

CHAPTER - IIREVIEW OF RELATED LITERATURE

## CONTENTS:

<u>SR.NO.</u>	<u>TITLE</u>	<u>PAGE</u>
2.1	Studies Related to Teacher Characteristics and Personality Variables	36
2.2	Studies Related to Instructional Process of Teaching	41
2.3	Studies Based on Ratings	45
2.4	Studies Related to Interaction Process of Teaching	47
2.5	Studies Related to Achievement Criterion	48
2.6	Studies Related to Microteaching Approach	49
2.7	Implicational Remarks	52

## CHAPTER - II

### REVIEW OF RELATED LITERATURE

This chapter embodies an overview of previous researches related to present investigation. As the overview of the previous research gives the researcher a background of thinking of the problem area, it is undoubtedly an important part of any research work. One can, through review of researches, related to higher study have a clear perspective of the problem. Not only this, but it also equips the investigator with new understanding and insight which subsequently helps him in proper planning of the study and in selecting as well as developing tools for data-collection, adopting techniques for the analysis and interpretation of data.

#### 2.1 STUDIES RELATED TO TEACHER CHARACTERISTICS AND PERSONALITY VARIABLES

Distinguishing characteristics of teacher competency have raised several questions in the minds of teachers and the teacher-educators in early nineteenth century with the publication of the study "Characteristics of the best teachers as Recognised by the Children" conducted by Kartz (1896). Barr (1929) has described good teachers as compared with poor teachers to be more vigorous, more enthusiastic, happier, and more emotionally stable. Gage (1963) showed that integrated teachers develop integrative behaviours in the students, and dominant teachers develop dominant behaviours

in the students. Withal (1949) has explained that the teachers' dominative patterns produced dislike in the students towards their teachers, and this resulted in the reduction of their ability to recall. Teachers' integrative patterns produced students liking and adoration, resulting an increase in their ability to recall.

Debnath (1971) tried to find out certain determinants of teaching efficiency. He has taken teachers' age, experience, academic qualifications and training as variables. The findings revealed that professional training, intelligence, interest in teaching, friendliness, democratic behaviour have relation with teaching efficiency. He pointed out that superior teaching efficiency went with a favourable attitude and good adjustment. Singh (1976) examined the relationship between certain personality variables and teaching effectiveness and could easily distinguish the superior, average and inferior teachers.

Wali (1985) studied the teaching effectiveness to find out the relationship between various demographic variables. He found the significant correlation with educational qualification, salary, experience, family education and source of income, with effective teaching.

Robert and others (1988) compared two groups of science teachers—most effective and least effective. The variables that were taken as age, sex, teaching experience, in-service training,

teaching fields etc. The research revealed that no significant difference in any category except of teacher's sex and quality of institute experience.

By using Flanders Interaction Analysis Category System, Santhanam (1972), Qurashi (1972), Shashikala (1978), Thakar (1980) and Joglekar (1981) have found that classroom verbal behaviour of teachers were not related with teachers demographic variables such as age, sex, training, experience, socio-economic status and modernity.

Mann (1980) constructed a scale to assess the success in teaching of secondary school teachers' <sup>in</sup> teaching of science. He found significant differences between successful and unsuccessful teachers with respect to eleven personality factors. The successful teachers had more healthy attitudes towards the teaching profession. Both academic and professional course achievement had positive relationship between teaching experience and teaching success. He found no significant relationship between teaching experience and teaching success. The study also revealed that personality characteristics, attitude towards the teaching profession and allied aspects, academic achievement and achievement in professional courses were the determinants of success in teaching.

Bhagoliwal (1982) studied the personality characteristic associated with teaching effectiveness. He discriminated between

more effective and less effective teachers. His findings were that more effective teachers were superior in respect of their intellectual capacity.

Passi and Sharma (1982), studied the relationship between the teachers' demographic variables, teacher attitude towards teaching, interest in teaching and teaching competency. They found the positive relationship between the different variables and the competency. But they observed that there was no significant relationship of the attitude of Hindi <sup>and</sup> English language teacher and their teaching competency.

Padmanabhaiah (1986) observed that age, experience and size of the family of teachers could significantly influence the level of teaching effectiveness.

Choudhari (1985) explored the competencies required for the teacher teaching English at the secondary level. He found that the contextual variable of location of school had an effect on competency. The demographic variables of teacher's sex and educational qualifications had an impact on the competencies. Wali (1985) found the significant correlation of competency with educational qualification, salary, experience, family education and source of income.

