CHAPTER - X : SUBSEQUENT STUDIES

Study I : Some factors related to teacher-efficiency

It is of common interest to determine whether differences in training, experiences, qualifications, sex, etc. among teachers might have some effect on or relation with their performance on the inventory. Hence, it was decided to find out whether there were any differences in the mean scores of these teachers when they were classified according to the following categories and whether these differences in their mean scores were statistically significant for each of the followingcategories :

1) Men and women teachers
2) Experienced and inexperienced
3) Trained, untrained and trainee teachers
4) Graduates, SSLCs and non-SSLCs
5) Urban and rural teachers
6) Government, non-government and trainee teachers.

(1) Inventory scores and sex

Out of the 500 teachers, 302 were men teachers and 198

were women teachers. The average and standard deviation of these two groups were computed. The results have been tabulated below :

	Number	Mean	SD
Men	302	110.73	20.1
Women	198	110.70	21.0

It can be seen from the above values that the mean and SD of the two groups are almost the same. The difference between the two means is only 0.03.

The test of significance of the difference was applied to find out whether the obtained difference is only due to sampling accidents. In general, 't's are tested against the null hypothesis i.e. against the assumption that there is no true difference between the population means being compared and that our two samples differ only through sampling accidents.

The standard error of the difference was computed by using the formula :

$$S.E_D = \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$$

where $\frac{\sigma_1}{\sqrt{n_1}}$ = Standard error of the mean of the first group and $\frac{\sigma_2}{\sqrt{n_2}}$ is the standard error of the mean of the second group.

The critical ratio C.R. was then computed by dividing the obtained difference in means by its S.D. CR = $\frac{d}{\sigma_d}$ = t. In the present problem CR = $\frac{0.03}{1.88}$ = 0.016. For df = 498 (since $n_1 + n_2 = 500$), it is found that a 't' of 1.96 is significant at 0.05 level. Hence the obtained t of 0.016 is very small and is not significant. Hence the null hypothesis is retained. There is no true difference between the population means of men and women teachers being compared.

The results of the statistical analysis indicated no significant sex differences in the mean scores of the two groups. Hence, it may be concluded that the performance of men and women teachers on the inventory is almost the same.

(2) Inventory scores and the length of service

The 500 teachers who had answered the inventory had not put in the same number of years of service. The group contained even teachers with 35 years of experience. In order to find out the effect of length of service on the inventory scores, the teachers were regrouped according to the years of service that they had put in and the means and SDs were computed. The table shows that there is an increase in the mean scores of teachers upto 20 years of service. After this, there is no steady rise in the mean score. This may perhaps be due to the small number of teachers who fall within the class-intervals of 21-25 years of

service, 26-30 years of service and 31 and above years of service.

Table

Length of service (in class-intervals)	No. of teachers in each group	Mean	SD
0-1	138	106.8	19.4
2-5	97	110.5	20.1
6-10	86	111.9	21.5
11-15	76	113.1	20.4
16-20	37	119.9	18.7
21-25	20	116.0	20.5
26-30	22	121.8	14.8
31 and above	24	119.5	18.5

Teachers who had 5 years and less than 5 years of service were grouped as inexperienced and teachers who had put-in more than 5 years of service were grouped as experienced. The mean and SD of these two groups were computed.

	Number	Mean	SD
Experienced teachers (those who have put in six or more than six years of service)	265	115.2	19.8
Inexperienced teachers (those who have put in 5 or less than 5 years of service)	235	108.3	19.9

As before, 't' was computed to find out whether the

difference of the two means was significant or not. The difference of the means = 6.9 't' = 4.0. For df = 498, the value of t is more than 2.59 to be significant at 0.01 level. Hence, the difference is highly significant. This shows that teachers who had put in 5 years or more of service did better on the inventory than those who had put in less than 5 years of service. The distribution of scores of these two groups can be seen in Graph IX.

