CHAPTER IV

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****** ANALYSIS AND INTERPRETATION

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IV

ANALYSIS AND INTERPRETATION

4.1 Introduction

The analysis of the collected data involved the application of various statistical methods and the interpretation of the statistics obtained for inferring the tenability of the hypotheses. The analysis was carried out keeping in mind the objective of studying the differences in the acquisition of general teaching competence through the three treatments as well as studying the effects of the demographic variables on this acquisition. In the following sections of the chapter, relavant data under each head is presented through tables as well as graphs, and interpretations of the same follow immediately after the tables.

Differences in the acquisition of general teaching competence of the three groups were compared by t tests (Garrett, 1965). In order to study the effect of the other variables on the acquisition of general teaching competence, each group was further divided into high and low groups according to the scores of the concerned variable and statistical technique of analysis of variance and analysis of covariance were used to determine whether the means differed significantly or not (Guilford, 1965 ; Lindquist, 1970; Garrett, 1965). While deciding as to which means differed significantly and to avoid computing a series of t in each case. Duncan's New Multiple

Range Test was used following the analysis of variance or covariance as the case may be (Edwards, 1971; Dayton, 1970). In applying this test, a single harmonic mean for the groups of means was calculated and from its standard error, shortest significant ranges for significant differences were obtained. The group means were arranged in order of their magnitude and the differences that fell below the shortest significant ranges were considered not significant.

In order to ascertain the effects of the covariates on the development of general teaching competence, it was assumed that, for a particular covariate having no effect on the development of general teaching competence, the pattern of differences that develop among the three groups as whole through the three training approaches would remain unchanged even when the groups are divided further into low or high groups according to the scores of that particular variable, and the six group means are adjusted for the differences in the scores of the covariate. A possibility that significant differences may arise at pre-training stage when the three groups are further divided into six groups was also explored and it was found that at pre-training stage, such a division according to high or low score of the covariates did not give rise to any significant differences among the groups and that the values of F ratios for different covariates ranged from 0.09 to 2.25 which were not significant at 0.05 level.

4.2 Development of GTC

The primary purpose of the present study was to study the development of general teaching competence through the three training approaches, viz. (i) traditional training coupled with auto-instructional material, (ii) microteaching under simulated condition and (iii) microteaching in real situation. As mentioned earlier, three measures of general teaching competence were taken for the three groups at pre-training stage, at 11th practice teaching lesson and at 16th practice teaching lesson. The following Table No. 3 shows the general teaching competence scores of the three groups at these three levels of training :

Table 3 : Mean and SD of GTC Scores of the Three Groups at Three Levels of Measure

Group	GTCS - 2		GTCS - 11		GTCS - 16	
	M	SD	M	SD	M	SD
TRT	42.39	4.81	53.11	6.17	57.11	6.24
MTR	42.18	4.69	69.72	4.07	73.5	4.0
MTS	42.5	5.27	63.11	6.64	69.28	6.9

It can be seen from the above table that the greatest increase in general teaching competence was for the MTR group and the least increase was for the TRT group. A large amount of this increase can be attributed to the initial training for the three groups because the main increase in general teaching competence was during the pre-training to the 11th lesson stage.

During the latter stage of the training, it can be seen that the TRT group and the MTR group showed almost equal increase whereas the MTS group showed a greater increase. It can be inferred from this that the MTS group benefited most from the traditional practice-teaching which followed after the micro-teaching training.

One another aspect of the effect of training that can be seen from the table is the effect of the training procedures on the variability of the groups. Variability of the two groups viz., the TRT group and the MTS group, had increased, while the variability of the MTR group had decreased. This change in the variability of the groups was further studied through the application of t tests. It was observed that the change in variability for the MTR group and the MTS group was not significant while for the TRT group, the increase in SD from pre-training stage to the 16th lesson stage was significant at 0.05 level ($t = 2.27$).

As the main purpose of the present investigation was to study the acquisition of general teaching competence through the three training approaches, gain in general teaching competence from pre-training to 11th practice teaching lesson (G_{1-11}) and gain in general teaching competence from pre-training to 16th practice teaching lesson (G_{1-16}) were calculated for the three groups. The Table 4 on the next page shows the gain in general teaching competence for the three groups :

Table 4 : Gain in GTC Scores of the Three Groups

Group	G_{1-11}		G_{1-16}	
	M	SD	M	SD
TRT	10.67	3.79	14.67	3.67
MTR	26.61	4.17	30.39	4.26
MTS	20.61	6.1	26.78	6.26

It is clear from the above table that the highest gain in general teaching competence at both the stages was for the MTR group whereas it was the least for the TRT group. Considering the gain in general teaching competence from 11th to 16th practice teaching lesson, it is observed that the group showing the highest gain was the MTS group which had a gain of 6.17. This development of general teaching competence for the three groups is shown graphically in Figure 4.