Rajameenakshi (1988) found that the training in the

skill of demonstration and micro-teaching significantly increased teaching competency. The teacher pupil ratio affected the teaching competency. Teacher trainees with higher socio-economic status scored significantly higher in teaching competency than others. His evaluation revealed that there was a negative correlation between age and teaching competency.

Agrawal (1969) studied the competency of primary school teachers. The major findings of his study was that the teachers intelligence was significantly and positively related to subject knowledge; teachers attitude is significantly related to the competencies of classroom teaching; teachers' better academic background influenced teaching competency. He also mentioned the problems faced as multiple class teaching, number of students in the class, poor accommodation, non availability of teaching aids, teacher - parents' relationship, supervision and relation between school and community.

Arora (1978) found out the characteristic differences between effective and ineffective teacher. The study revealed certain teacher characteristics that differentiate effective from ineffective teachers i.e., educational background, job motivation, attitude to the teaching profession and certain other characteristics that do not do so.

Haque (1986) found the influence of the teachers' sex, age, family size and teacher's favourable attitude towards teaching on teacher effectiveness.

Chhaya (1974) investigated certain psychological characteristics of an effective teacher and compared them with those of an ineffective teacher. The investigator considered six characteristics like, (i) Personality adjustment; (ii) attitude towards teaching; (iii) interest in teaching; (iv) emotional stability; (v) Expression-introversion; and (vi) authoritarianism. Here, the teachers were categorised as effective or ineffective on the basis of principals' ratings and students' ratings. The major findings of the study are: effective teachers have significant personality adjustment and more favourable attitudes towards teaching than in-effective teachers; effective teachers did not show significantly more interest in teaching than ineffective teachers; effective teachers were significantly more emotionally stable than ineffective teachers; effective teachers were more extrovert than in-effective teachers; ineffective teachers were more authoritarian than effective teacher; age and sex of a teacher had a significant relationship with the effectiveness of teaching; rurality or urbanity and marital status of a teacher had no significant relationship with the effectiveness of teaching.

## 2.2 STUDIES RELATED TO INSTRUCTIONAL PROCESS OF TEACHING

Medley and Mitzel (1963) support Gage's conclusion that much of the work on teacher effectiveness is not related to either the invalid criteria of teaching effectiveness or because of the lack of objective measures of teacher behaviour. After discussing assumptions underlying collection of classroom observational data limitations of studies utilizing rating scales they note that more powerful statistical methods will help to identify relationships between behaviour and its effects.

Welch (1983) surveyed the science teacher education research and concluded that little of what makes a teacher effective has been studied. Many assume that the first requisite of an effective science teacher is a "solid" preparation in a discipline of science. Improving subject matter competency strengthens teacher competency. Rosenshine and Frust (1973); Medley (1977) in their study believed that effective teaching is often called the quality of instruction of the process of instruction.

Barr (1941) listed three approaches to the measurement of teacher efficiency based upon:

- (i) estimates of traits (qualities) assumed to function in the teaching, act as a drive, considerateness, emotional stability, objectivity, intelligence and like;
- (ii) appraisals of activities included the teaching, such as discovering and defining pupil needs, setting goals, stimulating interest, choosing learning experiences, guiding learning activities, appraising results and the like; and
- (iii) based on desired from measures of pupil growth.

Dean (1977) found that no significant clearcut relationship was established between the prospective teachers' self concept, their classroom non-verbal behaviours and teaching effectiveness as measured by the students teaching evaluation form.

Mathew (1980) attempted to identify desirable teaching competencies of physics teachers in the context of certain presage, process and product variables. In her study she identified fourteen factors.

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| (i) Introducing the lesson      | (ii) Fluency in questioning           |
| (iii) Probing Questioning       | (iv) Explaining                       |
| (v) Stimulus variation          | (vi) Pacing                           |
| (vii) Using audio-visual aids   | (viii) Illustrating with example      |
| (ix) Using the blackboard       | (x) reinforcement                     |
| (xi) Achieving closure          | (xii) Recognising attending behaviour |
| (xiii) Classroom management and | (xiv) Giving assignment               |

Rao (1985) identified the effective science teachers through ratings by head of the institution, teachers and pupils. He studied the science teachers' content processing behaviour, interactive behaviour and teaching skill behaviour. In his study some effective science teachers were found to be using certain new component teaching activities like drawing and derivation.

