2.1 Introduction

"An essential part of a research project is the review of the related literature. The survey of the related literature is a crucial aspect of the planning of the study and the time spent in such a survey invariably is a wise investment. The investigator can be sure that his problem does not exist in a vacuum, and that considerable work has already been done on problems which are directly related to his proposed investigation".1

It is essential for the investigator to have an idea of what has been done in similar areas to scrutinize the methodology used, to co-ordinate the study with others, to find gaps, to avoid duplication and to direct the work along useful lines. This chapter includes a review of several studies made regarding classroom behaviour of teachers and pupils.

The following sections present a brief outline of (1) some of the early attempts made to observe teachers at work and the development of tools for observing the behaviours of teachers, (2) a few significant studies conducted abroad which may have some bearings on the present study and (3) a few selected studies made in India.

2.2 System for observing classroom Behaviour of Teachers

It was in late 1930's that researcher in Education became

interested in analysing classroom interaction. Anderson H.H. developed a reliable technique for the measurement of domination and of socially integrative behaviour in teachers' contacts with children.

Anderson continued this study further along with Joseph H. Brewer and others. Anderson and Brewer developed 26 teacher behaviour categories by which both teachers' and pupils' verbal and non-verbal behaviour might be categorised.

Starting from the sound recording of teachers' verbal behaviour in regular classroom sessions, John Withall (1949) found that the behaviour tended to fall into 25 types, which he could finally reduce to 7 categories.

Bales (1951) Interaction Process Categories were primarily designed to observe and understand group process of problem solving. It includes 12 observational categories.


3. Anderson, HH. Ibid., p. 49.


Flanders Interaction Analysis categories (FIACS) (1966) assume that the verbal behaviour of an individual is an adequate sample of his total behaviour. It includes ten categories of behaviour, showing indirect influence of the teacher, direct influence of the teacher, student talk and silence period.

Amidon and Elizabeth Hunter have extended FIACS to develop verbal interaction category (VICS). This system contains five major categories for analysing classroom verbal behaviour. They are (i) Teacher initiated talk (ii) Teacher response (iii) Pupil response, (iv) Pupil initiated talk and (v) others. It includes 17 categories of behaviour in all.

The Reciprocal category system (RCS) was developed by Ober in 1967. This system gives equal weightage to student behaviour as well as teacher behaviour.

Bently and Miller have developed Equivalent Talk Categories (ETC) to include five basic functions of the teacher-learning process—presenting questioning, responding, reacting and studying. Similar to the RCS, the system is reciprocative in nature.


Hough and Duncan's Observational System for Interaction Analysis (OSIA)\textsuperscript{10} tries to include both verbal and non-verbal behaviour of teachers and students.

In the next section, a few selected studies related to classrooms, Teacher Behaviour, creativity and some studies on correlates of creativity are reviewed.

2.3 Review of Selected studies conducted Abroad

2.3.1 Studies on Teacher Behaviour

In this section a few studies made abroad related to Teacher Behaviour and about the impact of Teacher Behaviour on Pupils are briefly reviewed. No attempt has been made to exhaust all the studies in the field. A few studies have been selected on the basis of the apparent relationship they might have with the present investigation.

Good, Sikes and Brophy\textsuperscript{11} using Brophy Good Dyadic Interaction Observation System found that students initiated more contacts with female teachers and had more total responses to opportunities in their classrooms but they more often failed to give feedback following incorrect answers. Male teachers were much more likely to stay with a student by providing an additional response opportunity when he failed to respond, answered incorrectly or gave a partially satisfactory response. When

students misbehaved, female teachers were more likely to simply warn them about their behaviour, while men teachers were more likely to criticise them more intensively. There was no support for the hypothesis that teachers are biased towards students of their own sex. Sex bias was not a factor affecting teacher-student interaction in these classrooms.

Based on the responses of 1258 Primary school teachers, Bennett\textsuperscript{12} and Jorden have attempted to identify twelve teaching styles. They prefer to describe the styles rather than label them by fixed names. At one end of the style one, teachers who favour integration of subject matter, allow pupils choice of work, choice of seating, prefer assessment in all its forms and so on. The other end includes teachers who never favour integrated approach, each subject separately by class teaching and individual work; curse ever, vement of the pupils and so on.

