CHAPTER V

SUMMARY AND CONCLUSIONS
V. SUMMARY AND CONCLUSIONS

5.0 In the previous chapter the investigator dealt with the analysis and interpretation of data and discussion of the results. In the present chapter, a summary of the previous chapters, the findings, conclusion, educational implications of the study, limitations and suggestions for further research will be presented.

5.1 In the first chapter, the investigator discussed the role of the teacher in pupil growth, the concept of teacher effectiveness, the meaning and definition of teacher behaviour, definition, assumptions of classroom interaction, and effects of classroom interaction. Earlier to Flanders' (1960) "direct" versus "indirect" style, Withall (1949) had developed "teacher-centred" versus "pupil centred" and Anderson (1939) had developed "dominative" versus "integrative".
Researchers after attempting to describe teacher behaviour (teaching style) made efforts to relate teacher behaviour to pupil growth outcome. Mitze (1960) defined four newly recognised classes of variables related to teacher effectiveness: they were presage, process, product and context variables. At the same time, Gage (1963) gave visibility to an important development in measurement of teacher effectiveness or teacher performance that came to be called process-product study. Earlier studies revealed teacher indirectness to be positively related to pupil achievement (Becher, 1975; Coats, 1970; Flanders, 1964, 1970; Furst, 1970; Hunter, 1968; Lashier, 1965; Samph, 1974; Soar, 1968). In India also the process product studies have revealed that indirect teacher influence is more effective than direct teacher influence. (Lulla, 1974; Pavanasham, 1974; Rokha, 1976; Sharma, 1972; Shaida, 1976; Sheelawant and Deshpande, 1981).

Some of the investigators on the other hand have reported teacher-indirectness to be unrelated or negatively related to pupil achievement. (Allen, 1970; Amidon, and Flanders, 1961; Cook, 1967; Flanders, 1968; Snider, 1968; Soar, 1971; Thomson and Bowers, 1968; Tordance, 1968).

Rosenshine and Furst (1976) have reported that increased teacher indirectness is unrelated to pupil attainment but
added that teacher criticism of pupils is negatively associated with pupil achievement. Soar (1960), found that greater use of lecturing is associated with greater achievement of pupils with low socio-economic status. In India studies of Padma (1976), Sharma (1972), Shaida (1976) have revealed that narrow questioning with feedback to be positively and significantly related to pupil achievement with respect to knowledge and understanding objective.

Another important factor affecting pupil achievement is that of personality factors. During the past two decades there have been fervent research to probe into variables affecting achievement of students other than intelligence. These may be grouped as (i) Environmental variables and (ii) Personality variables.

The researches on personality variables as a determiner of academic attainment have gained a considerable standing. Quite a few investigations have reported certain definite trends, facilitative or interfering between some personality traits and academic achievement. The results indicate trends but fail to be conclusive and non-controversial. Eysenck (1957) developed a personality theory providing a major landmark in this approach bringing into prominence
the extraversion and neuroticism dimensions of personality. Researches studying the effects of extraversion/introversion and neuroticism on pupil achievement indicate three types of results. The first type of results indicate extraversion and neuroticism to be negatively associated with academic attainment (Basu, 1968; Entwistle and Wadsh, 1962; Entwistle and Entwistle, 1964; Entwistle, 1961; Eysenck, 1957; Eysenck and Cockson, 1969; Lynn and Gordon, 1961 and Mohan (1973); Srivastav, 1980). The second type of results indicate neuroticism to be negatively associated and extraversion to be positively associated with academic attainment (Elliott, 1970; Eysenck, 1960; Husain, 1976; Orime, 1970; Rushton, 1966; Vohra, 1981). The third type of results indicate that neuroticism/manifest anxiety to be negatively associated with achievement and extraversion to be unrelated with academic achievement (Brar, 1972; Davison, 1958; Entwistle, 1963; Eysenck, 1961; Gupta, 1971; Levin, 1958; and Mohan, 1968).

