C H A P T E R - V

RESULTS AND DISCUSSION

In this chapter the results of the present investigation are discussed. The discussion is divided into three sections. In the first section correlation between I/D ratio, i/d ratio, T/S ratio, C_3 and C_9 and each of the 15 independent variables are examined and evaluated. In the second section multiple regression equations are developed and the efficacy of the predictor variables in prediction is dealt with. The third and last section is devoted to the effect of personality variables on teacher behaviour. In the discussion of correlations first correlations with personality traits are examined followed by attitudinal variables. In discussing these correlations two dependent variables are taken together and their relationship with the independent variables is studies simultaneously.

MEANS AND S.D's OF CRITERION
AND PREDICTOR VARIABLES

Table 1

Means and S.D.'s of the Criterion Variables

	Total	Mean	S.D.
I/D ratio	116.20	0.5810	-
i/d ratio	454.10	2.2705	-
T/S ratio	1184.70	5.9235	10.10
Category 3	598.50	2.9925	2.89
Category 9	871.80	4.3590	4.76

Table 2

Means and S.D.'s of the Predictor Variables

	Total	Mean	S.D.
Active	1400	7.000	3.16
Vigorous	2014	10.070	4.70
Impulsive	1844	9.220	3.11
Dominant	2349	11.745	4.11
Emotionally stable	1961	9.805	3.51
Sociable	2455	12.275	3.71
Reflective	2100	10.500	2.88
Management	13950	69.750	11.62
Parents	12858	69.290	10.91
Other teachers	15981	79.905	9.87
Demo.Adm.Proc.	17563	87.815	7.87
Pupils	16586	82.930	10.61
Demo.Class.Proc.	14176	70.880	9.12
Tech. Prof.	1519.83	7.59915	1.45
Education	1534.16	7.67080	0.97

In Table 1 are presented the means and standard deviations of criterion variables. Of the 5 criterion variables the highest mean is of T/S ratio and the lowest is of I/D ratio. The standard deviation of T/S is also higher compared to other variables. This shows that the variability of the scores is greater on T/S ratio.

In Table 2 means and standard deviations of predictor variables are shown. The range of the 15 means is from 7.00 to 87.815. "Active" trait has a lowest mean scores while attitude toward "Democratic Classroom Procedures" has the highest mean scores. Regarding the variability of the scores it is seen in the table that scores on attitude toward "Management" are much more spread compared to other scores. The minimum spread of scores is on "Education" scale where the S.D. is only 0.97.

RELATION BETWEEN I/D AND i/d RATIOS
AND PERSONALITY TRAITS

Table 3

Relationship Between Teachers' Personality Traits and I/D and i/d Ratios (N = 200)

Traits	I/D Ratio	i/d Ratio
Active	- .03743	- .08285
Vigorous	.00387	- .04434
Impulsive	.03879	- .00683
Dominant	- .02184	.02386
Stable	- .03601	.02889
Sociable	- .02532	.06390
Reflective	- 12412*	- .16389**

* Approaches .05 level of significance

** Significant at .05 level

In Table 3 correlation coefficients between teachers' personality traits and I/D ratio and i/d ratio are presented. Examining the relationship it is found that correlation between "Active" trait and I/D and i/d ratios is -.03743 and -.08285 respectively. Taking 198 degrees of freedom and looking at .05 and .01 level of significance we find that there is no significant relationship between I/D and i/d ratios and "Active" trait. On the basis of this finding the first null hypothesis which states that I/D and i/d ratios are not related to "Active" trait of personality is retained.

"Vigorous" trait correlated .00387 with I/D ratio and -.04434 with i/d ratio. In one case the relationship is positive and in another it is negative. However, neither of the two relationships is significant at .05 level of significance. This finding too supports the second hypothesis which assumes no correlation between teacher behaviour and "Vigorous" trait.

Following "Vigorous" trait is "Impulsive" trait. This trait has a relationship of .03879 with I/D ratio and -.00683 with i/d ratio. These relationships are not significant. Thus the null hypothesis which states that I/D and i/d ratios are not related to "Impulsive" trait of personality of the teacher is retained.

"Dominant" trait is not related significantly to I/D and i/d ratios as revealed in the correlation table. It correlates

-.02184 with I/D ratio and .02386 with i/d ratio. Again in the light of these results the null hypothesis which states that I/D and i/d ratios are not related to "Dominant" trait is confirmed. Seeing the direction of relationship we find that the relationship with I/D ratio is negative and with i/d ratio it is positive. Examining the correlation of "Stable" trait with I/D and i/d ratios, it is seen that the former correlates -.03601 with I/D ratio and .02889 with i/d ratio. As regards the strength of the relationship it can be said that it is not significant at any of the two levels of confidence. In other words, "Stable" trait has insignificant negative correlation with I/D ratio and insignificant positive correlation with i/d ratio. These results have ample evidence to support the null hypothesis that "Stable" trait of personality has no relationship with I/D and i/d ratios.

"Sociable" trait associates -.02532 with I/D ratio and .06390 with i/d ratio. In both the cases the association is insignificant, however the association in one case is negative and in other positive. In the light of these correlations again we retain the null hypothesis which assumes no relationship between "Sociable" trait and teacher behaviour in terms of I/D and i/d ratios.

The correlation between "Reflective" trait and I/D ratio is found to be -.12419. Though this value is not significant it is highest among the correlations between personality traits and I/D ratio and approaches the .05 level of confidence.

The same trait correlates -.16389 with i/d ratio. This relationship is significant at .05 level of confidence. Since the relationship is in negative direction it is interpreted that if the teacher is more reflective the proportion of motivating to controlling behaviour is less (i/d ratio decreases). In other words, as one of the two increases the other decreases. In this case the null hypothesis that i/d ratio is not related to "Reflective" trait is rejected. The null hypothesis may be restated as "Reflective" trait is related to i/d ratio.

On the basis of above discussion following generalizations can be made :

1. "Active" trait of personality is not related to I/D and i/d ratios.
2. "Vigorous" trait has no relation with I/D and i/d ratios.
3. "Impulsive" trait does not correlate with I/D and i/d ratios.
4. "Dominant" trait is not associated with I/D and i/d ratios.
5. "Stable" trait does not relate with I/D and i/d ratios.
6. "Sociable" trait is also not related to I/D and i/d ratios.
7. "Reflective" trait correlates moderately though not significantly with I/D ratio and correlates significantly at .05 level with i/d ratio.

It can be argued keeping in view the above generalizations that neither sociability nor emotional stability nor impulsive nature, nor vigonr, nor activeness of the teacher have any correspondence with his classroom verbal behaviour. But if teacher's behaviour is at all affected, it is affected by his reflective quality or reflective nature or reflective trait. This is a very interesting phenomenon because a person who is reflective always introspects and evaluates his behaviour and tries to improve it, if it is undesirable or deviating from social norms. For example, the reflective teacher will evaluate his lenient behaviour and its impact on students. If he finds that more leniency resulted in indiscipline he would be slightly harsh next time and will try to maintain the balance of his behaviour. In this way reflective trait is related to teacher behaviour.

RELATION BETWEEN I/D AND i/d RATIOS AND ATTITUDES

Table 4

Relationship Between Teachers' Attitude and I/D and i/d ratios (N = 200)

Attitude Toward	I/D ratio	i/d ratio
Management	.01423	.13378 *
Parents	.04388	.09190
Teachers	- .04891	.00290
Demo.Adm.Proc.	.03988	- .00671
Pupils	.08016	.06289
Demo. Class Proc.	.14964**	.16517 **
Teaching Prof.	.02983	.02154
Education	.04777	.10525 *

* Approaches .05 level of significance

** Significant at .05 level.

In Table 4 correlations between teachers' attitudes and their classroom verbal behaviour are shown. A look at the table reveals that the pattern of correlation is very much similar to the pattern of correlations in Table 3. However, there is slight difference i.e. the number of negative correlations between personality traits and teacher behaviour is greater than number of negative correlation between attitude and teacher behaviour.

Examining the relationship between teachers' attitude toward "Management" and teacher behaviour we find that the former relates .01423 with I/D ratio and .13378 with i/d ratio. The correlation between I/D ratio and "Management" is not significant. But correlation between i/d ratio and "Management" is moderate and approaches .05 level of significance. The direction of correlations is positive. The null hypothesis that teacher behaviour and teachers' attitude toward "Management" is not related is retained.

Teachers' attitude toward "Parents" and its relation with I/D ratio and i/d ratio is found to be .04388 and .09190 respectively. These values are less than the value at .05 level, therefore they are not significant. Here again the null hypothesis is accepted, which assumes no relationship between teachers' attitude towards "Parents" and teachers classroom verbal behaviour.

Following teachers' attitude toward "Parents" comes teachers' attitude toward "Other Teachers". This variable associates -.04891 with I/D ratio and .00290 with small i/d ratio. The relationship with i/d ratio is greater than I/D ratio, but neither of the two relationships is significant, proving that teacher behaviour has no association of any sort with the attitude toward "Other Teachers". On the basis of these correlations the null hypothesis is confirmed.

The correlation between teachers' attitude toward "Democratic Administrative Procedures" and I/D ratio and i/d ratio is .03988 and -.00671. Both these correlations reveal insignificant relationships and support the null hypothesis which does not assume any relationship between teacher behaviour and attitude toward "Democratic Administrative Procedures".

Teachers' attitude toward "Pupils" relates .08016 with I/D ratio and .06289 with i/d ratio. Both these relationships are positive in nature but none of them being significant. Therefore the null hypothesis is retained. The null hypothesis assumed no relation between teacher behaviour and teachers' attitude toward "Pupils".

Teachers' attitude toward "Democratic Classroom Procedures" correlates .14964 and .16517 with I/Dand i/d ratios respectively. Taking 198 degrees of freedom and looking to the values at ,05 level we find that both these correlations are significant

which means that teachers' attitude toward "Democratic Classroom Procedures" is positively related. The null hypothesis in the present circumstances is rejected which does not assume such relationship. An important point is that the present values are highest among all the values as well as among the correlations of personality traits with teacher behaviour.

The relationship between teachers' attitude toward "Teaching Profession" and I/D and i/d ratios is not significant as revealed by the correlation coefficients. The I/D ratio and i/d ratio have correlations of .02983 and .02154 with teachers' attitude toward "Teaching Profession". The nature of correlations is positive but not significant. Here also the null hypothesis is confirmed and retained.

The association between teachers' attitude toward "Education" and I/D ratio is .04777 and i/d ratio .10525. Though both the relationships are insignificant the second one is discernible and demands consideration.