Riley\textsuperscript{13} undertook the study of student teacher-pupil interaction during the student teaching assignment and his findings were (i) No significant difference was found in the student teacher - pupil interaction while in the lower elementary and upper elementary grade level. (ii) A teacher who chose to use the indirect approach in lower elementary levels also used the same approach in the upper elementary level. The same parallel occured if the teacher chose to use the indirect

\textsuperscript{12} Bennett, S.N. \& Jorden, J. "A Typology of Teaching Styles in Primary Schools", British Journal of Educational Psychology, 45:1, 1975, pp.20-28

\textsuperscript{13} Riley, J. "The study of Student Teacher - Pupil Interaction during the student Teaching Assignment," DAI, Vol.42, No.6, Michigan 1981, pp. 2623-A.
approach (iii) The more the student-teacher is confident the more indirect will be his approach.

Bodroy\footnote{14} conducted a study to determine if teachers' verbal behaviours are related to students' perceptions of teachers' concern and found that teachers' verbal behaviours have a positive relationship to students' perceptions of their teachers' having concern for them as individuals.

2.3.1.1 Studies on the impact of Teacher Behaviour on Pupils' Academic Achievement

Pereyra, Denise Neufeld\footnote{15} undertook to identify teacher behaviour which promote student achievement in reading comprehension as measured by comparing variables on the Reading Comprehension Observation Instrument (RCOI) and the Reading Comprehension Test of the IOWA Tests of Basic skills (ITBS), and the findings were: Teacher behaviours were significantly different when comparing losers, holders and gainers. A cluster of variables significantly separated the losers, holders and gainers. Little comprehension instruction was observed, contradicting teachers' priority belief in its importance as a goal. Three most significant variables related to student achievement were time during, literal recall and higher level questions.


\footnote{15} Pereyra, Denise Neufeld : "Teacher Behaviours which promote reading comprehension achievement in fourth \textit{e classes}", DAI, Vol.49, No.8, Loma Linda, University 1987, 2094-A.
Beers, Barry, L., in his study, investigated the relationship between the amount of verbal interaction between a student and a teacher and that student's achievement in the class taught by that teacher at the secondary school level and found that a positive correlation did exist between the amount of teacher-student interaction and student achievement in the English classes but not in the Mathematics classes.

Goldman-Simon, Sherry J., examined the interactions of teachers with the mainstreamed mildly handicapped children in their classrooms. Results of the analyses indicate that there was no significant relationship between teacher behaviours and math achievement, there was for reading achievement. Specifically, the results of the reading analysis indicated that teachers initiated more interactions with the lower achieving mildly handicapped students than with the higher achieving handicapped students. They asked more academic questions of the higher achievers. No significant differences were found in the feed back given to high and low achievers. The result of the math analysis indicated no significant differences in any of the teacher behaviour variables for high and low achievers.


17. Goldman - Simon, Sherry J., "Classroom interaction of the teacher with successful and less successful mainstreamed handicapped students and the academic achievement of these students", DAI, Vol.49, No.8, 1988, p. 2176 - A.
2.3.1.2 The impact of Teacher Behaviour on Pupils' creativity

Roark, Julie Catheleen in her study compared the effects of two teaching methods, direct instruction and facilitating instruction, on gifted fifth-grade students' creative ability, and the conclusions are: The results of analysis of co-variance for the mean of creative reading ability for each of the 2 groups, those receiving an emphasis on direct instruction and those receiving an emphasis on facilitating instruction yielded a significant F-ratio. The mean of creative reading ability for the students receiving an emphasis on facilitating instruction was significantly greater than the mean of creative reading ability for those students receiving an emphasis on direct instruction. It was concluded that facilitating instruction in reading is more beneficial to gifted students' creative reading ability than direct instruction.

2.3.2 Studies on creativity

2.3.2.1 Creativity and Age

Some investigators like Lehman (pp.109-13) have found empirical relationship between age and creativity, others (Dennis, pp.108-9 & Clague pp.106-7) have found evidence which they believe casts doubt on the existence of such a relationship.


Lehman\textsuperscript{20} concludes that superior creativity generally rises rapidly to its highest point in the thirties and declines slowly thereafter. In the fields that require new learning and unlearning of the old, older people are handicapped, while in situations requiring an accumulation of past knowledge, they are at an advantage.

2.3.2.2 Creativity and Sex

An overview of the research findings in the field of sex difference with creativity was made by Goyal\textsuperscript{21}. He classified the studies into 2 categories:

i) Studies showing superiority of females

Yamamote found a situation with high intelligence group, high creative group and total sample, where boys had slightly higher mean IQS than that of girls. In these groups too girls showed higher mean creativity scores than boys.