Another concept frequently called Aptitude Treatment Interaction effects (ATI effects) has gained increasing importance. It has been the experience of most teachers and educationists that neither teacher behaviour nor pupil personality acts in isolation. That is to say, there will always be an interaction between teacher-behaviour and
pupil personality which will ultimately affect pupil achievement. The aptitude treatment interaction studies revealed that there are definite interaction between pupil aptitude variables like extraversion, neuroticism/manifest anxiety, achievement motivation and teacher behaviour (treatment variables) which will affect pupil achievement and aptitude. (Domino, 1970; Dowaliby and Schumer, 1970; Katharki and Deshpande, 1984; and Peterson, 1976).

The foregoing review and the experience of the investigator led him to take up this study relating teacher behaviour, pupil personality and pupil growth outcome (pupil achievement) on the following counts: (i) inconsistency among the findings regarding the relationship between teacher behaviour and pupil achievement as also the lack of consistent relationship between pupil personality (extraversion and neuroticism) and achievement and (ii) paucity of studies in the area of Aptitude x Treatment Interactions (ATI) in India. A third reason was the investigator's interest in this area of research, who as a classroom teacher had noticed the ATI effects and the casual attempts at adjustments made by his colleagues and himself to accommodate for the personalities of pupils. These attempts sometimes were successful, sometimes not. Hence the investigator felt that there was a need to investigate the problem.
5.2 Statement of the Problem

Relationship between teacher behaviour, pupil personality and pupil growth outcome.

5.3 Objectives

i. To find out the relationship between teacher behaviour and pupil achievement.

ii. To find out the relationship between pupil personality and pupil achievement.

iii. To know the interactive effect of teacher behaviour and pupil personality on pupil achievement.

iv. To construct and validate an achievement test.

v. To translate the Junior Personality Inventory into Kannada and validate the same.

vi. To adopt and validate the group test of intelligence.

In the second chapter the investigator made a fairly comprehensive review of the related literature. For this purpose, he grouped the related studies into four sections:

i. Pupil intelligence and pupil achievement

ii. Teacher behaviour pupil achievement
In the third chapter the investigator dealt with the methodology of the study. A brief account of the methodology is given below:

5.4.1 Problem

RELATIONSHIP BETWEEN TEACHER BEHAVIOUR, PUPIL PERSONALITY AND PUPIL GROWTH OUTCOME

5.4.2 Variables

Pupil personality and teacher behaviour are the independent variables of the study.

The dependent variable is pupil achievement and the control variable is the intelligence of the pupils. The investigator has operationally defined the variables and discussed the relationship between the variables which provided the rationale for the research hypotheses.

5.4.3 A number of null hypotheses were formulated for the main effects of neuroticism, extraversion and teacher behaviour. For first order interaction effects between (i) neuroticism and extraversion, (ii) neuroticism and
teacher behaviour, (iii) extraversion and teacher behaviour and for second order interaction effects between teacher behaviour, pupil extraversion/neuroticism on pupil achievement. The following are the major hypotheses of the study:

i. There is no significant difference in the achievement of the pupils grouped under low and high on neuroticism (intelligence being controlled)

ii. There is no significant difference in the achievement of the pupils grouped under low and high on extraversion (intelligence being controlled).

iii. There is no significant difference in the achievement of the pupils taught through direct or indirect teacher influence (intelligence being controlled).

3.4.4 Sampling

The investigator has chosen a combination of sampling techniques involving random and purposive sampling method. The sample was drawn from the secondary schools of Dharwad City, specifically IX standard students. In Dharwad City 21 Secondary Schools are functioning. The investigator selected five schools randomly for the present study. The student sample was drawn from each of the five schools by choosing randomly two IX standard classes (one class for
direct teacher influence; another for indirect teacher influence). Totally 640 students studying in ten sections of the 5 different schools were selected.

Five teachers teaching IX standard Chemistry in the five selected schools were also involved in the study. They were given intensive training in teaching the unit through direct teacher influence. However, the indirect teaching behaviour was played by the investigator himself.