In the light of the above discussion following generalizations can be made :

1. Teachers' attitude toward "Management" is not related to I/D and i/d ratios.
2. Teachers' attitude toward "Parents" has no relation with I/D ratio and i/d ratio.
3. Teachers' attitude toward "Other Teachers" does not correlate with I/D and i/d ratios.

4. Teachers' attitude toward "Democratic Administrative Procedures" does not have any bearing on I/D and i/d ratios.
5. There is no association between teachers' attitude toward "Pupils" and I/D and i/d ratios.
6. Teachers' attitude toward "Democratic Classroom Procedures" is significantly (.05 level) positively related to I/D and i/d ratios.
7. There is no relationship between teachers' attitude toward "Teaching Profession" and I/D and i/d ratios.
8. Teachers' attitude toward "Education" is not associated with I/D and i/d ratios.
9. Relationship between teachers' attitude toward "Management" and "Education" is discernible with i/d ratio.

Here again we find that the teacher's classroom verbal behaviour is not affected by his attitude toward "Management", "Pupils", "Parents", "Other Teachers", "Teaching Profession", "Education" and "Democratic Administrative Procedures", but is affected by his attitude toward "Democratic Classroom Procedures". The reason may be that the tendency of teacher to involve students into teaching learning processes must be making him to elicit such verbal behaviour which would encourage the students to participate and involve themselves in the common goal of classroom, i.e. learning.

RELATION BETWEEN CATEGORY 3 AND CATEGORY 9
AND PERSONALITY TRAITS

Table 5

Relationship Between Teachers' Personality Traits and Teachers' Accepting Behaviour of Students' Ideas (C_3) and Student Initiation (C_9) (N=200)

Traits	C_3	C_9
Active	- .10073	- .00403
Vigorous	- .10827 *	- .10867 *
Impulsive	- .02961	- .09849
Dominant	.04702	- .10949 *
Stable	- .08542	- .02211
Sociable	.02822	- .14892 **
Reflective	- .12840 *	- .10960 *

* Approaches .05 level of confidence

** Significant at .05 level of confidence

Table 5 exhibits correlation coefficients between personality traits and C_3 and C_9. Examining the relationship it is found that the correlation between "Active" trait and C_3 and C_9 is -.10073 and -.00403 respectively. Taking 198 degrees of freedom and looking at .05 of significance we find that there is no significant relationship between C_3 and C_9 and "Active" trait. An important observation is that relationship between C_3 and "Active" trait is outstanding compared with the correlation between C_9 and "Active" trait. The null hypothesis,

because of insignificant relationships is retained, which does not assume any relationship between the above three variables.

"Vigorous" trait correlates -.10827 with C_3 and -.10867 with C_9. In both the cases the relationship is negative and considerable but not significant. Both the correlations are approaching the value of .05 level of significance. But the correlations are not significant, therefore, the null hypothesis is not rejected. It was hypothesized that "Vigorous" trait was not related to C_3 and C_9.

Number three is "Impulsive" trait. This trait has a relationship of -.02961 with C_3 and .09849 with C_9. Both the relationships fail to meet the required significant values at .05 level. Therefore the null hypothesis which states that C_3 and C_9 are not related to "Impulsive" trait of personality is not rejected. The direction of relationship in both the instances is negative.

"Dominant" trait is not significantly related to C_3 and C_9 as revealed in the correlation table. It correlates .04702 with C_3 and -.10949 with C_9. Both these relationships are insignificant, however, the corresponding value between "Dominant" trait and C_9 as greater than the value between "Active" trait and C_3. The correlation between "Active" trait and C_9 approaches .05 level of significance. In the light of these results the null hypothesis which does not assume any relationship between "Dominant" trait and C_3 and C_9 is retained.

Examining the correlation of "Stable" trait with C_3 and C_9 it is seen that the former correlates -.08542 with C_3 and -.02211 with C_9. As regards the strength of the correlations it can be said that they are not significant at .05 level. In other words "Stable" trait has insignificant negative correlation with C_3 and C_9. These results have sufficient evidence to support the null hypothesis that teacher's acceptance of student's ideas and student's own initiation (C_9) is not related to stability of the teacher.

"Sociable" trait associates .02822 with teacher's acceptance of student's ideas (C_3) and -.14892 with student's initiation (C_9). The first correlation is not significant while the second correlation is significant at .05 level in negative direction. These findings point that teacher's accepting behaviour of student's ideas is not related to his sociability but it is very much related to student's initiation. This relationship can be interpreted further in this way that if a teacher is very sociable, students in his class will be less initiating and if the students are very initiating in the class the teacher will be less social. Thus, in the light of this result the null hypothesis is rejected which assumes no relationship between "Sociable" trait and student initiation (C_9).

The correlations between "Reflective" trait and C_3 and C_9 are found to be -.12840 and -.10960. Though both the correlations are not significant, they are approaching the .05

level of significance. It is believed that these correlation values would have been significant with the sample of 300. However, in this case also the null hypothesis is not rejected which states that "Reflective" trait is not related to teacher's accepting behaviour of student's ideas (C_3) and student's initiation (C_9).

The following generalization can be made on the basis of above discussion :

1. Out of 14 correlations, 6 correlations are approaching .05 level and one correlation is significant beyond .05 level.
2. Teacher's accepting behaviour of student's ideas (C_3) is not related to "Active" trait. Similarly student's initiating behaviour (C_9) too is not related to the social trait.
3. "Vigorous" trait has no association with either teacher's acceptance of student's ideas C_3 or with student's initiation (C_9).
4. "Impulsive" trait is not related to C_3 as well as C_9.
5. There is no significant relationship between "Dominant" trait and C_3 and C_9.
6. "Stable" trait is neither related to teacher's accepting behaviour of student's ideas (C_3) nor student's initiation (C_9).
7. "Sociable" trait is significantly negatively related at .05 level with student's initiation (C_9) but not related with C_3.

8. "Reflective" trait also is not related to C_3 and C_9.

The above discussion shows that even the teacher's accepting behaviour of student's ideas remains unaffected by his various personality traits. On the contrary his sociable tendency or "Sociable" trait is negatively related to student's behaviour i.e. student's initiation. If the student initiation is greater the less is the teacher sociability. This shows that sociability encroaches on other individuals sociability. Either it submits itself or hinders others' initiative.

RELATION BETWEEN CATEGORY 3 AND
CATEGORY 9 AND ATTITUDES

Table 6

Relationship Between Teachers' Attitude and Teachers' Accepting Behaviour of Student's Ideas (C_3) and Student's Initiation (C_9) (N = 200)

Attitude Toward	C_3	C_9
Management	.11692 *	.02667
Parents	.08929	- .02714
Teachers	.01521	- .08866
Demo. Adm. Proc.	- .07603	- .02900
Pupils	- .02135	.02106
Demo. Class Proc.	.00416	.04653
Teaching Prof.	.05511	.05379
Education	.06254	- .09477

* Approaches .05 level of significance

In Table 6 correlations between teachers' attitude and accepting behaviour of student's ideas and student initiation are presented. It is clear from the table that out of 16 correlations not a single correlation is significant. No doubt, correlation between teachers' attitude toward "Management" and C_3 is worth considering. It correlates .11692 with C_3 and .02667 with C_9. From the first relationship it can be said that there must be very slight influence of teacher's attitude toward "Management" and teacher's accepting behaviour of student's ideas.

Teachers' attitude toward "Parents" and its relation with C_3 and C_9 is found to be .08929 and -.02714 respectively. These values are less than the value at .05 level, therefore they are not significant. Here again the null hypothesis is accepted, which assumes no relationship between teachers' attitude toward "Parents" and teachers' accepting behaviour of student's idea as well as student initiation.

Teachers' attitude toward "Other Teachers" is related .01521 with C_3 and -.08866 with C_9. In first case the direction of relationship is positive while in second case it is negative. As far as the significance of relationship is concerned none of the two relationships are significant. Here again we have to accept the null hypothesis which states that teachers' accepting behaviour of student's ideas and student initiation are not related to teachers' attitude toward "Other Teachers".

The association between teachers' attitude toward "Democratic Administrative Procedures" and C_3 is -.07603 and C_9 -.02900. Both the associations are negative and significant and support the null hypothesis which does not assume any relationship between teachers' accepting behaviour of student's ideas and student initiation.

The attitude of teachers toward "Pupils" relates -.02135 with acceptance of student's ideas (C_3) and .02106 with student initiation (C_9). One of the correlation is negative and the other positive, however neither of the two is significant because their values are less than the value of .05 level of confidence. Therefore the null hypothesis is confirmed. The null hypothesis assumed no relation between the attitude of teachers toward "Pupils" and C_3 and C_9.

The relationship between teachers' attitude toward "Teaching Profession" and C_3 and C_9 is not significant as revealed by the correlation coefficients. C_3 and C_9 have correlations of .05511 and .05379 with teachers' attitude toward "Teaching Profession". The direction of correlation is positive but insignificant. Here also the null hypothesis is confirmed and retained.

The association between teachers' attitude toward "Education" and C_3 is .06254 and C_9 -.09477. The relationship between teachers' attitude and student initiation shows negative direction. As regards the strength of the relationships

is concerned neither of the two relationships is significant, sufficiently warranting that no relation exists between teacher's attitude toward "Education" and his accepting behaviour of student's ideas as well as student's initiation.

In the light of the above deliberations, the following observations can be made :

1. Teachers' attitude toward "Management" has no significant relationship with C_3.
2. Teachers' attitude toward "Parents" is not related to C_3.
3. Teachers' attitude toward "Other Teachers" does not correlate with C_3.
4. Teachers' attitude toward "Democratic Administrative Procedures" does not relate C_3.
5. There is no significant association between teachers' attitude toward "Pupils" and C_3.
6. Teachers' attitude toward "Democratic Classroom Procedures" is not related to C_3.
7. There is no relationship between C_3 and teachers' attitude toward "Teaching Profession".
8. Teachers' attitude toward "Education" does not correlate with C_3.
9. Student behaviour in the form of C_9 is not related to teachers' attitude toward "Management", "Parents", "Other Teachers", "Democratic Classroom Procedures", "Teaching Profession" and "Education".

In this section we find that teacher's accepting behaviour of student's ideas remains unaffected by his attitude toward various groups and school practices. Similarly, there is no correspondence between these attitudes and student's voluntary behaviour in the form of student initiation.