Researchers like Lalita (1981), Bawa (1984), Ekbote (1987), studied the effect of different strategies of integration of skills on teaching competency of student teacher. From their findings it can be concluded that planned integration of skills was helpful in improving teaching competency.

Tichkowaky (1975) identified competencies which elementary teachers in self-contained classroom consideration should be given top priority in training and selecting teachers. Eighty four teachers were involved in the study. The identified competencies had positive relationship with students' discipline and control, teaching methodology, personal attributes, favourable learning climate, knowledge of subject matter, individual differences and professional growth.

Fravers and others (1986) attempted to identify instructional competencies that are considered to be the most relevant for successful teaching in Trade and Industrial Education. The instrument contained 50 competency statements and the respondents rated each statement as to its relevance for successful teaching and the amount of instruction received in the competency. Analysis of data revealed that planning competencies were the most relevant competencies followed by evaluation and management.

James and Schaaf (1975) with the help of science teachers, identified competencies related to physical laboratory teaching under six broad areas such as: 1. Demonstrated Experiments; 2. Laboratory management, safety and simple laboratory techniques; 3. Laboratory programme development; 4. Operation, use and care of specific pieces of equipment; 5. Specific topics and techniques which implies the use of equipment; and 6. Equipment cost and Evaluation.

Natarajan (1984) identified the factors influencing competency achievement. He opined that seminar method seemed to be an effective method, the lecture method was effective as a group method. The study also proved that teacher education programmes could be made more effective through a competency based approach.

### 2.3 STUDIES BASED ON RATINGS

Patrick (1974), Anderson (1974), Starr (1975), Tichkowsky (1975), Cockrell (1976) used expert judgement to determine those competencies that are critical to teacher effectiveness. Patrick developed an effective teacher profile based on the opinions of students and teachers. The study showed that students preferred teachers who are outgoing and supporting on the one hand and who are not autocratic and dogmatic on the other. Anderson procured judgements about thirty six teacher descriptions from high school teachers and found that knowledge of subject matter and interest in individual students were given the highest weightage.

Balachandran (1981) constructed a rating scale to evaluate teaching effectiveness of college teachers and evaluate the teachers in terms of their teaching effectiveness. After judgement 35 characteristics were selected as important and those 35 characteristics were used as items of five point rating scale. He identified that the teacher performance in respect of encour-

ging classroom discussion was poor. The students' rating and self-rating of teaching effectiveness were positively and significantly related but the teachers' self-ratings were significantly higher than the students' rating.

Kaul (1972) distinguished 'popular' teachers from 'not popular' teachers on the basis of students' rating. Arora (1978) used principals' ratings for selecting effective and ineffective teachers. Robert (1988) used supervisor rating to identify least and most effective science teacher.

Roy's (1965) study revealed that in determining teacher effectiveness pooled judgements were likely to yield better result than individual assessments. Bryan (1966) observed that student ratings of teachers remained quite stable over time. The study of Veldman and Peck (1969) indicates that the grade level of the class, or the socio-economic level of the school did not have any influence on pupil ratings of the teacher.

Pigge and Green (1978) used Delphi method (using experts opinion) through questionnaire and personal interview. They used ratings to identify the competencies. Chhaya (1974) investigated certain psychological characteristics of effective teachers and compared them with those of ineffective teachers. Here the teachers were categorised as effective or ineffective on the basis of principals' ratings and students' ratings.

#### 2.4 STUDIES RELATED TO INTERACTION PROCESS OF TEACHING

Flanders (1970) undertook seven projects which were designed to compare interaction analysis variables with some educational outcomes. The classes located at the extremes of the resulting distribution scores of pupil attitudes, were selected for observation. Correlations made through matrices analysis revealed sufficient but different associations of verbal interactions with achievement and attitude measures. The positive correlations for variables, flexibility, suggested that effective teachers modify their teaching behaviour from one instructional situation to the other.

Pankratz (1966) identified five highest and five lowest effective teachers, by 6 hours of interaction analysis data in ten classrooms. The difference between the five high and five low group teachers concluded that highest teachers were more indirect, allow<sup>ing</sup> pupils to talk, and were using the silence category more effectively.