5.4.5 Tools used for the study were:

(i) Junior Personality Inventory (Hindi version) of Mohan (1973). This tool is an adopted version of Eysenck's (1961). The investigator translated it into Kannada and validated the tool. The item analysis revealed that all the 68 items were to be retained. The reliability coefficient of the test was estimated by parallel form method. The obtained \( r = 0.83 \) indicates that the test is reliable. The validity of the test was obtained by method of nominated group. The obtained \( r \)-value of 0.51 indicates that the test is valid.

(ii) Group test of intelligence was used to know the level of intelligence of the students. The intelligence
test items were adopted from Ahuja-group test of intelligence, Bombay (1978) and Chinnamma Sattgananda group test of intelligence, Mysore (1962) and some of DAT items. The investigator also constructed some items. The test was in Kannada. The final form of the test consists of items spread over eight sub-tests. The reliability coefficient of the test was estimated by Rational Equivalence Method. The obtained r-value of 0.81 (N = 300) indicates that the test is reliable. The validity of the test was estimated by cross validation method (N = 120). The results indicated that the test is valid.

(iii) Achievement test in parallel form was constructed to know the gain in learning. Ninth Standard Chemistry topic "Oxygen and Sulphur" was chosen and objective type of items (multiple choice, matching, choosing correct answers, writing chemical symbol and chemical formulas and choosing correct apparatus) were constructed based on the objectives of knowledge, skill and application. The final form of the test (in parallel forms) consisted of 72 items each. The reliability coefficient of the test was estimated by test-retest method. The obtained r-value of 0.856 (N = 300) indicates that the test is reliable. The validity of the test was estimated by concurrent method using the annual examination scores. The obtained r-value of 0.501 (N = 100) indicates that the test is valid. The test has content validity.)
(iv) Flanders interaction analysis category system (FIACS) was used to prepare the lesson plans so that later, one set of classes would be taught by direct and the other set by indirect teacher influence. Lesson plans for the chosen unit were prepared in two sets. One set of lesson plans were prepared based on Flanders direct teacher influence and another set of lesson plans based on indirect teacher influence.

5.4.6 Procedure

The data collection included three stages. The first stage consisted of administering the Junior Personality Inventory (Kannada version). The JPI was administered to all the 640 students (IX class) selected for the study and their levels of extraversion and neuroticism were identified. Then the investigator identified the students forming eight groups. The students with scores above the median score were considered as falling under the high extraversion or high neurotic group and those with scores below the median score were considered as falling under the low extraverts or low neurotic group. Each student was classified under one of the following categories:

i) High Extraverts/High Neurotics - HE/HN,

ii) High Extraverts/Low Neurotics - HE/LN,

iii) Low Extraverts/High Neurotics - LE/HN,
iv) Low Extraverts/Low Neurotics - LE/LN

ignoring their membership in their respective classes.

At this stage, the investigator found it was not possible to randomly assign these students into homogeneous groups by breaking up the actual sections in the particular schools so that they could be subjected to two different treatments as in true experimental designs. Hence the investigator had to make use of intact-groups which resulted in a quasi-experimental design. However, each student was identified as belonging to one of the four groups mentioned earlier. The teacher using either direct or indirect influence, would be teaching a heterogeneous class, with respect to extraversion and neuroticism. Grouping was done for only purposes of analysis. As each of the four groups had to be subjected to indirect and direct influence respectively the total number of groups was eight although the number of sections was ten - 5 for direct and 5 for indirect. At this stage, the investigator found that if all the students were selected it would result in unequal cells. Therefore, as only 75 students were required in each cell for both direct and indirect groups making the total 600, the extra 40 students in the total sample of 640 students were randomly deleted thus making the number of pupils equal in each cell (75).
The quasi experimental design of the study containing eight cells had a 2x2x2 factorial design with two levels of extraversion (high and low); two levels of neuroticism (high and low) and two levels of teacher behaviour (direct and indirect).