RELATION BETWEEN T/S RATIO
AND PERSONALITY TRAITS

Table 7

Relationship Between Teachers' Personality Traits and T/S Ratio (Proportion of Teacher Talk to Student Talk) (N = 200)

Traits	T/S Ratio
Active	.11989 *
Vigorous	-.06384
Impulsive	- .00379
Dominant	.02451
Stable	- .05233
Sociable	.01262
Reflective	.00308

* Approaches .05 level of significance

In Table 7 correlations between various personality traits and proportion of teacher talk to student talk (T/S ratio) are shown. Out of seven relationships none of them is significant at .05 level of confidence. The relationship between

"Active" trait and T/S ratio is considerable and it is believed that if the sample would have been greater it would have been significant at .05 level. "Active" trait, however, correlates .11989 with T/S ratio. "Vigorous" and "Impulsive" traits correlate -.06484 and -.00379 with T/S ratio. Both the correlations are not significant and show negative direction. "Dominant" trait associates .02451 with T/S ratio. This association too is not significant. "Stable" trait has a correlation of -.05233 with T/S. This correlation is insignificant and negative in direction. "Sociable" and "Reflective" traits correlate .01262 and .00308 with T/S ratio respectively. Neither of the two correlations shows significant relationship.

On the basis of these findings, following generalizations are made :

1. T/S ratio is not related to "Active" trait, although it has maximum correlation with ~~T/S ratio~~ "Active" trait compared to other correlations.
2. T/S ratio does not correlate with "Vigorous" trait of personality.
3. T/S ratio has no relation with "Impulsive" trait.
4. There is no correlation between T/S ratio and "Dominant" trait.
5. T/S ratio is not associated with "Stable" trait.
6. There is significant correelation between T/S ratio and "Sociable" trait.
7. "Reflective" trait and T/S ratio do not correlate with each other.

RELATION BETWEEN T/S RATIO AND ATTITUDE

Table 8

Relationship Between Teachers' Attitude and T/S Ratio (Proportion of Teacher Talk to Student Talk) (N = 200)

Attitude Toward	T/S Ratio
Management	.09196
Parents	- .02256
Teachers	- .00477
Demo. Adm. Proc.	- .01994
Pupils	- .07869
Demo. Class Proc.	- .06282
Teaching Prof.	.01555
Education	- .01339

In Table 8 correlations between various attitudes of the teachers and T/S ratio are presented. Teachers' attitude toward "Management" correlates .09196 with T/S ratio. This correlation is positive in nature but fails to reach the significant value at .05 level. Therefore the null hypothesis which assumes no relationships between this trait and teachers' attitude toward "Management" is not rejected. The T/S ratio correlates -.02256; -.00477; -.01994; -.07869; and -.06282 with teachers' attitude toward "Parents", "Other Teachers", "Democratic Administrative Procedures", "Pupils", and "Democratic Classroom Procedures" respectively. Attitude

toward "Teaching Profession" and "Education" correlate .01555 and -.01339 with T/S ratio. All of these correlations are not significant. These findings point out that -

1. Teachers' attitude toward "Management" is not related with T/S ratio.
2. Teachers' attitude toward "Parents" does not have any relation with T/S ratio.
3. Teachers' attitude toward "Other Teachers" is unrelated with T/S ratio.
4. Teachers' attitude toward "Democratic Administrative Procedures" is not associated with T/S ratio.
5. Teachers' attitude toward "Pupils" does not correlate with T/S ratio.
6. There is no significant relation between teachers' attitude toward "Democratic Classroom Procedures" and T/S ratio.
7. Teachers' attitude toward "Teaching Profession" has no relationship with T/S ratio.
8. Teachers' attitude toward "Education" is unrelated to T/S ratio.

How do these results compare with the previous research findings ? To seek an answer to this question two approaches are adopted. First to compare the general trend of findings, and secondly to compare the findings with respect to variables which have been common in the present investigation and the previous ones. Thus if we compare the general trend

of the findings of present research it will be noticed that they are more or less closely resemble with the findings of Davies (25), Ringness (76), Lantz (53), Simon (85), Storlie (94), Quraishi (73) and Giebánik (39), wherein only one or two or sometimes not a single measure of teacher behaviour is related to personality and attitudinal variables. The same case is in the present investigation in which out of 75 correlations studied only 4 correlations between behaviour measures and personality and attitudinal variables have been found to be significant. Thus, the results of the present study are in consonance with the previous research findings. Davies (25) in her study correlated teachers' personality traits with their classroom behaviour. She found only one or two measures among 25 teacher traits to be significantly related to patterns of teaching observed with Flanders categories. For example, teachers' scores on the sub-scales of warmth and the total Minnesota Teacher Attitude Inventory (MTAI) scores were associated with responsive teacher behaviour as indicated by statistically significant low positive correlations. Ringness and others (76) compared similar observation scores of 27 first year teachers with measures of self-concept as teachers' measures of security, and measures of anxiety. Although there were significant relationships among self-perception scores, the measures were not significantly associated with overt behaviour while teaching. Lantz (53) studied certain

relationships between classroom emotional climate as measured by the OScAR and concept of self, self-other and self-ideal of elementary student teachers, measured by Interpersonal Check List (ICL) with a view to predict social emotional climate. Three multiple regression equations were developed using the three separate independent variables (Self, self-other, self-ideal) as predictors. None of the equations investigated were capable of predicting classroom emotional scores beyond chance expectations. Simon (85) tested the relationship between a teacher's preference for a class and verbal behaviour using Flanders system. More praise statements appeared in the preferred classes, but the vast majority of communication in the two types of classes was similar. Storlie (94) in his investigation did not find strong relationship between change in behaviour after the inservice training and 25 personality variables measured before training began. Giebink (39) hypothesized that high scores on the Minnesota Teacher Attitude Inventory (MTAI) would be positively related to (a) indirect teacher talk, (b) continued use of acceptance and praise by teacher, (c) student talk, and negatively related to (d) direct teacher talk, (e) continued use of directions and criticism by teachers, and (f) silence or confusion. A sample of 27 elementary school teachers were observed for 20 minutes and their behaviour were observed and recorded in Flanders categories. None of the correlations between MTAI scores and teacher behaviour categories were found to be significant.

Geibink remarked, "..... the main conclusion that could be drawn was that there was no relationship between the attitude measured by the MTAI and observed teacher behaviour." Quraishi (73) tried to relate teacher behaviour in terms of proportion of indirect behaviour to direct behaviour (I/D ratio) as measured by Flanders technique with Active, Vigorous, Impulsive, Dominant, Stable, Sociable, and Reflective traits of personality measured by Thurstone Temperament Schedule. The data was based on a sample of 40 primary school teachers. He did not find any significant relation between I/D ratio and any of the personality traits. A multiple regression equation was developed to study the combined effect of the seven traits on I/D ratio. The multiple R was found to be .498 which too was not significant from zero. These results and the results of the present investigation reveal that teacher behaviour patterns of primary as well as secondary teachers are independent of personality temperaments.

Now we turn to the variable viz., comparison - comparison of those personality and attitudinal variables which are common in the present investigation and the previous ones.

Active, Vigorous, Impulsive and Dominant traits in the present investigation have not been found to be correlated to any of the five criterion variables, namely, proportion of indirect behaviour to direct behaviour (I/D ratio), proportion of motivating behaviour to controlling behaviour

proportion of teacher talk to student talk (TT/S Ratio)
(i/d ratio), teacher's accepting behaviour of students' ideas (category 3), and student initiation (category 9). The same traits have not been correlated at all with any behaviour dimensions in previous researches. However, Barr and others (9) in their review of researches on teacher effectiveness have reported 21 studies in which Dominant trait was found to be correlated 24 times with various criteria of teaching success (59). Sheldon, Coale and Copple (84) compared EPPS scores of teachers, securing high and low scores on the Warm Teacher Scales of the MTAI. They found that those high on the "Warm Teacher Scales" (i.e. potentially good teachers) had significantly higher scores on Affiliation and Dominance need and significantly lower scores on Aggression, Succorance, and Abasement than did those low on the "Warm Teacher Scales" (36).

In the present investigation Emotionally Stable trait correlated -.03601 with proportion of direct behaviour to indirect behaviour; .02889 to proportion of motivating behaviour to controlling behaviour; -.05233 to proportion of teacher talk to student talk; -.08542 with teacher's accepting behaviour of students' ideas; and -.02211 with student initiation. None of these correlations are significant. The same trait however in various other researches has been correlated with other behaviour dimensions and has been found to be related. In Ryans's (79) study this trait (Emotional Stability) had low positive relationship with

behaviour pattern X_0 (understanding, sympathetic classroom behaviour), the association was somewhat closer in the elementary schools than in the secondary schools. The correlation with pattern Z_0 (stimulating teacher behaviour$ also was consistently positive but slight. Business like, systematic teacher classroom behaviour (pattern Y_0) was slightly negatively correlated with Emotional Stability scores. In Evans's (29) study Emotional Stability correlated -.64 with Release; -.79 with Goal Setting; .69 with Study Management; .88 with Verbal Laboratory Management; .74 with Non-verbal Study Management; and -.83 with Congruent Goal Setting. All these correlations were significant at .05 or .01 levels.

Apart from the relationship of Emotional Stability trait with behaviour dimensions there are other researches also wherein Emotional Stability has been correlated. Barr and others (9) have found that Emotional Stability has been used as one of the aspects of teachers or teaching in 34 studies and has been correlated with various criteria of success. They report that 33 correlations were found to be significant between this trait and teaching success. Carlile (21) correlated the Home Adjustment, Health Adjustment, and Emotional Adjustment scores on the Bell Adjustment Inventory with the grades in student teaching for 53 subjects and found that the latter correlated .0126 with Home Adjustment, .013 with Health Adjustment, and .083 with Emotional Adjustment.

Leeds (55) studied the relationship between the MTAI and the Guilford Zimmerman Temperament Survey (GZTS). The correlation coefficients between the MTAI and the 10 temperament measures ranged from -.07 in Thoughtfulness to .52 in Personal Relations, all coefficients except General Activity, Restraint and Thoughtfulness being significant at .01 level. The investigator concluded that teachers who get along well with the pupils tend to be cooperative, friendly, objective, and emotionally stable, and to a lesser degree manifest sociability, and social ascendency and masculinity in emotions and interests. Those who do not have high rapport with pupils tend to be critical and intolerant, hostile and belligerent, hyper-sensitive, depressed and emotionally unstable. In another study Ferguson and others (30) found a significant correlation of .21 (at .05 level) between Emotional Stability and MTAI scores. Charters and Waples (22) have mentioned Emotional Stability as one of the 25 prerequisites of teacher effectiveness.

These studies point out that Emotional Stability is one of the most important traits of teacher's personality and plays significant role in teacher's success. However, the insignificant relationship of Emotional Stability with the behaviour dimensions in the present research may be due to some reasons. One of the reasons may be that when we are correlating any trait with behaviour dimension we are correlating it with the process variable, which is a single

unit of the total behavioural process and which may or may not correlate in an isolated condition.

