher behaviour from strategy to strategy as teacher is programmed.
2. Knowledge, comprehension and applicational abilities are measurable with different types of tests.
3. Knowledge, comprehension and applicational abilities are common across various units of geography teaching.
4. Different types of objectives are attainable by making proper synthesis of different types of methods.

6.7.0 Sample

The experiment required the sampling of subjects and units. The selection of teacher and pupils are discussed under the term subjects.

Subjects :

Teacher - The experiment required such teachers who would have a good knowledge of the content to teach, who could be programmed and who could decide and change strategies of teaching as required by design. In order to avoid teacher variance, it was decided to involve only one teacher. The investigator could satisfy all the requirements of the study. Therefore, the investigator herself acted as the teacher.

Pupils - Schools with Bengali medium were selected. Selection was made from among the schools which could fulfil the requirements of the design and again, which were willing and cooperative. This was the necessity as the teacher had to teach six lessons in a day in two different schools. The selected schools were :

(1) Annapurna Girls' High School (C_1, C_2, C_3)

(2) Saradadevi Vidyalaya (C_4, C_5, C_6)

Units - The syllabus of Geography of Standard IX contains units from Regional Geography of India. Units selected for teaching were, (i) The Gangetic Plains, (ii) The Brahmaputra Valley and (iii) The Desert Regions of India.

6.8.0 Tools Used

In order to describe the nature of pupils in the sample, Intelligence Test, originally developed by the Psychological Bureau, David Hare Training College and later modified by

Vinaya Bhavana, Visva Bharati, was used and to measure pre-achievement as well as criterion variables the investigator developed two tools for these two stages. The teacher-made tools were developed at two stages - preliminary draft and final draft.

6.9.0 Treatment and Criterion Variables

The three treatments were the three different Strategies of teaching ; Strategy S_1 (Lecturing and Questioning-Answering), Strategy S_2 (Lecturing and Questioning-Answering by using Behavioural Objectives) and the Strategy S_3 (Discussion by using Instructional Materials). The criterion variables considered were knowledge, comprehension, application and total achievement.

6.10.0 Design

By considering the several practical aspects of conducting an experiment in a real classroom situation the Parallel Group Covariance Design was selected to suit the purpose of the study. Diagrammatically the designing may look like the following :

Pre Test	Treatment	Post Test	Retention Test
Intelligence Test Pre-Achievement Test in Geography	3 Units of Geography taught to 3 Different Classes using 3 strategies of Teaching	Post Test in Geography	Retention Test in Geography

6.11.0 Experimental Procedure

The pupils of six classes of Standard IX of the two selected schools formed the units for experiment. Before applying the treatments, Group Intelligence Test and Pre-achievement Test in Geography were administered. Each group was taught 15 lessons in a period of 5 weeks (3 lessons per week). Five days after the experimental teaching posttest in Geography was administered on the total sample. Retention test in Geography was administered after 10 days of administration of posttest.

6.12.0 Statistical Analysis

Analysis of Covariance was used for the analysis of data. Those pupils were considered for the analysis of results who appeared in all the tests. A summary of the Results of the Experiment is given in Table 6.1.0 on the next page.

All the eight null hypotheses are rejected as all three strategies of teaching produced differential effects on the adjusted mean scores of the three groups.

6.13.0 Conclusions

From the analysis of results, it may be concluded that -

1. Strategy S_2 (Lecturing and Questioning-Answering by using Behavioural Objectives) has shown more effectiveness

Table :6.1.0: Summary of Results of the Experiment

Gr	POSTTEST LEVEL				RETENTION TEST LEVEL				
Groups	Number	Adjusted Means	t-value	Level of significance	Groups	Number	Adjusted Means	t-value	Level of significance
				KNOWLEDGE					
1	55	16.19	3.90 (gr.1-2)	**	1	55	16.17	2.46 (gr.1-2)	*
2	50	18.88	2.88 (gr.2-3)	**	2	50	17.85	0.30 (gr.2-3)	
3	45	16.79	0.84 (gr.1-3)		3	45	18.07	2.70 (gr.1-3)	**
				COMPREHENSION					
1	55	11.13	3.36 (gr.1-2)	**	1	55	10.84	1.86 (gr.1-2)	
2	50	13.37	2.83 (gr.2-3)	**	2	50	12.15	0.50 (gr.2-3)	
3	45	11.39	0.37 (gr.1-3)		3	45	12.51	2.31 (gr.1-3)	*
				APPLICATION					
1	55	3.53	5.71 (gr.1-2)	**	1	55	5.52	5.57 (gr.1-2)	**
2	50	7.29	3.46 (gr.2-3)	**	2	50	8.42	2.43 (gr.2-3)	*
3	45	4.89	2.01 (gr.1-3)	*	3	45	7.08	2.93 (gr.1-3)	**
				TOTAL ACHIEVEMENT					
1	55	31.92	4.60 (gr.1-2)	**	1	55	33.53	2.89 (gr.1-2)	**
2	50	38.27	3.51 (gr.2-3)	**	2	50	37.21	0.43 (gr.2-3)	
3	45	33.17	0.88 (gr.1-3)		3	45	37.78	3.25 (gr.1-3)	**

* Significant at 0.05 level : ** Significant at 0.01 level

than Strategy S_1 (Lecturing and Questioning-Answering) for knowledge, comprehension, application and total achievement at posttest level and for knowledge, application and total achievement at retention level.

2. Strategy S_2 has shown more effectiveness than Strategy S_3 (Discussion by using Instructional Materials) for knowledge, comprehension, application and total achievement at Posttest level. But it has shown more effectiveness than Strategy S_3 on retention of applicational ability only.

3. Strategy S_3 in turn, has shown more effectiveness than Strategy S_1 with application criterion at posttest level and with knowledge, comprehension, application and total achievement at retention test level.

4. At the retention test level again, G_3 taught by Strategy S_3 has shown higher adjusted mean scores than G_2 taught by Strategy S_2 at knowledge, comprehension and total achievement levels though the difference is not significant.

5. Strategy S_2 and Strategy S_3 are more effective than Strategy S_1 positively and conclusively.

6.14.0 Suggestions for Further Study

This is evidentially true that a piece of research gives rise to many more hypotheses to be tested than it has tested itself. Keeping in view all the findings of the present study as well as those of the related ones, the investigator feels it obligatory to put forward a body of suggestions to facilitate further pieces of research in order to complement the area under investigation.

1. The present study as such should and need be replicated, first, at various grade levels followed cofresponding by other individual subjects of the school curricula and obviously after the standardization of the criterion tests. Any institution undertaking the project should, of course, beare in mind to continue the same for the entire academic year.

2. As the improvement of strategy seems to emerge from the codification of the classroom interaction, an observational system should profitably be introduced during the tenure of the studies suggested.

3. Another group of studies might advantageously be taken by integrating deliberate and planned variation in the extent of lecturing activity and that of questioning and answering

4. Study needs be undertaken by combining another strategy, e. 'discussion' compunded as well with instructional materials

and behavioural objectives. That might well indicate asto whether there would be any significant difference in pupil attainment of the groups taught by lecturing and questioning-answering by providing behavioural objectives with those taught by discussion integrated with instructional materials and behavioural objectives.

5. Studies might also be undertaken to find out the correlation between preactive processes of teaching and the learning outcomes of the students.