### Design of the Study

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5.4.6.1 The investigator soon after the identification of students in eight different groups administered the group test of intelligence to know the level of intelligence of the students. Intelligence was a control variable in the study. After the administration of group test of intelligence, investigator administered the pre-achievement test to know the level of understanding of the pupils with respect to the different concepts of the unit chosen.
5.4.6.2 Experimental Treatment

The student sample of the study were located in ten sections of IX Standard in the five different schools. In each school one section was randomly assigned to direct and the other to indirect influence. The sections of IX Std., assigned to indirect teacher influence was taught by the investigator himself while the other sections assigned to direct influence were engaged by the selected teachers who were given training earlier. The investigator completed the unit in 20 periods of 45 minutes duration each; whereas the direct teaching strategy required 16 periods only.

5.4.6.3 Soon after the teaching of the unit was over the investigator administered the post achievement test to all the 600 students to know the gain in achievement.

5.4.7 The statistical techniques employed to analyse the data were mean, median, standard deviation, coefficient of correlation, two way analysis of co-variance and t-test. The procedure followed in the analysis is described below:

i. The coefficient of correlation between intelligence and achievement scores was calculated and the regression equation was computed.

ii. Each gain score was adjusted by applying the regression equation.
iii. After adjustment a 2x2x2 analysis of variance was carried out.

iv. Wherever P-values were found to be significant, further analysis by means of t-test was carried out.

5.5 Main Findings of the study

I. Neuroticism

The main effect of Neuroticism was found to be significant at the 0.01 level with F-value of 217.54 (df = 1/592).

Neuroticism was found to be significantly and negatively associated with academic achievement; lower the neuroticism higher would be the achievement.

II. Extraversion

The main effect of Extraversion was found to be significant at 0.01 level with F-value of 60.914 (df = 1/592).

Extraversion was found to be significantly and negatively associated with academic achievement; lower the extraversion higher would be the achievement.

III. Teacher Behaviour

The main effect of teacher behaviour was found to be significant at 0.01 level with F-value of 61.322 (df = 1/592).
Direct teacher influence was found to be significantly more effective than indirect teacher influence.

IV. First Order Interactive Effects

The first order interaction effect between neuroticism and teacher behaviour was found to be significant at 0.01 level (F value of 7.445, df = 1/592).

Low neurotic pupils have achieved significantly higher when taught through direct teacher influence than indirect influence. High neurotic pupils have achieved significantly higher when taught through direct teacher influence than taught through indirect influence.

V. The first order interactive effect between extraversion and teacher behaviour on achievement was not found to be significant.

VI. The first order interactive effect between neuroticism and extraversion on achievement was found to be significant at 0.01 level (F-value of 43.144, df = 1/592).

1. Pupils with LE/LN have achieved significantly higher than the other three groups.
2. There was no significant difference in the achievement of pupils classified as LE/HN and HE/HN.

3. LE/LN group of pupils achieved significantly higher than –
   i. HE/LN group
   ii. HE/HN group and
   iii. LE/HN group of pupils.

4. HE/LN group of pupils achieved significantly higher than (i) HE/HN group and (ii) LE/HN group of pupils.

VII. The second order interactive effect of teacher behaviour, pupil extraversion and neuroticism on pupil achievement was found to be significant at 0.01 level (F-value of 40.206, df = 1/592).

1. LE/HN group of pupils taught through direct teacher influence achieved significantly higher than that taught through the indirect teacher influence.

2. No significant difference was found in the achievement of HE/HN group of pupils when taught through direct or indirect teacher influence. However HE/HN pupils learnt slightly better under direct influence than indirect influence.
3. No significant difference was found in the achievement of LE/LN group of pupils when taught through direct or indirect teacher influence. However, LE/LN group of pupils learnt equally effectively under both direct and indirect influence.

4. HE/LN group of pupils achieved significantly higher under direct teacher influence than under direct teacher influence.

VIII. (a) Findings for indirect teacher influence

1. LE/LN group of pupils achieved significantly higher than -
   i. HE/LN group,
   ii. LE/HN group and
   iii. HE/HN group of pupils.