Ogletree (1968) observed that girls excelled boys significantly on all creativity measures, both verbal and figural. Several other investigators (McGregor & Smith, 1965; Solomon, 1968; Walker, 1969; Cacha, 1971; Burgess (1971) reported the superiority of girls over boys on several creativity measures. Newfeld (1964), Dauw (1966) and Fletcher (1968) found in high school seniors that girls excelled boys in creative


thinking abilities. Razik (1964) observed in a sample of students drawn from four colleges - Agriculture, Educational, Engineering and Applied Arts - that females out-ranked males in their creative ability, they obtained higher scores than their male counterparts on four out of six tests of creativity.

Torrance found in several investigations that boys in the United States consistently excelled girls in most measures of originality and that girls excelled boys in ability to elaborate ideas and in most verbal measures of creative thinking. Guilford (1964) reported that boys tend to obtain higher mean scores on tests of semantic flexibility and girls on the other hand, tend to obtain higher means on tests of three fluency factors. Harlow (1967) reported that 7th and 9th grade males obtained higher scores on flexibility whereas females obtained higher scores on originality. Dhir (1973) observed that Indian High School girls scored significantly better on verbal fluency and boys scored significantly higher on figural originality.

ii) Studies showing superiority of Males

Kelly (1965) found that fourth grade girls scored significantly lower than the fourth grade boys on the non-verbal creativity measures. Stranss & Stranss reported that girls' scores were lower than that of boys in both Indian and American studies while sex differences in creativity were greatest in India. Mer'l (1971) found that Arab males performed significantly better than Arab females in nine out of 13 scores derived on the TTCT. Middents (1968) observed that males scored significantly higher than females on verbal elaboration.
iii) Studies showing on sex difference

Working on different samples consisting of elementary school children through high school to graduate students, several investigators have shown that there are no sex differences in creative thinking abilities (Pathak 1962; Pogue 1964; Olshin 1964; Castle 1965; Maghon 1969; Check 1970; Kaltsounis 1971; Phillips & Torrance 1971; Kloss 1972).

2.3.2.3 Creativity and Socio-Economic Status

The factor analysis of the home environment scales done by Barbara Harrison yielded six factors:

i) Interest in creative activities by culturally oriented parents, particularly the father;

ii) Encouragement given for child to engage in intellectual/cultural activities by permissive parents;

iii) Degree of impulsivity and free expression allowed;

iv) Interest by mother in creative activities and variety of child's intellectual and cultural activities:

v) Child's involvement in creative activities in permissive culturally oriented home; and

vi) Parental encouragement of child in creative activities in a restrictive home atmosphere.

Scarborough 23 puts a question - "Can scientific creativity be increased?" One way to attack the problem is to use HINTON'S conceptual model which simplistically stated is, Creativity = person + process + environment. All factors in this equation are important and interesting.

2.3.2.4 Creativity & Intelligence

One of the most important findings of the Getzels and Jacksons (1962) 24 studies was that 'intelligence' is not a reliable predictor of creativity.

After an extensive review of creativity and intelligence measure, Wallach & Kogan 25 (1965) pointed out that although I.Q.-creativity correlations are low, correlations between various creativity instruments are equally low.


On the basis of definitions of convergent and divergent achievements adopted from Bloom's Taxonomy of educational objectives, it was predicted that intelligence would be more highly related to convergent achievement than creativity up to a certain threshold intelligence level (approx. 120).

Murphy verified the independence of the creativity and intelligence dimensions and found a marginal relationship between creativity and school grades in the factor structure.

2.3.2.5 Creativity and Academic Achievement

Toth, Linda, S., in her study investigated the integrated effects of creativity, laterality and learning styles on student academic achievement and found out the existence of a relationship among student creativity, laterality, learning styles and achievement.


2.3.2.6 Creativity and Self-esteem

Robles Torres, Ray explored the relationship between creativity and self-esteem and found no significant relationship between creativity and self-esteem.

2.4 Review of selected studies conducted in India

2.4.1 Studies on Teacher Behaviour

Using FIACS, Buch and Santhanam studied 11 teachers of English, teaching in the English medium schools in Baroda. Five of them were male teachers. The results indicated the following:

i) The teachers talked about 69 per cent of the time;
ii) The students talked about 21 percent of the time;
iii) One fifth of the teacher talk was indirect;
iv) One tenth of the total time was spent in silence/confusion.