The graphs for the development in Figure 4 show that the development of general teaching competence was almost uniform from 1st to 16th practice teaching lesson in the case of the TRT group; whereas, in the case of the two microteaching groups, the rate of development of general teaching competence was greater during the first stage of the training i.e. from 1st to 11th practice teaching lesson. So far as the development of general teaching competence from 11th to 16th practice teaching lesson is concerned, it is seen that the development was the greatest for the MTS group. Graphs for this stage of

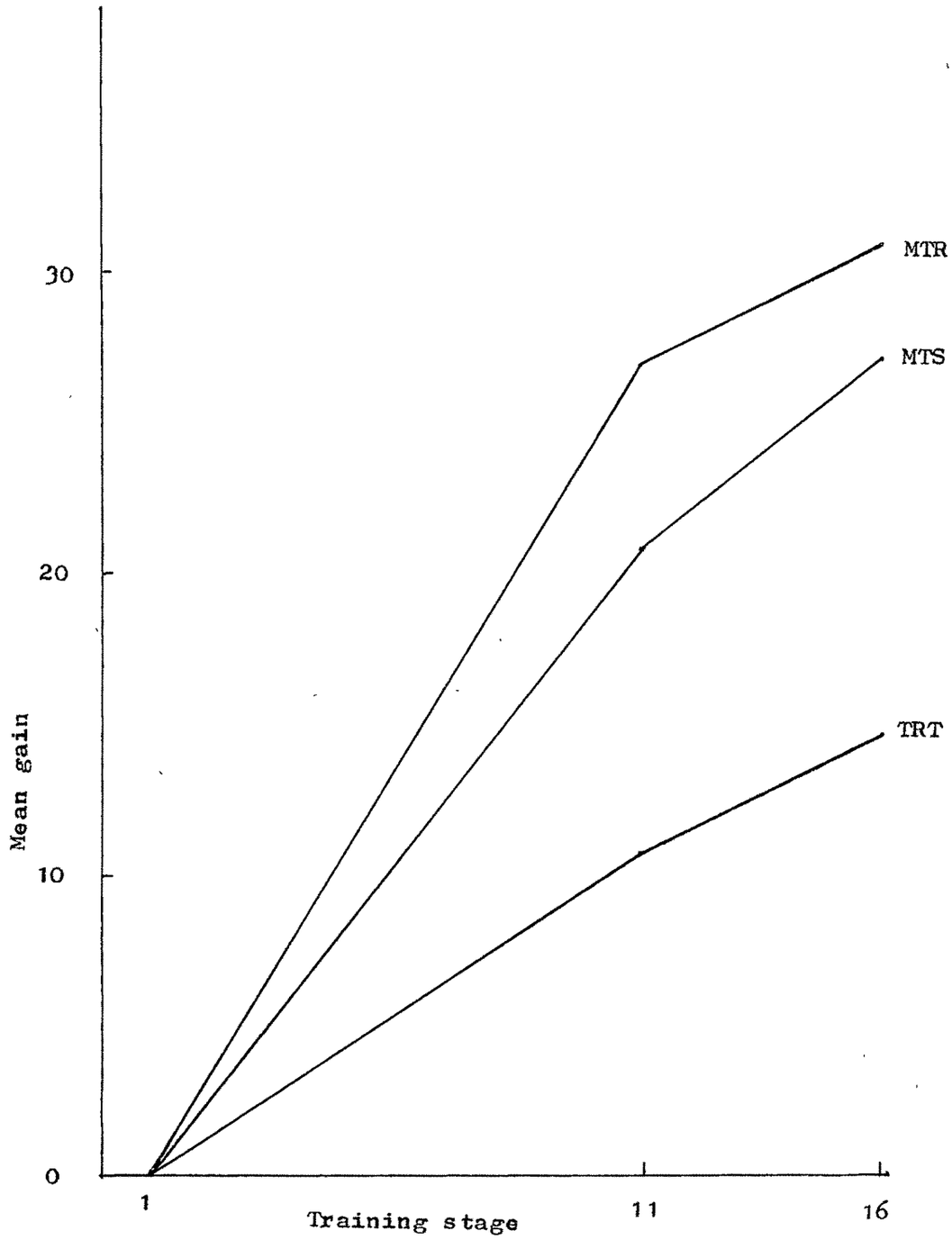

Fig. 4 Development of GTC

development for the MTR and the TRT groups are almost parallel which show that the effect of training during 11th to 16th practice teaching lesson was equal for these two groups. Statistical analysis of t test showed that G_{11-16} did not differ significantly for these two groups, but G_{11-16} for the MTS group differed significantly at 0.01 level from both the MTR and the TRT groups, t being 7.97 and 6.58 respectively. It is clear that the MTS group benefitted the most from the traditional training which followed microteaching training in simulated condition.