The Sociable trait of the teacher was found to be significantly negatively related with student initiation. It reveals that higher the teacher scores on Sociable trait lower will be the student initiation. Furthermore, it indicates that if the leader (teacher) is highly sociable with students that is if the intensity of the intimacy between the group (students) and the leader (teacher) is high there will be minimum chances of taking initiation by the members of the group. Though it is a value judgement but this phenomenon of interaction brings down the interaction potential of the classroom which is undesirable. This has been supported by negative direction of this correlation. This has also been supported by the work of Wingo (104) where he concludes that learning in both its qualitative and quantitative aspects is related to the kinds of personal relations which obtain in the classroom. Group studies have revealed that high intimate relations may lead to high social need satisfaction but it has been found that this social need satisfaction may be derived at the cost of the objective, which further support the finding of the present investigation. Tayler (95) in his study reported that one MMPI variable namely Psychasthania in combination with Sociability and Confidence scores from the Heston Personal Adjustment Inventory succeeded in discriminating high and low and

average and low teaching effectiveness groups. Carlile(21) reported correlation coefficients between the grades in the student teaching and the Neurotic Symptoms, Self-sufficiency, Dominance-Submission and Social Adjustment scores as follows: .073, -.014, .164, and .044.

In conclusion it can be said that the teacher behaviour in terms of sociability is an important factor which plays pivotal role in creating the classroom climate, that is the social psychological phenomenon in the classroom frontiers. Social climate or the atmosphere for learning which obtains in any given classroom is a function partly of individual teacher and partly of the school as a whole. In most schools the influence of the teacher is of great importance in determining the character of the climate which obtains in a classroom. The personal attributes of the teacher, his personal ~~scheme~~ scheme of values and his general temperament in combination determine in large measure the quality of experience which students share in his class. Thus he may encourage a high degree of interaction among his students, stressing through his own example the value of warm, friendly personal relations. Or he may himself remain aloof (unsociable) and demand conformity and a maximum of co-action. Much of the decision rests squarely on the teacher.

There is only one study by Evans (29) where Sociable trait has been correlated with teacher behaviour dimension. Evans reports a correlation of .90 between Sociable trait

and Verbal Routine Management behaviour dimension. This relationship was significant.

Looking into the relationships between Reflective trait of the teacher and I/D ratio, i/d ratio, T/S ratio, C_3 and C_9, we find that coefficient of correlation was significant in the case of only i/d ratio and Reflective trait. Direction of relationship however was found to be negative which indicates that if a teacher is high on Reflective trait, the proportion of motivating behaviour to controlling behaviour will be low and visa versa. It can further be explained (in the light of definition of Reflective trait) that a person who scores high on Reflective trait wants to work alone and enjoy dealing with theoretical problems rather than practical problems, as such the relationship observed here was in expected direction. Similarly, except in the case of T/S ratio all other coefficients are negative. This is but natural because the teacher who likes meditative or reflective thinking would never encourage the pupils to take initiative and to participate in teaching learning process but will expect that the students whenever invited should come out with specific answers, and the positive correlation though not significant has revealed this. It has been mentioned above that Reflective trait had insignificant negative correlations with I/D ratio, C_3 and C_9. These relationships indicate that if a teacher is high on Reflective trait lower will be the chances of accepting

students' ideas by the teacher, lower will be the proportion of indirect behaviour to direct behaviour, and lower will be student initiation. These relationships further explain that the teachers who like more meditative and reflective thinking or emphasize to work quietly and believe in planning alone rather than involving the ingradients of the group in the whole process may likely to discourage student initiation or may not accept ideas expressed by the students.

There are no other studies in which Reflective trait has been correlated with any behaviour dimension of the teacher.

Evaluating the relationship between the criterion variables and the various attitudes of the teachers we find that only teachers' attitude toward Democratic Classroom Procedures (DCP) is related significantly with proportion of motivating behaviour to controlling behaviour (i/d ratio) and proportion of indirect behaviour to direct behaviour (I/D ratio). Except this attitude, no other attitudes of teacher are correlated to any of the five criterion variables. The correlations between teachers' attitude toward Democratic Classroom Procedures and I/D ratio and i/d ratio were found to be .14964 and .16517 respectively. These findings indicate that more favourable the teachers' attitude toward DCP high will be the proportion of indirect behaviour to direct behaviour and motivating behaviour to controlling behaviour, which further reveal that the teachers who have

favourable attitude toward DCP will be high on indirect behaviour and will show high motivating behaviour, that is the behaviour on the part of the teacher will be more accepting and encouraging in order to involve students in the teaching learning process that goes in the classroom. These results have been further strengthened by the relationship between teachers' attitude toward DCP and T/S ratio, C_3, C_9 respectively which indicate that if teachers have favourable attitude toward DCP the student talk will be more as compared to teacher talk and as a result the proportion of teacher talk to student talk will be low and therefore the relationship between these two variables was found to be negative, which was expected. Secondly, the favourable attitude of the teacher toward DCP will create such a classroom climate which may stimulate the student to take more and more initiative and participation in classroom teaching process. At the same time teacher will accept students' ideas more readily and accordingly the coefficients of correlations in the case of C_3 and C_9 were found to be positive though not significant. Hence it can safely be inferred that the favourable attitude on the part of the teacher toward DCP may raise the interaction potential in the classroom which is important for successful teaching learning process.

The earlier studies reporting the relationship between behaviour measures and attitudes are described below. In

most of the studies the attitude is measured by Minnesota Teacher Attitude Inventory and except Giebink's study in all the studies the results are significant. For example, Ryans (79) found significant correlation between teacher or teaching behaviour and teachers' attitude toward pupils and also toward the administrators or management. However, in the present research no significant relationship is found between teacher behaviour and attitudes toward pupils and management. The second finding of Ryans's study is in accordance with the present finding. In the present finding no significant relationship was found between student initiation (C_9) and the 8 dimensions of attitudes. Ryans also did not find any significant relationship between pupil behaviour and the attitudes held by the teacher. Davies (25) found significant but low correlation between responsive teacher behaviour and Minnesota Teacher Attitude Inventory (MTAI) scores. Wilk and Edson (102,103) did not find high relationship between low MTAI scores and direct teacher influence. Bowers and Soar (15) found low positive correlation of .29 between emotional climate measured by OScAR and MTAI scores. Siebel (82) found a correlation of .29 between MTAI scores and Contact (a form teacher behaviour) and a correlation of .19 between the change in MTAI scores ($MTAI_2 - MTAI_1$) and Movement (another dimension of teacher behaviour). Both these correlations were significant at .05 level. Sprinthall, Whiteley and Mosher's (91) findings

supported the hypothesis that an attitude and effective teaching (behaviour) are related. Giebink (39) however did not find any significant relationships between MTAI scores and indirect teacher talk, direct teacher talk, continued use of acceptance and praise by teacher, student talk and silence or confusion.

These studies indicate that Minnesota Teacher Attitude Inventory which measures how teacher will get along with pupils has the potentiality of predicting teacher behaviour. If these results are combined with the present findings it can be said MTAI and teachers' attitude toward Democratic Classroom Procedures have definitely something to do with teacher behaviour.

OVERVIEW

About 75 correlations between 5 dependent and 15 independent variables were examined. These correlations ranged from .00290 to .16517. The minimum correlation was found to be between teachers' attitude toward "Other Teachers" and i/d ratio. This correlation was not significant. While the maximum correlation was obtained between teachers' attitude toward "Democratic Classroom Procedures" and i/d ratio. This relationship was significant at .05 level. Apart from this three relationships were found to be significant at .05 level. They were between "Reflective"

trait and i/d ratio (-.16389); between teachers' attitude toward "Democratic Classroom Procedures" and I/D ratio (.14964) and i/d ratio (.16517) and between "Sociable" trait and student initiation (C_9) (-.14892). There were some correlations which were not significant but were near the .05 level of significance. Such correlations were between "Reflective" trait and I/D ratio; teachers' attitude toward "Management" and "Education" and i/d ratio; "Active" trait and teachers' accepting behaviour of student's ideas (C_3); "Vigorous" trait and C_3 and C_9; "Reflective" trait and C_3 and C_9; teachers' attitude toward "Management" and C_3; and "Active" trait and T/S (Proportion of Teacher Talk to Student Talk). Regarding the direction of relationships, out of 75 relationships, 38 were in negative direction. Among the four significant relationships two were negative and two were positive. The negative relationships were between "Reflective" trait and i/d ratio and between "Sociable" trait and student initiation (C_9). The positive relationship was between teachers' attitude toward "Democratic Classroom Procedures" and I/D and i/d ratios. Teachers' "Reflective" trait and attitude toward "Democratic Classroom Procedures" play significant role in determining teachers' classroom verbal behaviour. Teachers' "Sociable" trait affects the student behaviour in the form of student initiation (C_9) inversely.

CORRELATION AMONG THE PREDICTOR VARIABLES

In Table 9 correlations among the predictor variables are shown.

The correlations among the predictor variables range from -.00539 to .71920. The highest correlation is between "Dominant" trait and teachers' attitude toward "Management". Examining the individual relationships it is found that "Active" trait is positively significantly related to "Impulsive", "Dominant", "Sociable" and "Reflective" traits and negatively related to attitude toward "Teachers". It is not at all related to "Stable" trait as well as attitude toward "Management", "Parents", "Democratic Administrative Procedures", "Pupils", "Democratic Classroom Procedures", "Teaching Profession" and "Education".

"Vigorous" trait is positively significantly related to "Impulsive", "Dominant", "Stable", "Reflective" traits and to all the attitudes except attitude toward "Management" and "Teaching Profession".

"Impulsive" trait is positively related to "Dominant", "Stable", "Sociable", and "Reflective" traits and attitude toward "DAP", "Pupils" and "DCP". It is negatively related to attitude toward "Management". This trait does not correlate with attitude toward "Parents", "Teachers", "Teaching Profession", and "Education".