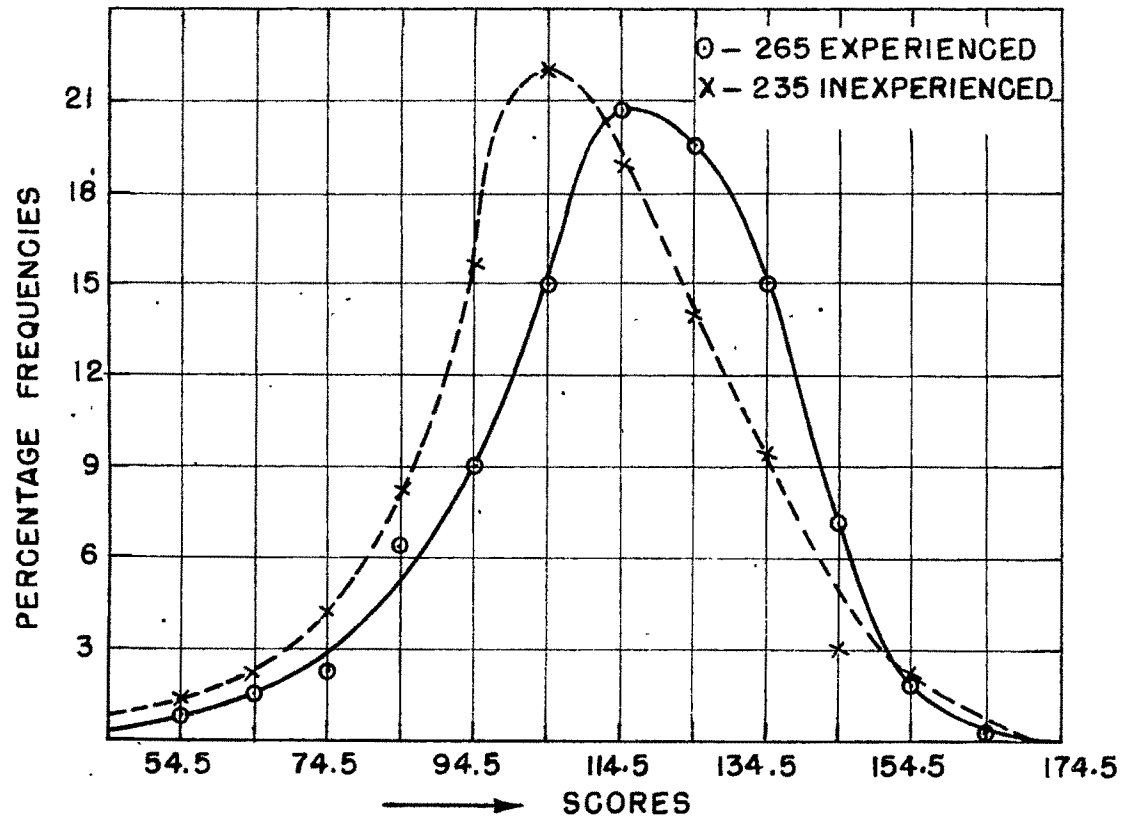
(3) Inventory scores and teacher-training

The 500 teachers were grouped as trained, untrained and teachers under training (trainees). Out of 500 teachers, 248 were trained, 108 were untrained and 144 were trainees. The mean and SD of these groups were calculated. They are :

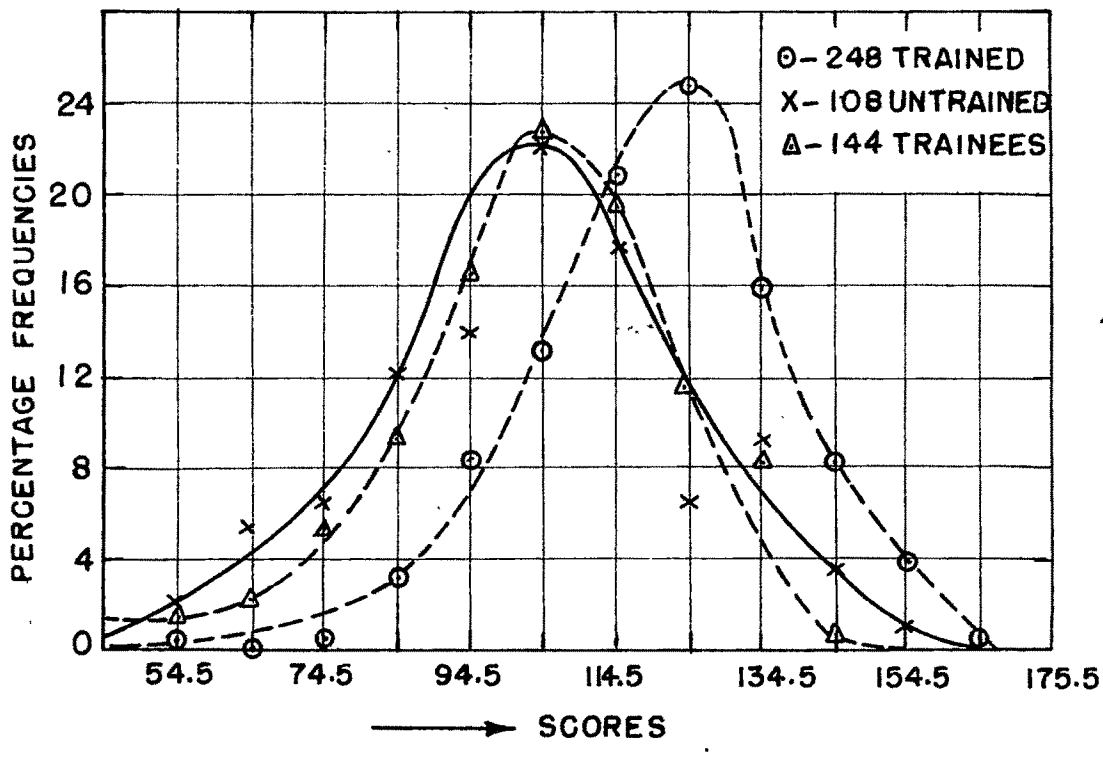
	N	Mean	SD
Trained	248	120.5	17.2
Untrained	108	103.4	21.6
Trainees	144	104.6	18.1