2. HE/HN group of pupils achieved significantly higher than LE/HN group of pupils.

3. HE/LN group of pupils achieved significantly higher than -
   i. HE/HN group and
   ii. LE/HN group of pupils.
4. LE/HN group of pupils achieved significantly lower than all other groups of pupils.

(b) Findings for direct teacher influence:

1. LE/LN group of pupils achieved significantly higher than -
   i. HE/LN group,
   ii. HE/HN group and
   iii. LE/HN group of pupils.

2. LE/NN group of pupils achieved significantly higher than HE/HN group of pupils.

3. HE/LN group of pupils achieved significantly higher than -
   i. LE/HN group, and
   ii. HE/HN group of pupils.

LE/LN group of pupils achieved significantly higher than all the other groups.

HE/HN group of pupils achieved significantly lowest than all the other groups.
6 Conclusions

Main Effects:

1. Neuroticism was found to be negatively and significantly associated with pupil achievement. Lower the neuroticism higher would be the achievement.

2. Extraversion was found to be negatively and significantly associated with pupil achievement. Lower the extraversion higher would be the achievement.

3. Direct teacher influence was found to be significantly more effective than indirect teacher influence.

First Order Interaction Effects:

4. i. The achievement of LE/LN group of students was significantly the highest.

ii. HE/LN group of students achieved significantly higher than HN/HE group of students.

iii. The achievement of HE/HN group of students was significantly the lowest.

5. Low neurotic group of pupils have achieved significantly higher when taught through direct teacher influence than indirect influence.
6. High neurotic group of pupils achieved significantly higher when taught through direct teacher influence than through indirect teacher influence.

7. No significant interaction effect was obtained between extraversion and teacher behaviour.

Second Order Interaction Effects

8. LE/LN group of pupils achieved equally well both under direct and indirect influence.

9. LE/HN group of pupils taught through direct teacher influence achieved significantly higher than that taught through the indirect teacher influence.

10. No significant difference was found in the achievement of HE/HN group of pupils when taught through direct or indirect teacher influence.

5.7 Limitations of the Study

1. In the present study the achievement of the students was measured with respect to a unit in Chemistry only. Therefore generalisations should be made cautiously.

2. The present study has a quasi-experimental design with intact groups.
3. The personality variables considered were only Extraversion and Neuroticism.

4. The analyses were carried out with the total gain scores only. The gain scores were not further sub-divided into scores for knowledge, skill and application items for the purpose of analyses.

5.3 Implications

An important factor emerging from the study rests on the relationship between teacher behaviour and pupil achievement. Direct teacher influence is found to be more effective when student achievement is measured with respect to knowledge objective. However indirect teacher influence is found to be effective with skill and application objective.

The personality factors of Neuroticism and Extraversion play important roles in the academic growth of pupils. Many times the teacher will not be in a position to understand either student behaviours or reasons for their low academic achievement, as they are affected by a number of factors, one of them being pupil personality. Neuroticism/Manifest anxiety, a personality dimension, plays a vital role in the academic performance of pupils.
Pupils with neurotic nature show a weak dependent attitude, narrow interests, symptoms of nervous breakdown and as such lag behind academically. The teacher has to identify such tendencies amongst the pupils with the help of personality inventories. Pupils with high neuroticism require a highly structured situation. So such pupils may need the teacher to provide structure, in other words be direct. However, the pupils with low neurotic nature who are also said to be stable minded, learn equally well under indirect teacher influence. It may enable them to be more independent.

Similarly another personality factor, that of extraversion also is an important variable affecting the academic success of pupils. Extravert pupils are impulsive, easy going, optimistic and like to laugh and be merry. Feelings of such pupils are not kept under tight control, as such they cannot concentrate on academic aspects. The teacher has to identify such pupils and provide learning experiences appropriately.