Mohan Mathew has studied the teacher behaviour of 37 teachers of class 4, 50 teachers of class 6, 66 teachers of class 8 and

4 teachers of class 9. The teachers were observed each for a period of 45 minutes by trained observers who rated the teachers on authoritarian traits. The results indicated the restricting of freedom of movement in the class, ridiculing, scolding, abusing and addressing children in a mean way, threatening and administering corporal punishments and suppressing creative responses of pupils which are some of the forms through which authoritarian teachers expressed themselves. The primary school teachers were more authoritative than the high school teachers in their actual behaviour. More experienced teachers were more authoritarian than the less experienced teachers. Men teachers were more authoritarian than women teachers.

Soundararaja Rao studied the classroom climate in secondary schools in Coimbatore District. He modified the FIACS by introducing seven more categories. He did not disturb the first nine categories. He took the tenth category to the last as category 17. The categories such as 10, 11 ... 16 had been introduced but the investigator maintained Flanders 10 categories and the ground rules for observation.

The results indicated that the percentage of the classes with good climate revealed that (i) more time was given to (a) questioning (b) demonstrations and blackboard work and (c) work on given assignments in the class and (ii) Teacher talk was considerably less (in classes with poor climate, the teacher talk was high) (iii) Too much time was spent on individual guidance.

There was no significant difference between classes handled by men and women teachers, between classes of urban and rural areas and that of different subject disciplines. Teachers gave less opportunities to talk or lead discussions in the class.

2.4.1.1 Teacher Behaviour and Pupils' Achievement

Sharma, S. attempted to find out the relative effectiveness of four different patterns of teacher classroom behaviour, viz., (i) narration (ii) Open questions (iii) narrow questions (iv) narrow questions with feedback, upon pupils' attainment in terms of the instructional objectives of knowledge, comprehension and application and arrived at the following conclusions. (i) Pattern III (involving narrow questions) was found to be more effective as compared to the other three patterns with respect to pupil attainment in terms of knowledge objective; (ii) None of the patterns showed any differential effect on the pupil attainment in terms of comprehension objective; (iii) Pattern III (involving narrow questions) was found to be the most effective pattern as regards the pupil attainment in terms of comprehension objective; (iv) Pattern II (involving open questions) did not show any effect upon pupil attainment in terms of application, objective, rather none of the patterns produced any differential effect in achieving this objective.

Lulla, T.P. (1974) attempted to find out the effects of teachers' classroom influence upon pupils' achievement. The study

revealed that the pupils who were taught by the teachers trained in using indirect behaviour scored higher as compared to their counterparts studying under the teachers who were not provided any training. It was also implied that the indirect teacher behaviour may raise the interaction potential of the classroom climate resulting in free-communication and the open interaction between the teacher and the group of pupils.

Roka (1976) attempted to ascertain whether some verbal teaching behaviour patterns affected students' achievement. This study had adopted experimental approach. The study revealed that asking significantly more of divergent and evaluative questions did not result in significant difference in mean achievement at knowledge level but resulted in significant difference at 0.05 level in mean achievements at understanding and application levels.

Balasubramanian, N. has studied the effects of Teachers' Classroom behaviour on pupils' achievement in English at Higher Secondary stage. The results reveal the following facts: (i) The higher the tendency of the teachers to concentrate more on the content-oriented part of classroom discussion, the lesser will be the pupil achievement. The lesser the same tendency of the teacher, the higher will be the pupil achievement. (ii) The higher the tendency of the teachers to encourage and support pupils' participation in the classroom discussion by accepting, praising, clarifying and developing the ideas and feelings expressed by the pupils, the higher will be the pupil achievement, while the lesser the same tendency of the teacher, the lesser will be the pupil achievement.

achievement. (iii) The higher the tendency of the teachers to direct and criticise the pupils with the expectation of compliance from them and hence to restrict their freedom to participate in the classroom discussion, the lesser will be the pupil achievement. The lesser the same tendency of the teacher, the higher will be the pupil achievement.

2.4.1.2 Teacher Behaviour and Pupils' creativity

Pillay, G.S. 36 analysed the effects of patterns of teaching upon creative thinking among adolescents and found out the following facts. (i) The treatment of creative Teaching Method when compared with the traditional method, did not produce differential effect upon general creative thinking and on its sub-parts such as, seeing problems, unusual uses and consequences, of eight graders, and upon creative thinking in Geography too. (ii) Among the five operations of structure of Intellect model, viz., cognition, memory, divergent production, convergent production in evaluation, the convergent production ability in Geography of eighth graders improved significantly by the Creative Teaching Method than by the traditional method. (iii) Out of thirty mental abilities, seven abilities were developed significantly higher by Creative Teaching Method, whereas, the traditional method produced higher mean scores in the case of memory for word meanings.