The differences between the above means were found out and C.R. in each case, for each pair, was computed. The values are :

	D	CR
Difference in means of trained and untrained teachers	17.1	7.2 (significant at 0.01 level)
Difference in means of untrained teachers and trainees	1.2	0.48(not significant)



GRAPH IX GRAPH SHOWING THE DISTRIBUTION OF SCORES OF EXPERIENCED AND INEXPERIENCED TEACHERS



GRAPH X GRAPH SHOWING THE DISTRIBUTION OF SCORES OF TRAINED, UNTRAINED AND TRAINEE TEACHERS.

Difference in means of trainees and trained teachers	15.9	9.3 (significant at 0.01 level)

Hence the obtained differences between the trained teachers and untrained and trainees are highly significant. This shows that trained teachers do better on the inventory than the untrained teachers or trainees. Graph X shows the distribution of scores of these groups.

(4) Inventory scores and qualifications of teachers

The qualifications of all the 500 teachers who answered the inventory were not the same. It was decided by the Govt. of Mysore from 1 January 1947, that the minimum qualification for a teacher of the primary school should be SSLC. Before this, those who had passed the Middle School Examination of ex-Mysore State of Mulki Examination or its equivalent examinations in the integrated parts were taken as teachers of primary schools. In order to find out if there existed a significant difference in the mean scores of teachers with different qualifications, the whole group was divided as under and the mean and SD were computed for each sub-group :

	Number	Mean	SD
Graduate teachers	54	128.02	19.58
Teachers who have passed SSLC	309	112.3	19.4
Teachers who have not passed SSLC	137	104.8	18.8

The differencesin the above three means were found out and the CR in each case of each pairing was computed. These

values are :