TABLE 9

CORRELATION AMONG PREDICTOR VARIABLES

		A 1	V 2	I 3	D 4	ES 5	S 6	R 7	M 8	Pa 9	T 10	DAP 11	Pu 12	DCP 13	TP 14	Edu. 15
1	A	1.0	.12720*	.23293	.24562	-.08652*	.25332	.22968	-.07593*	-.11546*	-.15184	.06491*	-.8814*	-.05229*	.03967	-.06433*
2	V		1.0	.54092	.46945	.31828	.42554	.25931	-.11359*	.19272	.17017	.24590	.23558	.19294	.12960	.13136
3	I			1.0	.66770	.40706	.65877	.30315	-.16747	.06525*	.04108*	.29044	.16002	.16438	.07952*	.08905*
4	D				1.0	.34417	.71920	.39242	.04347*	.16270	.14625	.16069	.20714	.09027*	.19065	.25137
5	ES					1.0	.36736	.19915	-.00539*	.08819*	.19725	.29408	.17440	.15012	.04365*	.14884
6	S						1.0	.37477	.04252*	.12327*	.14973	.30083	.23026	.12456*	.10523*	.11333*
7	R							1.0	.01018*	.03672*	.14009	.09613*	.16389	.02672*	.05550*	.07758*
8	M								1.0	.87400	.43461	-.37617	.25009	.11815*	.16867	.11681
9	Pa									1.0	.23645	-.09577*	.47207	.44801	.07706	.15965
10	T										1.0	.01816*	.38013	.08614*	.14820	.13446*
11	DAP											1.0	.10664*	.04237*	-.02573*	.02566*
12	Pu												1.0	.54224	.11732*	.20151
13	DCP													1.0	.13312	.12220*
14	TP														1.0	.42928
15	Edu.															1.0

* Denotes not significant

"Dominant" trait significantly correlates with "Stable"; "Sociable" and "Reflective" traits. It also correlates significantly with teachers' attitude toward "Parents" and "Teachers", "DAP", "Pupils", "Teaching Profession" and "Education". It does not correlate with teachers' attitude toward "Management" and "DCP".

"Emotionally Stable" trait is related to "Sociable" and "Reflective" traits and also to attitude toward "Other Teachers", "DAP", "Pupils", "DCP" and "Education". It has no relation with teachers' attitude toward "Management", "Parents" and "Teaching Profession".

"Sociable" trait correlates positively with "Reflective" trait and with teachers' attitude toward "Other Teachers", "DAP" and "Pupils". It does not correlate with teachers' attitude toward "Management", "Parents", "DCP", "Teaching Profession" and "Education".

"Reflective" trait has significant association with Teachers' attitude toward "Other Teachers" and "Pupils", while with other attitudes it is not related.

Teachers' attitude toward "Management" significantly correlates with attitude toward "Parents", "Other Teachers", "DAP", "Pupils" and "Teaching Profession".

Teachers' attitude toward "Parents" correlates significantly with attitude toward "Other Teachers", "Pupils", "DCP" and "Education".

Teachers' attitude toward "Other Teachers" is significantly related to attitude toward "Pupils" and "Teaching Profession".

Teachers' attitude toward "Democratic Administrative Procedures" does not relate with attitude toward "Pupils", "Democratic Classroom Procedures", "Teaching Profession" and "Education".

Teachers' attitude toward "Pupils" is related to attitude toward "Democratic Classroom Procedures" and "Education" but not related to attitude toward "Teaching Profession".

Teachers' attitude toward "Democratic Classroom Procedures" is not related to attitude toward "Teaching Profession" and "Education".

Teachers' attitude toward "Teaching Profession" is positively significantly related to attitude toward "Education".

Out of 105 correlations among the predictor variables 45 correlation were insignificant. The classification of the remaining 60 correlations revealed that 23 correlations ranged from .14009 to .19915; 15 correlations .20151 to .29044; 10 ranged from .30083 to .39242; 7 ranged from .40706 to .47207; 4 ranged from .54092 to .66770 and one was equal to .71920. These correlations indicate that

predictor variables were largely independent. The classification of correlations in terms of their magnitude is presented in Table 10. Insignificant correlations numbering 45 are omitted.

Table 10

.15184	.25293	.31828	.46945	.54092	.66770	.71920
.19272	.24562	.36315	.42554	.54224	.65877	
.17017	.25332	.34417	.40706			
.19294	.22968	.39242	.43461			
.18136	.25931	.36736	.47207			
-.16747	.24590	.37477	.44801			
.16002	.28558	.30083	.42928			
.16438	.29044	.37400				
.16270	.20714	-.37617				
.14625	.25137	.38013				
.16069	.28408					
.19065	.23026					
.19915	.25009					
.19725	.23645					
.17440	.25151					
.15012						
.14884						
.14973						
.14009						
.16889						
.16867						
.15965						
.14820						

PERSONALITY TRAITS AND ATTITUDES AS
PREDICTORS OF CLASSROOM BEHAVIOUR

Now we come to the second part of the discussion wherein multiple regression equations are developed and evaluated in terms of their predictive power of the criterion variables.

Prediction of the I/D Ratio

In Table 11 variable numbers, multiple R, degree of freedom and probability values are presented while in Table 11-A alongwith them, values of alpha and regression weights are presented to predict I/D Ratio.

Table 11

Variables	Multiple R	D.F.	F-values	P-values
13	0.1496	1,198	34.84	P > 0.01
7	0.1971	1,197	11.64	P > 0.01
3	0.2077	1,196	2.64	N.S.
5	0.2166	1,195	2.21	N.S.
15	0.2209	1,194	1.08	N.S.
11	0.2250	1,193	1.02	N.S.
6	0.2294	1,192	1.09	N.S.
8	0.2328	1,191	0.86	N.S.
10	0.2390	1,190	1.53	N.S.
12	0.2410	1,189	0.51	N.S.
9	0.2431	1,188	0.52	N.S.
1	0.2448	1,187	0.41	N.S.
2	0.2452	1,186	0.11	N.S.
4	0.2453	1,185	0.02	N.S.
14	0.2453	1,184	0.00	N.S.

N.S. = Not significant

Table 11-A

Variable, Multiple R, D.F., F-Value, Alpha, and Regression Coefficients for Criterion Variable I/D Ratio

Variable	Multiple R	D.F.	F-Value	Alpha	Regression Coefficients							
13	0.1496	1,198	34.84	-0.24	.01							
7	0.1991	1,197	11.64	0.07	.01	-.03						
3	0.2077	1,196	2.62	0.05	.01	-.04	.02					
5	0.2166	1,195	2.21	0.08	.01	-.04	.02	-.01				
15	0.2209	1,194	1.08	-0.12	.01	-.04	.02	-.01	.03			
11	0.2250	1,193	1.02	-0.46	.01	-.04	.02	-.02	.03	0.0		
6	0.2294	1,192	1.09	-0.48	.01	-.03	.03	-.02	.03	0.0	-.01	
8	0.2328	1,191	0.86	-0.76	.01	-.04	.03	.02	.03	0.0	-.01	0.0
10	0.2390	1,190	1.53	-0.66	.01 0.0	-.03	.03	-.01	.03	0.0	-.01	0.0
12	0.2410	1,189	0.51	-0.63	0.0 0.0	-.03 0.0	.03	-.01	.03	0.0	-.02	0.0
9	0.2431	1,188	0.52	-0.61	.01 0.0	-.03 0.0	.03 0.0	-.01	.03	0.0	-.02	0.0
1	0.2448	1,187	0.41	-0.54	.01 0.0	-.03 0.0	.03 0.0	-.02 0.0	.03	0.0	-.01	0.0
2	0.2452	1,186	0.11	-0.57	.01 0.0	-.03 0.0	.03 0.0	-.02 0.0	.03 0.0	0.0	-.01	0.0
4	0.2453	1,185	0.02	-0.57	0.0 0.0	-.03 0.0	.03 0.0	-.02 0.0	.03 0.0	0.0 0.0	-.01	0.0
14	0.2453	1,184	0.0	-0.57	0.0 0.0	-.03 0.0	.03 0.0	-.02 0.0	.03 0.0	0.0 0.0	-.01 0.0	0.0

As mentioned earlier that step-wise regression equations were developed for the prediction of the criterion variables in which the variables which contributed most to the criterion variable were taken one by one and each time a fresh regression equation was evolved. It will be seen in Tables 11 and 11-A that out of 15 independent variables or predictor variables variable 13 namely teachers' attitude toward "Democratic Classroom Procedures" contributes most in prediction of the I/D ratio and therefore occupies first position or rank. The following regression equation is obtained with the help of variable 13.

$$\bar{Y} = a * b_{13} X_{13}$$

where $\bar{Y}$ = criterion variable I/D

a = constant value

b_{13} = regression coefficient or beta weight for predictor variable 13

X_{13} = predictor variable 13.

substituting the values of a and b_{13} we get

$$\bar{Y} = -.24 + .01 X_{13}$$

This equation yields a multiple R of .1496 along with an F-value of 34.84. The F-value is a measure of significance of multiple R and multiple R is the measure of accuracy with which the criterion scores may be predicted (50). Taking 198 degree of freedom and looking into column one of the F-ratios table we find that the obtained value of F is greater than the values at .05 and .01 levels of significance. This proves that the value of multiple R is significant.

What per cent of I/D ratio is predicted by this variable ? To seek an answer for this question the following formulae is used :

$$100 \times R^2$$

substituting the value of R, we get $100 \times (.15)^2 = 2.25$. About 2.25 per cent of I/D ratio is significantly predicted by the variable 13.

Next to variable 13 which contributes most in the prediction of I/D ratio is variable 7 namely "Reflective" trait. This variable was added to variable 13 and a new two variable regression in the following form was obtained :

$$\bar{Y} = a + b_{13}X_{13} - b_7X_7$$

where b_7= beta weight for predictor variable 7

X_7= predictor variable 7

substituting the respective values for a_7 and b_7, we get

$$\bar{Y} = .07 + .01X_{13} - .03X_7$$

This regression equation yielded a multiple R of .1917 and P-value of 11.64. Taking 197 degrees of freedom and looking to colum one of the table, we find that the value of multiple R is significantly different from zero. This implies that contribution of variable 7 in predicting I/D ratio is significant. The combination of these two variables predict the I/D ratio to the extent of 3 per cent.

It is observed that next to variables 13 and 7, variable 3 contributes most to the prediction of the I/D ratio.

Therefore, variable 3 (Impulsive trait) is added to variables 13 and 7 and again a new regression equation is developed.

$$\bar{Y} = a + b_{13}X_{13} - b_YX_Y + b_3X_3$$

where b_3 = beta weight for variable 3

X_3 = the predictor variable 3

substituting the values of the variables, we get

$$\bar{Y} = .05 + .0X_{13} - .04X_7 + .02X_3$$

The combination of these three variables namely, attitude toward "Democratic Classroom Procedures", "Reflective" and "Impulsive" traits fetched a multiple R of .2077 with an F-value of 2.62. Examining the F-value at .05 level we find that it is not significant suggesting that the multiple R is also not significant. The interpretation of this result is that though these three variables predict the I/D ratio about 4 per cent, the addition of variable 3 does not make any significant contribution in the prediction of I/D ratio.

Later variable 5 namely "Emotionally Stable" trait was added to the previous four variables which yielded the following equation :

$$\bar{Y} = a + b_{13}X_{13} - b_7X_7 + b_3X_3 - b_5X_5$$

substituting the respective values we get

$$\bar{Y} = .08 + .01X_{13} - .04X_7 + .02X_3 - .01X_5$$

This equation gave a multiple R of .2166. But this value also was not significant. Thus it can be concluded that the contribution of "Emotionally Stable" trait to the prediction of I/D ratio is not significant. It can be seen that the value of multiple R is greater than the previous values, however the increase in it is not very descernible or significant.