Pupils with particular combinations of extraversion and neuroticism may be identified and grouped, so that the teaching style that matches them best can be adopted which is an objective of ATI studies. For example, it is found that low neurotic/low extravert (LN/LE) group of students
learnt well under both the direct and indirect teaching styles. However, there is in this study, a strong evidence to show that direct teaching style is more effective than indirect teaching style. This finding, when coupled with the findings of Sayed (1986), point to the desirability of employing the direct teaching style in India for better student performance. Sayed found that the majority of students show a preference for direct teaching style. The present study has revealed that students with HN/LE and LN/HE personality perform significantly better under direct teacher behaviour than under indirect; whereas students with HN/HE personality perform ineffectively under both direct and indirect teacher behaviour. The former finding implies that students with the HN/LE and LN/HE personality perform to an optimum level when the instructional style is direct teacher behaviour, a clear aptitude treatment match. If it is agreed that modifying the personality of an individual for the better, is a difficult task, then it follows that teachers should take care to see that their actions do not result in worsening students' personalities. Coming to the HN/HE personality type, it is to be hoped that the actions of teachers do not help to increase the anxiety of students. Efforts should be made to appraise teachers of such of their behaviours which may be inducing anxiety in their students. It is in this context,
that the concept of socio-emotional climate of the classroom assumes importance. A positive socio-emotional classroom climate has these two characteristics: the teacher provides appropriate learning experiences and at the same time behaves in a manner that does not induce teacher created anxieties in pupils. A positive socio-emotional climate helps students to concentrate on their studies by lessening their anxiety. Hence, special efforts need to be made to identify students having the HE/HN personality type, so that the teacher can consciously create, to the extent that is possible, a climate that is congenial to the students which will help them to attain a feeling of security; this feeling of security will gradually help them to turn their attention more and more to academic matters, thus enabling them to perform better.

The above procedure seems to be very necessary as it must be recalled that these findings have been obtained when intelligence has been controlled. It needs to be stressed that it is the unfortunate personality type which is causing the poor achievement and not lower intelligence. Therefore it is essential that teachers be made aware of their role in creating and fostering a good socio-emotional climate. Obviously the socio-emotional climates, resulting from the indirect and direct teacher behaviours as
implemented in the present study, have had no differential effect on students with the HE/HN personality type. This implies that efforts must be made to seek/identify/develop teaching style/s that may match such students so that their achievement would be on par with that of students with HN/LE, LN/LE and LN/HE personality type.

Looking at the practical aspect, it is suggested that in-service and pre-service teachers be made aware of the concepts of ATI and socio-emotional climate. As far as the latter is concerned, it is suggested that the teacher education programmes at the primary and secondary levels include the topic of interaction analysis. Selected observation systems should be studied and used by teachers. It is also suggested that to create good socio-emotional climates, teachers need to know the part played by both communication and interpersonal communication skills. A good teacher has to be an effective communicator who at the same time understands the value of good interpersonal communication.

The above suggested units interaction analysis communication and interpersonal communication skills have been included in the syllabi of few teacher education programmes in India though some post-graduate courses in Education
have included the above topics. From the findings of the study, it is felt that the above units should be included at the B.Ed. (secondary teachers education programme) and the T.C.H. (Primary teachers education programme), levels throughout the country.

To sum up, the investigator would also suggest that teachers be made aware of the efficacy of direct teaching style in general, although as previously suggested they should be trained to adapt appropriate teaching style.

5.9 Suggestions for further research

1. A Similar study with true experimental design can be undertaken.

2. More aptitude variables of pupils like their background, achievement orientation, pupil expectation of teacher role and pupil preference for particular teaching styles, can be considered with focus on ATI effects only.

3. Teaching styles, other than Flanders' direct and indirect may be considered.

4. A similar study can be undertaken at the primary level.
5. Some ATI studies can be specially undertaken to determine the match between teaching style and the pupil aptitude variable of High Neuroticism/High Extraversion.

6. The achievement scores of pupils can be subdivided into sub-scores for different types of objectives (in the cognitive domain) for purposes of analysis in all the suggestions offered above. Such a subdivision will lead to a better interpretation and understanding of results.