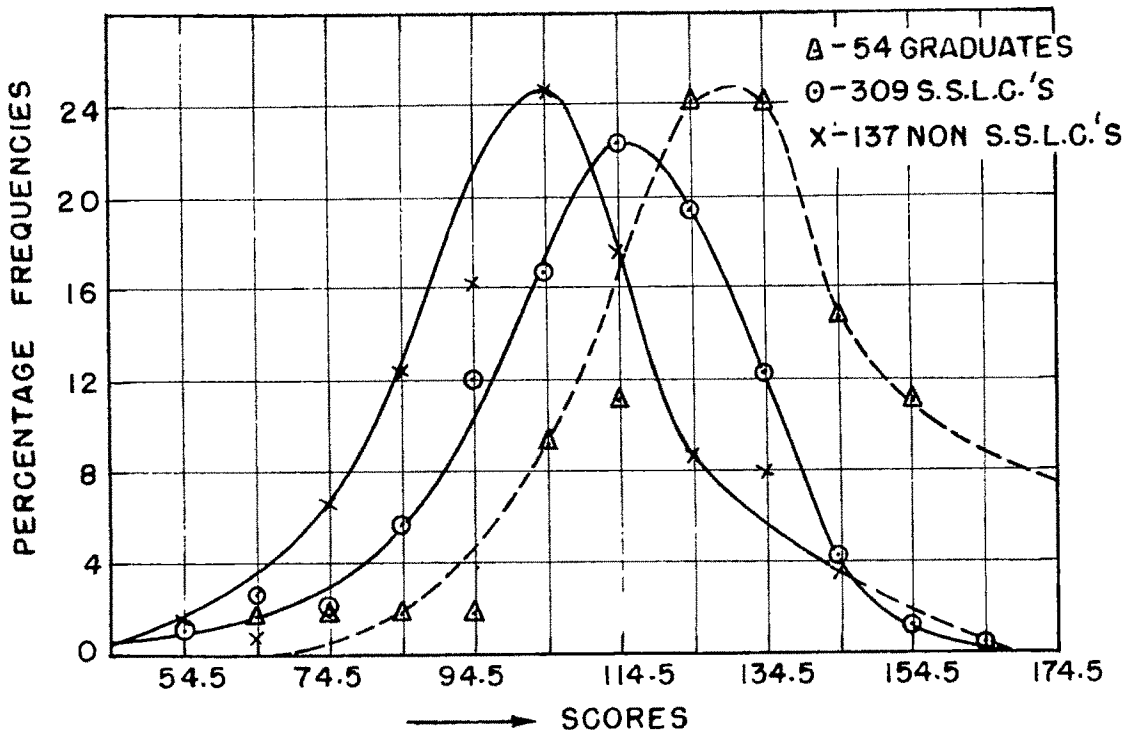
	D	C.R('t')
Difference in means of graduate teachers and SSLC passed teachers	15.7	5.4
Differences in means of SSLC passed and non-SSLC teachers	7.5	3.8
Differences in means of graduates and non-SSLC teachers.	23.22	7.4

All values of 't' are significant at 0.01 level.

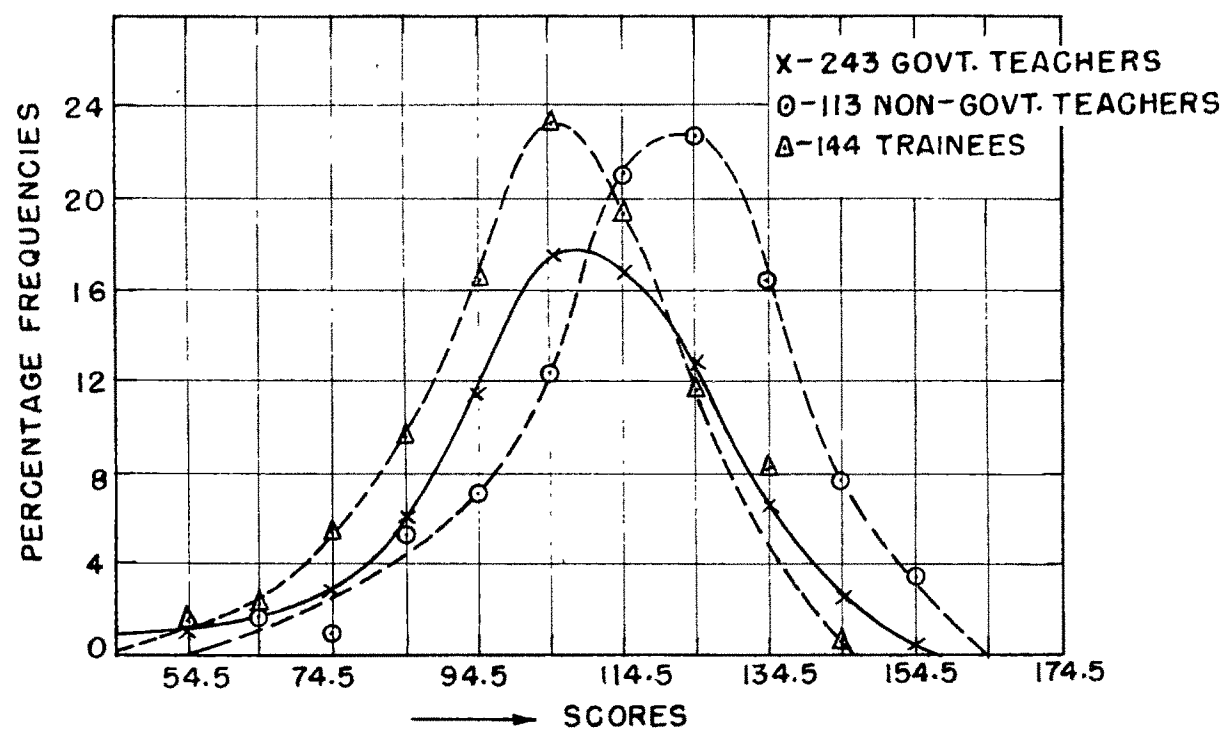
It is found that the value of 't' in each of the above cases is more than 2.59. Hence the difference in each case is significant. It may be concluded that the SSLC passed teachers score more marks on the inventory than the non-SSLCs and the graduates do better than the SSLCs. Graph XI gives the distribution of scores of the three groups.