Similar multiple regressions adding each new variable which contributed most in the prediction of the I/D ratio are developed below :

$$\bar{Y} = -.12 + .01X_{13} - .04X_7 + .02X_3 - .01X_5 + .03X_{15}$$

$$\bar{Y} = -.46 + .01X_{13} - .04X_7 + .02X_3 - .02X_5 + .03X_{15} + 0.0X_{11}$$

$$\bar{Y} = -.48 + .01X_{13} - .03X_7 + .03X_3 - .02X_5 + .03X_{15} + 0.0X_{11} - .01X_6$$

$$\bar{Y} = -.76 + .01X_{13} - .04X_7 + .03X_3 - .01X_5 + .03X_{15} + 0.0X_{11} - .01X_6 + 0.0X_8$$

$$\bar{Y} = -.66 + .0X_{13} - .03X_7 + .03X_3 - .01X_5 + .03X_{15} + 0.0X_{11} - .01X_6 + 0.0X_8 + 0.0X_{10}$$

$$\bar{Y} = -.63 + 0.0X_{13} - .03X_7 + .03X_3 - .01X_5 + .03X_{15} + 0.0X_{11} - .02X_6 + 0.0X_8 + 0.0X_{10} + 0.0X_{12}$$

$$\bar{Y} = -.61 + .01X_{13} - .03X_7 + .03X_3 - .01X_5 + .03X_{15} + 0.0X_{11} - .02X_6 + 0.0X_8 + 0.0X_{10} + 0.0X_{12} + 0.0X_9$$

$$\bar{Y} = -.54 + .01X_{13} - .03X_7 + .03X_3 - .02X_5 + .03X_{15} + 0.0X_{11} - .01X_6 + 0.0X_8 + 0.0X_{10} + 0.0X_{12} + 0.0X_9 + 0.0X_1$$

$$\bar{Y} = -.57 + .01X_{13} - .03X_{7} + .03X_{3} - .02X_{5} + .03X_{15} + 0.0X_{11} - .01X_{6} + 0.0X_{8} + 0.0X_{10} + 0.0X_{12} + 0.0X_{9} + 0.0X_{1} + 0.0X_{2}$$

$$\bar{Y} = -.57 + 0.0X_{13} - .03X_{7} + .03X_{3} - .02X_{5} + .03X_{15} + 0.0X_{11} - .01X_{6} + 0.0X_{8} + 0.0X_{10} + 0.0X_{12} + 0.0X_{9} + 0.0X_{1} + 0.0X_{2} + 0.0X_{4}$$

$$\bar{Y} = -.57 + 0.0X_{13} - .03X_{7} + .03X_{3} - .02X_{5} + .03X_{15} + 0.0X_{11} - .01X_{6} + 0.0X_{8} + 0.0X_{10} + 0.0X_{12} + 0.0X_{9} + 0.0X_{1} + 0.0X_{2} + 0.0X_{4} + 0.0X_{14}$$

The purpose of these equations was to show that with the addition of each new variable the magnitude of multiple R increased, however, that increase was not significant and therefore addition of those variables did not enhance the prediction of I/D ratio.

An overall conclusion from the above results can be drawn that of 15 predictor variables only two variables namely teachers' attitude toward "Democratic Classroom Procedures" and "Reflective" trait are able to predict the I/D ratio to the extent of 3 per cent. About 97 per cent of I/D ratio still remains unpredicted.

Table 12

Variables	Multiple R	D.F.	F-Values	P-Values
13	0.1652	1,198	39.17	P>0.01
7	0.2359	1,197	18.22	P>0.01
8	0.2630	1,196	7.21	P>0.01
6	0.2858	1,195	6.23	P>0.05
15	0.2963	1,194	2.90	N.S.
2	0.3057	1,193	2.62	N.S.
14	0.3099	1,192	1.17	N.S.
10	0.3131	1,191	0.88	N.S.
1	0.3169	1,190	1.05	N.S.
12	0.3190	1,189	0.58	N.S.
11	0.3203	1,188	0.38	N.S.
9	0.3209	1,187	0.17	N.S.
4	0.3213	1,186	0.11	N.S.
5	0.3214	1,185	0.00	N.S.
3	0.3214	1,184	0.00	N.S.

N.S. = Not significant

In Tables 12 and 12-A are presented variables, multiple R's, degrees of freedom, F-values and betas which show the extent of variance in i/d ratio and its significance.

Table 12-A

Variance, Multiple R, F-value, Alpha, and Regression Coefficients for Criterion Variable i/d Ratio

Variable	Multiple R	D.F.	F-Value	Alpha	Regression Coefficients
13	0.1652	1,198	39.17	-0.37	.04
7	0.2359	1,197	18.22	0.82	.04 -.12
8	0.2630	1,196	7.21	-0.40	.04 -.12 .02
6	0.2858	1,195	6.23	-0.64	.03 -.15 .02 .07
15	0.2963	1,194	2.90	-1.63	.03 -.16 .02 .06 .17
2	0.3057	1,193	2.62	-1.75	.03 -.15 .02 .08 .19 -.04
14	0.3099	1,192	1.17	-1.66	.03 -.15 .02 .08 .24 -.04 -.08
10	0.3131	1,191	0.88	-1.20	.03 -.15 .02 .08 .24 -.03 -.08 -.01
1	0.3169	1,190	1.05	-0.83	.03 -.14 .02 .09 .23 -.03 -.07 -.01 -.03
12	0.3190	1,189	0.58	-0.77	.04 -.14 .02 .09 .24 -.03 -.08 -.01 -.04 0.0
11	0.3203	1,188	0.38	-1.58	.04 -.14 .03 .08 .24 -.03 -.08 -.01 -.04 -.01 0.0
9	0.3209	1,187	0.17	-1.50	.04 -.14 .03 .08 .24 -.03 -.08 -.01 -.04 0.0 0.0 0.0
4	0.3213	1,186	0.11	-1.50	.04 -.14 .03 .08 .24 -.03 -.08 -.01 -.04 0.0 0.0 0.0 .01
5	0.3214	1,185	0.0	-1.51	.04 -.14 .03 .08 .24 -.03 -.08 -.01 -.04 0.0 0.0 0.0 .01 0.0
#3	0.3214	1,184	0.0	-1.51	.04 -.14 .03 .08 .24 -.03 -.08 -.01 -.04 0.0 0.0 0.0 .01 0.0 0.0

It is noticed that as in the case of I/D ratio, here too the variable 13 (teachers' attitude toward "Democratic Classroom Procedures") proves to be the best predictor of i/d ratio, with a multiple R of .1652, F-value of 39.17, constant value of -.37 and beta weight of .04. Putting all these values in their respective orders we get the following regression equation :

$$\bar{Y} = a + b_{13}X_{13}$$

where $\bar{Y}$ is the criterion variable, i/d ratio

a is constant value

B_{13} is beta weight for the predictor variable 13

X_{13} is the predictor variable 13

Substituting the respective values, we get

$$\bar{Y} = -.37 + .04X_{13}$$

Taking 198 degrees of freedom and comparing the obtained F-value with the value at .05 and .01 levels, we find that the obtained F-value is greater than the value at .05 and .01 levels proving that the multiple R is significant. This variable predicts about 4 per cent of i/d ratio.

The second most contributing variable here also is the same which was in the case of I/D ratio, and that is variable 7 (Reflective trait). This variable is combined with variable 13 and a two variable regression is developed in the following form :

$$\bar{Y} = a + b_{13}X_{13} - b_yX_y$$

Substituting the values, we obtain

$$\bar{Y} = .82 + .04X_{13} - .12X_7$$

This regression gave a multiple R of .2359. The F-value which is 18.22 is greater than the values at .05 and .01 levels; this means that the regression coefficient of variable 7 is significant and therefore the variable 7's contribution in predicting i/d ratio is significant. Subsequently variable 8 was added to the variables 13 and 7 and overall correlation between these variables and i/d ratio in the form of multiple R was calculated. The multiple R was found to be .2630. The magnitude of multiple R beyond any shadow of doubt increased, however, this increase as a result of the additions of variable 8 was significant or not was to be tested with the help of F-value. The F-value of 7.21 was compared with the value at .05 level taking 196 degrees of freedom and was found to be greater than the value at .01 level supporting the significance of multiple R. Thus, it was confirmed that the variable 8 also contributed significantly to the prediction of i/d ratio. These three variables accounted for 6 per cent of variance in i/d ratio. In other words these three variables predicted 6 per cent of i/d ratio. The three variable regression is given below :

$$\bar{Y} = a + b_{13}X_{13} + b_7X_7 + b_8X_8$$

Substituting the value we get

$$\bar{Y} = -.4 + .04X_{13} - 12X_{7} + .02X_{8}$$

Following variables 13, 7 and 8 comes variable 6 in order of its importance or usefulness in predicting i/d ratio. Variable 6 was combined with the first three variables and the following regression equation was developed :

$$\bar{Y} = -.64 + .03X_{13} - .15X_{7} + .02X_{8} + .07X_{6}$$

This four variable equation gave a multiple R of .2858 with an F-value of 6.23. Taking 195 degrees of freedom the F-value was tested at .05 level which was found to be significant at the said level, implying that the contribution and increase in the multiple R as a result of addition of variable 6 was significant. These four variables were able to predict the i/d ratio to the extent of 8 per cent.

Later, variable 15 (Teachers' attitude toward "Education") was added to the four variables to see the extent of increase in the prediction of the i/d ratio. The multiple R obtained as a result of these five variables was .2963 with an F-value of 2.90 which was not significant at .05 level. The subsequent addition of other variables also did not give significant F-values indicating that there was no significant addition in the multiple R's.

In conclusion it can be said that out of 15 variables, 4 variables namely teachers' attitude toward "Democratic Classroom Procedures", "Reflective" trait, attitude toward "Management", and "Sociable" trait are able to predict i/d ratio to the extent of 8 per cent.

PREDICTION OF TEACHERS' ACCEPTING BEHAVIOUR OF STUDENTS' IDEAS (C_3)

Table 13

Variables	Multiple R	D.F.	F-values	P-values
7	0.1284	1,198	3.32	N.S.
8	0.1746	1,197	2.84	N.S.
4	0.2016	1,196	2.08	N.S.
2	0.2334	1,195	2.85	N.S.
1	0.2483	1,194	1.49	N.S.
5	0.2653	1,193	1.81	N.S.
6	0.2711	1,192	0.65	N.S.
9	0.2761	1,191	0.56	N.S.
12	0.2810	1,190	0.57	N.S.
15	0.2853	1,189	0.50	N.S.
3	0.2865	1,188	.0.14	N.S.
14	0.2874	1,187	0.10	N.S.
11	0.2875	1,186	0.01	N.S.
13	0.2875	1,185	0.00	N.S.
10	0.2875	1,184	0.00	N.S.