Maheswari (1976) made an attempt to explore the classroom verbal interaction patterns of effective and ineffective teachers. FIACS was employed for encoding and decoding the classroom verbal behaviour. The categories like, accepts feeling; praising; uses students' ideas; students' response and initiation were found with effective teachers, whereas, lecture, direction, and authority categories were found with in-effective teachers.

Many educators believed that teacher personal qualities and professional competencies are associated with classroom teaching. Hamachek (1969) found that competent teachers personalize their teaching, know their subject matter and related areas and can perceive the world from the students' point of view. Selakovich (1961) indicated that more learning occurs when the teacher maintains a neat personal appearance, use correct English, adjust the programme to individual differences in students, organize materials, and shows enthusiasm in teaching.

Buch and Santhanam (1970) in another study, explored the possibility of using FIACS in teaching English in the classroom of Baroda, and concluded that the interactional analysis is an index of teacher effectiveness. Patel (1974) used FIACS to measure teachers' influence in the classroom. He found indirect teacher influence which had favourable effect on motivation, classroom organization and attitude towards teacher.

## 2.5 STUDIES RELATED TO ACHIEVEMENT CRITERION

Lulla (1973) tried to find out the effect of teachers' classroom behaviour upon pupils' achievement. The study revealed that pupil scoring higher marks <sup>were</sup> being taught by teachers trained in indirect behaviour. She concluded that environment plays a key role in the teaching - learning process. Roka (1976) did ~~the~~ similar study with two experimental groups. She found significant differences in mean achievement at understanding an application

level, Raijiwala (1976), Desai (1977) had attempted to find out the effect of indirect teacher behaviour on pupils' achievements, adjustment, classroom trust, and initiative. Raijiwala found positive relationship between teacher influence and pupils achievement. Desai found positive relationship between modified teacher behaviour and academic achievement.

Roy (1977) in his study found that relative effectiveness of three styles of teaching upon pupil achievement for the three instructional objectives-knowledge, comprehension and application, had equal effects on the development of knowledge, application abilities and total achievement of pupils. Padma (1976) attempted to find out the effectiveness of four teaching patterns on the development and retention of the applicational abilities in science. She found all the four patterns having equal effects of applicational abilities under surprise testing condition as well as planned testing condition. Chakraborty (1978) conducted a similar study.

## 2.6 STUDIES RELATED TO MICRO-TEACHING APPROACH

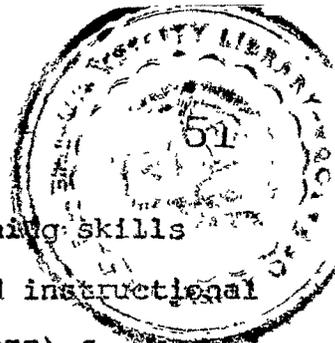
Research on microteaching conducted in India and other countries proved that microteaching is an effective and feasible technique in the field of teacher training programme. Chudasama (1971) found that microteaching was more effective than the traditional technique in the development of indirect teacher behaviour. Passi and Shah (1974) found that microteaching was effective in developing the skills of questioning reinforcement, silence and

non-verbal cues, and the teacher showed the favourable attitude towards the technique. Joshi (1974) found that microteaching was effective in developing the skills of reinforcement and silence and non-verbal cues. Singh (1974) and Bhattacharya (1974) found that microteaching was the most effective technique than the conventional technique in the development of teacher behaviour.

Thresiamma (1975), Vaze (1976) and Sharma (1977) tried to find out the effect of feed back and microteaching technique on the development of the skills of teacher liveliness and recognizing attending behaviour. The study revealed that feedback techniques and microteaching were effective in the development of the respective teaching skills.

Marker (1972) found that microteaching was a better teaching technique than conventional approach in the development of certain teaching skills.

Joshi (1975), and Lalita (1975) compared the effectiveness of microteaching technique versus conventional approach in the development of various teaching skills, namely, skills of writing instructional objectives, introducing lesson, fluency in questioning, probing questioning, explaining, illustrating with examples, stimulus variations, silence and non-verbal cues, reinforcement, increasing pupil participation using blackboard, achieving closure, and recognising attending behaviour.



Lalithama (1976) identified a list of teaching skills for effective classroom instruction and also prepared instructional materials for selected teaching skills; and Joshi (1977) found the effectiveness of instructional materials synchronised with micro-teaching approach in acquisition of four teaching skills.