(5) Inventory scores - Urban and rural teachers

The sample of 500 teachers contained also teachers working in rural as well as urban areas. Teachers working in Bangalore, Mysore, Dharwar districts can be taken as urban teachers and the teachers working in the rest of the districts can be said to be rural teachers. Accordingly, 162 teachers out of 500 teachers were grouped as urban, and the rest of 338 teachers belonged to rural area. The following table gives the mean and SD of these two groups :



GRAPH XI GRAPH SHOWING THE DISTRIBUTION OF SCORES OF GRADUATE, S.S.L.C. & NON-S.S.L.C. TEACHERS.



GRAPH XII GRAPH SHOWING THE DISTRIBUTION OF SCORES OF GOVT., NON-GOVT. AND TRAINEE TEACHERS.

	N	Mean	SD
Urban	162.0	112.3	21.1
Rural	338.0	111.6	19.6

D = 0.90. The CR = 0.9/1.96 = 0.046. For df = 498, it is found that a t = 0.046 is far short of 1.96 even at the 0.05 level. Thus, the obtained difference is not significant. Hence, it may be concluded that there was no difference between the performances by the urban and rural teachers on the inventory. Possibly, one of the explanations for this may be that usually there are transfers and vice versa, and as such the existing sample could not be correctly termed as urban or rural on the basis of the present location.

(6) Teachers of Government and non-Government schools

Further, 500 teachers who had answered the inventory belonged to Government as well as non-Government, aided and training institutions. In order to study these differences, they were grouped as : (1) Teachers of Government Institutions; (2) Teachers of Aided Institutions; and (3) Trainees in Training Institutions. The table below gives the mean and SD of these three groups :

	N	Mean	
Teachers working in Government institutions	243	113.3	20.7
Teachers working in non-government institutions	113	118.5	18.7
Trainees in training institutions	144	104.6	18.1

From the above table it is observed that non-Government school teachers scored more than the Government school teachers and trainees: and the trainees' mean score was the least. The difference in the means of these three groups were calculated and the 't' test was applied to test the significance of the differences. The following table gives the difference in means and the critical ratio with the level of significance.

Groups	D	t = D/ D	Level of significance
Government and non-Government teachers	5.2	2.361	0.02
Non-Government school teachers and trainees	13.9	5.998	0.01
Govt.School teachers & trainees	8.7	4.333	0.01

Thus, statistically it is significant that non-government teachers were superior to government teachers and both these superior to trainees. The latter proposition is evidently understandable, but the former is somewhat strange; perhaps the government teachers being more secure might be less painstaking, while non-government teachers at the mercy of private bosses might be more vigilant all time to show their merit. The distributions of the scores of the three groups can be seen from the Graph XII.

It follows from the above statistical analysis and

discussion that some variables are definitely related to teacher-efficiency, while others are not. However, it should be borne in mind that while analysing the results, the total subject of the groups remain the same with their appropriate shifting in sub-groups, which are thus not independent of one another. Thus, it is likely that the interaction of the two or more variables input be either accelerating or decelerating the simple effect of the main variables, whose real effect might thus be obscured by subjecting the results to simple 't' test. It is acknowledged here that the technique of analysis of variance of same scores would have given a more satisfactory picture. However, in view of the insignificant effect of some useful variables as well as in view of the lesser or secondary importance of such complex analysis in area of test construction the present discussion would, it is hoped, serve its main purpose and would be appreciated, leaving the hinted discussion for future and further research work.