N.S. = Not significant

Table 13-A

Variable, Multiple R, D.F., F-Value, Alpha, and Regression Coefficients for Criterion Variable C_3

Variable	Multiple R	D.F.	F-Value	Alpha	Regression Coefficients
7	0.1284	1,198	3.32	4.35	-.13
8	0.1746	1,197	2.84	2.30	-.13 .03
4	0.2016	1,196	2.08	1.92	-.17 .03 .08
2	0.2334	1,195	2.85	2.46	-.16 .02 .12 -.08
1	0.2483	1,194	1.49	2.88	-.15 .02 .13 -.08 -.08
5	0.2653	1,193	1.81	3.42	-.14 .02 .15 -.07 -.10 -.09
6	0.2711	1,192	0.65	3.32	-.14 .02 .12 -.08 -.11 -.10 .07
9	0.2761	1,191	0.56	2.69	-.14 .02 .11 -.08 -.10 -.09 .07 .02
12	0.2810	1,190	0.57	3.40	-.14 .02 .11 -.08 -.11 -.09 .07 .02 -.02
15	0.2853	1,189	0.50	2.48	-.14 .02 .10 -.08 -.10 -.09 .08 .02 -.02 .16
3	0.2865	1,188	0.14	2.31	-.14 .02 .09 -.09 -.10 -.10 .07 .02 -.02 .16 .04
14	0.2874	1,187	0.10	2.22	-.14 .02 .09 -.09 -.11 -.10 .07 .02 -.02 .13 .04 .05 [illegible]
11	0.2875	1,186	0.01	2.50	-.14 .02 .09 -.09 -.11 -.10 .07 .02 -.02 .13 .04 .05 -.00
13	0.2875	1,185	0.00	2.48	-.14 .02 .09 -.09 -.11 -.10 .07 .02 -.02 .13 .04 .05 -.00 .00
10	0.2875	1,184	0.00	2.49	-.14 .02 .09 -.09 -.11 -.10 .07 .02 -.02 .13 .04 .05 -.00 .00 -.00

Tables 13 and 13-A show the multiple R's degrees of freedom, F-values, alpha and beta computed to predict the teachers' accepting behaviour of student's ideas (C_3). It is observed that in the present case, variable 7 i.e. "Reflective" trait proves to be the best predictor of C_3 out of the 15 predictor variables, with a multiple R of .1284 and with an F-value of 3.32. Taking 198 degree of freedom the said value was tested at .05 level of significance. It was found that the F-value was not significant implying that the multiple R did not differ from zero (multiple R was not significant). The single variable regression equation is given below :

$$\bar{Y} = a + b_7 X_7$$

where $\bar{Y}$ is the criterion variable C_3

a is a constant value

b_7 is the beta weight for the predictor variable 7

X_7 is the predictor variable 7

Substituting the respective values we get

$$\bar{Y} = 4.35 - 13X_7$$

The next useful variable in predicting C_3 was found to be variable 8 (teachers' attitude toward "Management"). This variable was clubbed with variable 7 and a two variable regression equation was developed which yielded a multiple R of .1746. This multiple R was obviously greater than the first one, however, this too was not significant at .05 level. The two variable regression is as follows :

$$\bar{Y} = 2.30 - .13X_7 + .03X_8$$

where X_8 is the predictor variable 8.

Subsequent addition of variables in terms of their usefulness were added with the preceding one and multiple R's were calculated. It was found that none of them was significant.

The further discussion is stopped here with the concluding remark that as far as the prediction of teachers' accepting behaviour of student's ideas is concerned, none of the 15 variables is capable of predicting it significantly.

PREDICTION OF STUDENT INITIATION (C_9)

Tables 14 and 14-A show the variables, multiple R's, degree of freedom, F-values, alphas and betas calculated to predict student initiation (C_9).

Table 14

Variables	Multiple R	D.F.	F-values	P-values
6	0.1489	1,198	4.49	P>0.05
15	0.1680	1,197	1.22	N.S.
14	0.2062	1,196	2.62	N.S.
12	0.2142	1,195	0.99	N.S.
10	0.2360	1,194	2.02	N.S.
5	0.2429	1,193	0.67	N.S.
2	0.2513	1,192	0.85	N.S.
7	0.2568	1,191	0.58	N.S.
8	0.2603	1,190	0.37	N.S.
1	0.2636	1,189	0.35	N.S.
9	0.2662	1,188	0.28	N.S.
11	0.2676	1,187	0.15	N.S.
4	0.2689	1,186	0.14	N.S.
13	0.2698	1,185	0.10	N.S.
3	0.2698	1,184	0.00	N.S.

Table 14-A

Variable, Multiple R, D.F., F-Value, Alpha and Regression Coefficients for Criterion Variable C_9

Variable	Multiple R	D.F.	F-Value	Alpha	Regression Coefficients
6	0.1489	1,198	4.49	6.71	-.19
15	0.1680	1,197	1,22	9,50	-.18 -.38
14	0.2026	1,196	2.62	8.47	-.19 -.64 .41
12	0.2142	1,195	0.99	6.49	-.21 -.70 .41 .03
10	0.2360	1,194	2.02	8.82	-.20 -.69 .44 .05 -.05
5	0.2429	1,193	0.67	8.87	-.23 -.73 .45 .05 -.06 .09
2	0.2513	1,192	0.85	8.35	-.20 -.70 .46 .05 -.06 .10 -.08
7	0.2568	1,191	0.58	8.77	-.17 -.70 .46 .06 -.05 .10 -.07 -.10
8	0.2603	1,190	0.37	8.46	-.18 -.71 .44 .05 -.06 .11 -.06 -.09 .02
1	0.2636	1,189	0.35	7.73	-.19 -.69 .43 .05 -.06 .12 -.06 -.11 .02 .07
9	0.2662	1,188	0.28	8.15	-.19 -.68 .43 .06 -.06 .12 -.05 -.11 .03 .06 -.02
11	0.2676	1,187	0.15	6.42	-.20 -.68 .43 .06 -.06 .11 -.05 -.11 .03 .06 -.02 .02
4	0.2689	1,186	0.14	6.48	-.23 -.70 .42 .06 -.06 .11 -.06 -.11 .03 .06 -.02 .02 .05
13	0.2698	1,185	0.10	5.97	-.24 -.70 .41 .05 -.06 .10 -.06 -.11 .03 .06 -.02 .02 .05 .02
3	0.2698	1,184	0.00	5.97	-.24 -.70 .41 .05 -.06 .10 -.06 -.11 .03 .06 -.02 .02 .05 .02 -.00

It will be noticed that in the present circumstances variable 6 (Sociable trait) proves to be the best predictor of C_9 with a multiple R of .1489 and with an F-value of 4.49. The obtained multiple R was significant at .05 level. Regarding the extent of prediction it is observed that this variable predicts student initiation (C_9) to the extent of 2.25 per cent. Below is given the regression equation of this variable :

$$\bar{Y} = a - b_6X_6$$

where $\bar{Y}$ = criterion variable C_9

a = constant value

b_6= beta weight for predictor variable 6

X_6= the predictor variable 6

Substituting the respective values, we get

$$\bar{Y} = 6.71 - .19X_6$$

The next useful predictor was found to be variable 15 which was ultimately added to the previous variable 6 and a fresh two variable regression was developed which yielded a multiple R of .1680. This multiple R was not significant. The two variable regression however is as follows :

$$\bar{Y} = 9.50 - 18X_6 - .38X_{15}$$

Subsequent addition of the predictor variables in terms of their usefulness in predicting C_9 were added to the previous variables and multiple R's were obtained. However, none of the multiple R's were significant.

The discussion is concluded with the remark that of the 15 personality and attitudinal variables only one variable namely "Sociable" trait can be used to predict the student's initiating behaviour (C_9).

PREDICTION OF T/S RATIO

In Tables 15 and 15-A are presented the variables, multiple R's, degrees of freedom, F-Values, Alphas and Betas calculated to predict the T/S ratio.

Table 15

Variable	Multiple R	D.F.	F-Value	P-Value
1	0.1199	1,198	2.89	N.S.
8	0.1570	1,197	2.07	N.S.
12	0.1841	1,196	1.88	N.S.
2	0.1822	1,195	0.31	N.S.
11	0.1925	1,194	0.32	N.S.
4	0.1943	1,193	0.14	N.S.
5	0.1969	1,192	0.20	N.S.
13	0.1973	1,191	0.03	N.S.
3	0.1979	1,190	0.04	N.S.
6	0.1985	1,189	0.05	N.S.
7	0.1988	1,188	0.02	N.S.
14	0.1988	1,187	0.00	N.S.
10	0.1988	1,186	0.00	N.S.
15	0.1988	1,185	0.00	N.S.
9	0.1988	1,184	0.00	N.S.

N.S. = Not significant

Table 15-A

Variable, Multiple R, D.F., F-Value, Alpha and Regression Coefficients for Criterion Variable T/S Ratio

Variable	Multiple R	D.F.	F-Value	Alpha	Regression Coefficients
1	0.1199	1,198	2.89	3.22	.39
8	0.1570	1,197	2.07	-3.18	.41 .09
12	0.1841	1,196	1.88	3.42	.39 .11 -.10
2	0.1882	1,195	0.31	3.53	.41 .10 -.08 -.09
11	0.1925	1,194	0.32	-1.90	.40 .12 -.09 -.11 .06
4	0.1943	1,193	0.14	-1.68	.38 .12 -.09 -.13 .05 .08
5	0.1969	1,192	0.20	-2.10	.36 .12 -.09 -.12 .07 .10 -.11
13	0.1973	1,191	0.03	-1.44	.36 .12 -.08 -.12 .06 .10 -.10 -.02
3	0.1979	1,190	0.04	-1.48	.36 .12 -.08 -.13 .06 .07 -.11 -.02 .07
6	0.1985	1,189	0.05	-2.04	.36 .12 -.08 -.13 .07 .10 -.11 -.02 .10 -.07
7	0.1988	1,188	0.02	-1.80	.37 .12 -.08 -.13 .07 .11 -.11 -.02 .10 -.07 -.04
14	0.1988	1,187	0.00	-1.90	.37 .12 -.08 -.13 .07 .10 -.11 -.02 .10 -.07 -.04 .02
10	0.1988	1,186	0.00	-1.81	.37 .12 -.08 -.13 .07 .10 -.10 -.02 .10 -.07 -.04 .02 -.00
15	0.1988	1,185	0.00	-1.84	.37 .12 -.08 -.13 .07 .10 -.10 -.02 .10 -.07 -.04 .02 -.00 .01
9	0.1988	1,184	0.00	-1.84	.37 .12 -.08 -.13 .07 .10 -.11 -.02 .10 -.07 -.04 .02 -.00 .01 -.00

A look at the above tables show that in predicting the T/S ratio, of the 15 variables, variable 1 ("Active" trait) proves to be the most useful predictor and therefore occupies first position. Following this variable are variables 8, 12, 2, 11, 4, 5, etc. in order of their usefulness. The multiple R between the variable 1 and the criterion variable T/S is found to be .1199 with an F-value of 2.89 which is not significant implying that the obtained R is not significant. This pattern is similar to the one obtained in the prediction of C_3 where the most useful variable (variable 7) occupying the first position failed to predict the C_3 significantly. Same is the case in the present situation in which the variable 1 has occupied the first position in terms of its usefulness in predicting, has failed to predict the T/S ratio significantly. The regression equation involving the variable 1 is given below :

$$\bar{Y} = a + b_1 X_1$$

substituting the values for 'a' and 'b' the regression acquires the following form :

$$\bar{Y} = 3.22 + .39 X_1$$

The subsequent addition of the variables too do not serve any purpose as none of the variables is capable of producing significant multiple R, and after the addition of variable 14 the F-values are becoming zero, implying that the magnitude of multiple R after the addition of variable 14 to preceding variables remains the same.