2.4.1.3 Teacher Behaviour and their professional attitude

Velmani, N.\textsuperscript{37} studied the relationship between classroom behaviour of teachers and their attitude towards the profession. The findings are as follows:

i) Authoritarian teachers do not possess a favourable professional attitude.

ii) Teachers who provide democratic climate in the classroom possess a positive attitude towards their profession.

iii) The indirect classroom behaviour of teachers influences the professional attitude positively.

iv) Female teachers' domination in the classroom pulls down their professional attitude.

v) The higher the indirect behaviour of the teachers, the higher will also be their professional attitude scores.

2.4.2 Studies on creativity

2.4.2.1 Creativity and Age

Raina\textsuperscript{38} proved that relationship of age with fluency was


negative and not significant, with flexibility and originality it was positive and non-significant, with elaboration and total creativity it was positive and significant.

Goyal\textsuperscript{39} came out with a finding that developmental trend of creativity related to age is observed during the ages 9, 10 and 11 years. However, age differences are not significant.

2.4.2.2 Creativity and Sex

Passi\textsuperscript{40} found out the girls were superior to boys in non-verbal creativity and boys superior to girls in verbal creativity.

Usha Rao\textsuperscript{41} proved that there was significant difference in the mean performance of boys and girls. The boys tended to perform significantly better than girls. The results indicate that sex roles might interfere with the development of creative potentialities.

Hussain\textsuperscript{42} contradicted the 'common belief' that the boys are more creative than the girls. He also rejected the hypothesis that the


\textsuperscript{40} Passi, B.K. : "An Exploratory study of creativity and its relationship with intelligence and achievement in School subjects, 1972, SRE - Buch, pp. 337 - 38.


girls would be more creative than boys. It is important to note his remark that "Better creativity Scores may be due to their early maturity and also to their better home and socio-economic background".

2.4.2.3 Creativity & Achievement

Pramila Phatak using the Baroda experimental school children and Minnesota tests of creative thinking found that creativity as measured was significantly associated with intelligence quotient but was unrelated to school achievement.

Raina showed that high creative subjects exhibited greater achievement. High creative females were significantly higher than the low creative males on achievement, dominance and endurance.

Paramesh, C.R. in a study on 155 high school students in Madras, found no correlation between creativity and marks obtained in curricular subjects in the S.S.L.C. Examination.

2.4.2.4 Creativity & Intelligence

Sharma showed that high intelligent students performed better on creativity test. Co-efficient of correlation between creativity and intelligence was 0.44.

44. Ibid.
Gupta showed that correlation between creativity and intelligence was positive but as low as 0.26. All the four dimensions of creativity except elaboration showed low correlation with intelligence.

Paramesh, C.R. adopted Wallach & Kogan instrument of creativity to the Indian condition and obtained a result that creativity as measured by these instruments has been found to have no relationship with intelligence.

2.4.2.5 Factors Affecting Creative Thinking

Dwivedi, S.K. and Sharma, B.M. investigated into the factors affecting creativity and brought forth the following findings:

i) The inability of the teacher to supply the students with new information in the classroom inhibits the process of creative thinking.

ii) Lack of opportunities to do creative things in the school also creates hindrance in developing creative thinking among the students.

iii) Lack to adequate teaching aids in the school does not play any role in blocking the process of creative thinking among High School boys.

iv) It is evident that home and school environments and the school curriculum play a major role in affecting

creative thinking among high school boys.

2.5 Summary

In this Chapter an attempt has been made to bring together and review several studies made in India and abroad regarding teacher behaviour, creativity and other related themes. The review of studies in the teacher classroom behaviour highlights the following:

- Systematic observation of the classroom has been accepted as a valid method of gathering data in many studies. Several systems of observational categories have been evolved.

- Teacher behaviour can be analysed, measured and modified.

- Teacher behaviour, classroom interaction and classroom climate influence Pupils' growth, creativity, achievement and attitudes.

2.6 Conclusion

This review has helped the researcher to gain insight into the nature of variables that are likely to affect classroom behaviour of teachers and pupil creativity. In the next chapter, a detailed account, of how this was used in the design of the investigation, is presented.