George, and Anand (1980) studied the effect of micro-teaching on the teaching competency of student teachers. Micro-teaching was treated as independent variable and teaching competency of student-teachers were treated as dependent variables. They found that microteaching provide effective improvement of teaching competency of the sampled student-teachers.

George, and Joseph (1978) studied the effect of micro-teaching on general teaching competency and teacher attitude. They found that intensive training and persistent practice on five instructional skills influence teaching behaviour of trainees. They also indicated that skills were inter-dependent. Systematic practice improved the sensitivity of trainees and enable the trainees to acquire more skills and integrate them in the repertoire of the teaching skills.

In India attempts to list the attributes of popular ideal teachers through the opinions of students and other experts have been made by Prashad and Singh (1962), Sharma (1968), Kula-ndaivel and Rao (1968), Ojha (1969), Debnath (1971) and Kaul (1974).

The Competencies listed in this studies are too global in nature. The sample used under difference studies were not the same. The experties were drawn from all wacks of life and the competencies, relate to teachers from grade one through eleven. So it is difficult to draw conclusions from the findings of these studies.

## 2.7 IMPLICATIONAL REMARKS

From the review of related research studies as presented above the significant points which emerge are as follows:-

1. The Educational researchers have studied the classroom behaviours of teachers in an increasing scale.
2. Demographic and personality variables of teachers significantly influence the competency of teaching.
3. Teaching competency can be analysed and measured. Enhancement of competency of teaching can be made by modification of some important factors which stand on the way of teaching competency.
4. Quality of teaching, professional development and classroom control and management, content knowledge, acquisition of proper methods and skills contribute combinedly for the competency of teaching.
5. Systematic and skillful planning is very much helpful for the improvement of teaching competency.

6. Personal qualities of the teachers, deep knowledge of subjects concerned of the teachers, professional growth of teachers, favourable learning climate and disciplinary control of classrooms have positive relationship with the competency of teaching.
7. Effective teachers modify their teaching behaviours from one instructional situation to the other.
8. Teacher influence has an indirect favourable effect on motivation of students, classroom organisation and attitude of students towards teachers.
9. Rating from more than one source provides more useful informations on the comparative validity of different types of raters employed. Rating singularly may not act as a reliable measure to judge teaching effectiveness.
10. Studies under interaction process have made use of FIACS with different purposes; some of them used to analyse interaction process of teaching; some of them to compare and correlate different patterns of teacher behaviour; some of them to associate the effects of FIACS with pupil gains, & others to modify teacher behaviour. In almost all studies indirect teacher behaviour was seen flourishing as desired outcome. It seemed interaction analysis was confined only to FIACS, so, conclusions drawn from such an analysis are restricted by the limitations dictated by the system itself.

11. Microteaching has been appreciated as a teacher training technique, its synchronisation with actual classroom teaching remained as an unresolved issue. Teacher's knowledge, internalisation of content, content organisation, pupil behaviour are few of the factors playing their role in spontaneously occurring teacher behaviours. Teacher as a mediator of central process, translates his intentions into actions.

Review of research studies is a necessary step as it provides immense clue to the investigator. The forgoing discussion of research studies in the area of science education crystallises some issues, observations and ideas, on the basis of which the investigator attempted to formulate his research questions and objectives of this study.

The issues, observations and ideas and their implication on the present study are given below.

In Bangladesh, researches in the area of science education has never been attempted by the students as their academic exercise or by the institutions which are entrusted to conduct educational research in the country since the emergence of Bangladesh. Research done by Aziz (1984) has shown the structural feature of science education programme in the secondary schools of Bangladesh. Therefore, the present study in this respect is a new attempt.

Most of the researches reviewed in this chapter were conducted on science education and science teaching competency both in the primary and secondary level of education in the countries abroad. The geographical, socio-economic and cultural milieu of these foreign countries are not similar to those of Bangladesh. The objectives, and needs of the stress of science education cannot be the same in all those countries. Accordingly the science education programmes are also likely to be vary from country to country. Therefore, the findings of those studies have a very restricted significance in Bangladesh situation. The Government of Bangladesh is at present giving high importance and priority to science education and as well as the quality of total education. In this context the study on science education and science teaching competencies at the school level of Bangladesh is quite relevant.

The researches reviewed in the foregoing sections enlightened the investigator about the method, sample, tools, data collection, analysis and interpretation of data. These in turn helped the researcher to develop methodology for the present study.