On the basis of these findings it is concluded that of the 15 predictor variables none of the variable has the potentiality of predicting T/S ratio significantly. To put it in other way the present predictors are not capable of predicting T/S ratio significantly.

EFFECT OF PERSONALITY TRAITS ON DIRECT AND INDIRECT BEHAVIOUR

This section is devoted to the discussion on the effect of personality traits on direct and indirect behaviour of the teachers.

An answer was sought to the question whether direct and indirect teachers differ on 7 personality traits under study. More specifically do the means of the 7 personality traits of direct and indirect teachers differ significantly ?

The procedure involved the classification of direct and indirect teachers in the initial stage. In order to classify and select direct and indirect teachers the first thing that was done was that all the I/D ratios of the 200 teachers were arranged in descending order in terms of their magnitude, i.e. the highest I/D ratio occupying the first position and the lowest occupying the least position. The teachers who had an I/D ratios of 1.00 and above were identified as indirect teachers (as Flanders has suggested). While the teachers with the I/D ratios less than 1.00 were termed as direct

teachers. It was discovered that there were 30 indirect teachers representing 15 per cent of the total sample and occupying the upper extreme. To have an equal number of sample of direct teachers for comparison with indirect teachers it was decided to select 15 per cent from the lower extrmme. Thus each criterion group contained 30 direct and 30 indirect teachers. In order to study the effect of personality on direct and indirect behaviour, means of these two groups on each of the seven personality traits were compared with the help of t-test. The details of the findings are given in the following ~~table~~ paragraphs:

Table 16

Comparison on Active Trait

Teachers	N	$\leq X$	Mean	$\leq X^2$	T
Direct	30	236	7.90	301.50	1.438 *
Indirect	30	204	6.80	208.80	

* Not significant

Table 16 shows the number of cases in direct and indirect groups, their total scores on "Active" trait, their means, and sum of squares of deviations. With the help of these scores "t" was computed to test the significant difference between the two group means. The obtained "t" was equal to 1.438 which was not significant. This indicated that means of direct and indirect groups did not differ significantly from each other.

Table 17

Comparison on Vigorous Trait

Teachers	N	X	Mean	X^2	t
Direct	30	313	10.43	649.367	.481 *
Indirect	30	330	11.00	570.000	

* Not significant

In Table 17 are presented the total scores, means and sum of squares of deviations of direct and indirect teachers on "Vigorous" trait along with t-value. The value of "t" is .481 which is not significant. On the basis of this result it is concluded that direct and indirect teachers do not differ significantly on "Vigorous" trait.

Table 18

Comparison on Impulsive Trait

Teachers	N	X	Mean	X^2	t
Direct	30	307	10.23	341.3670	.489*
Indirect	30	296	9.87	131.4670	

* Not significant

In the above table is shown the t-value obtained as a result of comparison of the means of the direct and indirect

teachers on "Impulsive" trait scores. The said value is less than the expected value at .05 level of significance; therefore it is not significant. The implication of this result is that on "Impulsive" trait also the direct and indirect teachers do not differ significantly from each other.

Table 19

Comparison on Dominant Trait

Teachers	N	ΣX	Mean	ΣX^2	t
Direct	30	388	11.27	746.147	
					.179*
Indirect	30	332	11.07	365.047	

* Not significant

In table 19 it is observed that the "t" is not significant which was computed to test the significance of means on "Dominant" scores. This suggests that means of the direct and indirect teachers do not differ significantly.

Table 20

Comparison on Emotionally Stable Trait

Teachers	N	ΣX	Mean	ΣX^2	t
Direct	30	320	10.67	410.667	
					.91603 *
Indirect	30	295	9.83	322.167	

* Not significant

Here again we find that the "t" value is not significant on "Emotionally Stable" trait for the direct and indirect teachers; therefore the two groups do not differ from each other significantly.

Table 21

Comparison on Sociable Trait

Teachers	N	$\leq X$	Mean	$\leq X^2$	t
Direct	30	405	13.50	421.50	
					1.90421*
Indirect	30	355	11.83	248.147	

* Not significant

The trend of the result for "Sociable" trait also is similar to the previous ones in which the "t" values are not significant indicating no significant difference in the means of direct and indirect teachers.

Table 22

Comparison on Reflective Trait

Teachers	N	$\leq X$	Mean	$\leq X^2$	t
Direct	30	327	10.90	230.70	
					1.0821*
Indirect	30	303	10.10	244.94	

* Not significant

On "Reflective" trait also the direct and indirect teachers do not differ significantly as revealed by the "t" value in Table 22 which is not significant.

The investigator thought that these insignificant results might be due to small sample in each group. Considering this possibility instead of establishing the criterion groups on the basis of direct and indirect teachers the investigator selected two criterion groups of predominantly direct and predominantly indirect teachers, taking 25 per cent from the upper extreme and 25 per cent from lower extreme and compared their mean on the scores of "Active" trait. As a result of this type of grouping the number of sample increased by 20 per cent in each group. The results are furnished in Table 23.

Table 23

Comparison on Active Trait

Teachers	N	X	Mean	X^2	t
Direct	50	362	7.24	467.72	
					.401 *
Indirect	50	350	7.00	410.00	

* Not significant

It is observed that even by forming the two criterion groups and increasing the sample to 50 the value of "t" is not significant. This substantiates that the direct and indirect teachers do not differ significantly on "Active"

trait, because all the indirect teachers automatically came in the upper 50 per cent group and the direct teachers in lower 50 per cent group. This finding also supports the logic of having only direct and indirect teachers comprising a total of 60 teachers (30 in each group), and confirms that in the present circumstances sample has nothing to do with the insignificant "t" values.

The pattern of these findings is very much similar to the pattern of findings in Ryans's (79) study. In his study teachers of elementary schools were divided into high and low criterion groups (upper 27 per cent and lower 27 per cent) with repsect to each of the teacher behaviour patterns X_0 (understanding, friendly versus aloof, ego-centric, restricted teacher behaviour), Y_0 (responsible, business-like systematic versus evading, unplanned, slipshod teacher behaviour), Z_0 (stimulating, imaginative, surgent or enthusiastic versus dull, routine teacher behaviour) and P_0 (pupil behaviour) and means were computed for the four high criterion groups and the four low criterion groups for the dimensions measured by (a) the Thurstone Temperament Schedule, (b) the Minnesota Multiphasic Personality Inventory (hypochondriasis, depression, hysteria, psychopathic deviate, masculine interests, paranoia, psychosthania, schezophrenia, hypomania, responsibility, and social status scales), and (c) the Allport-Vernon Study of Values (theoretical, economic, esthatic, social, political, and religious scales). Among

sixty-eight different comparisons of the high and low group means involving the eleven scales of the MMPI and the six scales of the Allport-Vernon Study of Values, only one difference was found to be significant at the 5 per cent level. For these teachers at least it appeared that personal traits measured by the scales of these two inventories were unrelated to the behaviour patterns X_0, Y_0, Z_0 and P_0. Regarding the performance of high and low groups on Thurstone Temperament Schedule, it was found that the high criterion group with respect to pattern X_0 differed significantly from the low criterion group, attaining higher mean scores on the impulsive, dominant and social scales. The high Z_0 group made higher scores than the low group on the vigorous, impulsive, dominant, and sociable scales. The high P_0 criterion group achieved higher mean scores than the low group on the dominant and sociable scales. No significant differences, however, were obtained with respect to the pattern Y_0.

Sorber (89) studied the need structure of direct and indirect teachers with the help of Edwards Personal Preference Schedule but he did not find any significant difference in the needs of direct and indirect teachers.

Thus, it can be concluded that direct and indirect teachers do not differ on the seven personality temperaments measured by Thurstone Temperament Schedule as well as do not differ in their need structure measured by EPPS.

1. Teachers' verbal behaviour in the classroom is related in a small measure to his personality and attitudes. The results are similar to the findings of Davies mentioned in the review of past studies.

2. Teachers' attitude toward "Democratic Classroom Procedures" correlated significantly (at .05 level) with I/D and i/d ratios. The correlation with I/D ratio was .14964 and with i/d .16517.

3. "Reflective" trait correlated significantly (at .05 level) with i/d ratio. The correlation was -.16389.

4. "Sociable" trait was significantly (at .05 level) related to Student Initiation. The correlation between the two variables was -.14892.

5. "Reflective" trait and attitude toward "Democratic Classroom Procedures" were found to be the best predictors of I/D ratio, which was predicted to the extent of 4 per cent.

6. In the prediction of i/d ratio attitude toward "Democratic Classroom Procedures", "Reflective" trait, attitude toward "Management", and "Sociable" trait were found to be the best predictors. They predicted i/d ratio to the extent of 8 per cent.

7. Teachers' Accepting Behaviour of Student's Ideas (C_3) could not be predicted significantly by any of the predictor variables.

8. "Sociable" trait was found to be the best predictor of Student Initiation (C_9). It predicted C_9 to the extent of 2.25 per cent.

9. T/S ratio (proportion of Teacher Talk to Student Talk) could not be predicted significantly by any of the 15 variables.

10. Direct and indirect teachers did not differ significantly from each other on the seven personality traits.

11. Further research is needed to identify the variables significantly related to teacher behaviour.