Study II : Characteristics which the pupils expect in their teachers

Hardly a few teachers will dispute the fact that the opinions and feelings of pupils regarding their teachers are highly reliable. But, when specific proposals are made concerning the evaluation of student reaction, many teachers exhibit skepticism. Their argument is that the

children are too immature to appreciate the merits of a good teacher and may revise their childish judgments with passing of years. There might have been a few cases wherein the opinions of pupils with regard to their teachers might have changed after a long period. An investigation carried out by Boyce and Bryan[4] definitely showed that only a minority of the pupils changed their opinions of former teachers during post-school years. The pupils' opinions about teachers can be taken as fairly stable and also reliable. Jerisild[1], Bryan[2,5] Smith[3], Boyce[4], Remmers[6] and Witty[7] have

---

1. Jerisild Arthur, T. 'Characteristics of teachers who are 'Liked Best' and 'Disliked Most'. Journal of Experimental Education, IX, (1940), p 139.

2. Bryan Roy, C. 'Pupil Ratings of Secondary School Teachers' -
5. Columbia University Teachers' College Contribution to Education No. 708.

3 Smith, A.A. 'What traits do High School Pupils admire in teachers' ? High School Journal, XXVIII, 1945.

4 Robert, B. Boyce and Roy, C.Bryan. 'To what extent do pupils' opinions of teachers change in later years'. Journal of Educational Research, May 1944, pp 698-705.

5 Roy C,Bryan, 'Why Student reactions to Teachers should be evaluated', Educational Administration and Supervision, XXVII, Nov 1941, pp 590-603.

6 Remmers, H.H. 'Reliability and Halo Effect of High School and College Students', Judgment of their Teachers'. Journal of Applied Psychology, XVIII, 1934, pp 619-630.

7 Witty Paul, 'An Analysis of the Personality Traits of the Effective Teacher', Jour. of Educational Research, 40, 1947, pp 662-71.

made extensive studies on pupils' ratings of their teachers. It has been found that pupils' rating of their teachers is one of the best criterion for assessing teacher effieiancy.

In order to find out the characteristics which the pupils wish their teachers to possess, a list of characteristics which are supposed to exist in a good teacher was provided (Vide Appendix - P). A few undesirable qualities were also added in the list just as a check. This list with proper instructions was given to the pupils of VII and VIII standard classes along with the teacher evaluation questionnnaire. Ninety teachers were rated by the pupils of 15 schools. Each teacher was rated by at least 20 pupils. All these pupils also marked the characteristics which they wanted their teachers to possess. They also ranked five characteristics in order of importance out of those they had underlined. In all, about 950 children marked the characteristics. A sample of 150 lists were taken for analysis. Table 59 gives the characteristics, the frequency and percentage, with which each was marked.

Table 59

	Characteristics	Frequency	Percentage
1	Health	150	100
2	Love of justice	150	100
3	Knowledge of subject matter	150	100
4	Resourcefulness	146	97
5	Patience	142	94
6	Considerateness	140	94
7	Neat dress	136	90
8	Humour	134	90
9	Ability to maintain discipline	148	79
10	Sociability	117	76
11	Good appearance	90	60
12	Anger	29	20
13	Irritability	20	14
14	Partiality	10	7
15	Laziness	7	5

Out of the characteristics they had underlined, five characteristics were given ranks according to their importance. These ranks during analysis were arbitrarily given a weightage of 5, 4, 3, 2 and 1 respectively. The frequencies

of each rank were multiplied by their respective weight and the total weightage was calculated by summing all weights for each item. Table 60 gives the characteristics with the frequencies and weightages.

As a result of the analysis of the weightages and frequencies of the characteristics marked by 150 children the characteristics have been arranged in the order of their importance, as based on ratings by children (vide Table 60). In addition, the following observations can be made :

(1) About 95 percent of the pupils wish their teachers to have the following characteristics :

> Health, love of justice, patience, considerateness, knowledge of subject matter, resourcefulness, ability to maintain discipline.

(2) 60 to 90 percent of the pupils wish their teachers to have the following characteristics in addition to the above characteristics, sociability, neatness in dress, good appearance and humour.

(3) Pupils do not like their teachers to possess the following characteristics - partiality, irritability, anger and laziness.

(4) Among those who have ranked the characteristics, majority have given first rank to characteristics like health, love of justice, patience, considerateness,

knowledge of subject matter, resourcefulness and ability to maintain discipline.

It may be remarked that the pupils' ratings of these characteristics are sound and their judgement of their teachers as based on these ratings, discussed earlier in Chapter IX, (p254) is quite reliable and is justified for being used as a sound criterion to judge the teachers' efficiency.

:: :: ::