In order to study whether significant differences existed among the three groups at both the levels of acquisition of general teaching competence, several ts were computed. The following Table 5 gives the necessary data and the results obtained for G_{1-11} :

Table 5 : Means, SDs and Significance of Differences of G_{1-11} among the three Groups

Group	N	M	SD	t
TRT	18	10.67	3.79	11.98 *
MTR	18	26.61	4.17	
TRT	18	10.67	3.79	5.88 *
MTS	18	20.61	6.1	
MTR	18	26.61	4.17	3.45 *
MTS	18	20.61	6.1	

* Significant at 0.01 level

It can be observed from the above Table 5 that the mean G_{1-11} for all the three groups differ significantly from each other, t being significant at 0.01 level. These results show that, so far as training through the three approaches was concerned, microteaching in real situation showed the greatest development of G_{1-11} which differed significantly from the other two groups. The least effective was the training through the traditional approach coupled with auto-instructional material. As the TRT and the MTR groups differ significantly, hypothesis No. 1 is rejected. The hypothesis No.2 states that there is no difference in the acquisition of general teaching competence in the case of the TRT and the MTS groups but the results indicate the contarary and this hypothesis also is rejected. Similarly, as the groups MTR and MTS differ significantly from each other, hypothesis No. 3 is also rejected.

The results show a clear superiority of the microteaching approach of training in real as well as simulated condition over the traditional training approach, as the mean G_{1-11} for the MTR and the MTS groups far exceed that for the TRT group. A number of studies in the past support these findings, (Allen and Ryan, 1969; Orme, 1966 ; Bell, 1968 ; Britton et al., 1971, Chudasama, 1971; Marker, 1972; Passi et al., 1974 ; Singh, 1974 ; Das et al., 1976 and Joshi, 1977). An only study that results contrary to the present findings is by Kallenbach et al. (1969) wherein it was found that the microteaching and

the traditional training groups did not differ significantly on post-training measures and microteaching was not found to be superior to conventional training methods in its effect on teachers' classroom performance.

One of the objectives of present investigation was to study the effects of microteaching alone and microteaching followed by macroteaching on the acquisition of general teaching competence. In order to study the effect of traditional practice teaching lessons following the microteaching programme, mean G_{1-16} of the three groups were compared through t tests. The following Table 6 gives the mean G_{1-16} and the results of t tests for three comparisons :

Table 6 : Means, SDs, and Significance of Differences of G_{1-16} among the Three Groups

Group	N	M	SD	t
TRT	18	14.67	3.67	11.82 *
MTR	18	30.39	4.26	
TRT	18	14.67	3.67	7.08 *
MTS	18	26.78	6.26	
MTR	18	30.39	4.26	2.03
MTS	18	26.78	6.26	

* Significant at 0.01 level

It can be seen from the above table that the TRT group differs significantly from both the MTR and the MTS groups as

the obtained ts are significant at 0.01 level. This shows that the initial difference between the TRT group and the two microteaching groups at the 11th practice teaching lesson was maintained through the latter practice teaching programme which followed the initial training stage. In the case of the two microteaching groups, however, the difference between mean G_{1-16} is not significant which shows that the difference of 3.61 between the two means of the MTR and the MTS groups is apparent only. Referring to Table 5, it can be seen that the difference between these two groups was significant at 11th practice teaching lesson stage. Thus, so far as these two microteaching groups are concerned, it can be observed that, though the groups differed significantly after microteaching training only and the MTR group showed higher acquisition of general teaching competence, when the microteaching training was followed by macroteaching, the levels of acquisition of general teaching competence of the two groups reached a stage where the difference between the acquisitions of the two groups was not significant. As the obtained t of 8.03 is not significant, hypothesis No.4 is rejected and it can be inferred that macroteaching that follows microteaching does have effect on the acquisition of general teaching competence in groups trained through microteaching in simulated condition.

As mentioned earlier, the present investigation was spread over a period of two academic years to see whether comparable

consistent results are obtained from year to year. The following Table 7 gives the yearwise comparison of gains in general teaching competence of the three groups :

Table 7 : Year-wise Comparison of Gains in GTC

	1976-77		1977-78	
	M	SD	M	SD
G_{1-11} :				
TRT	10.4	5.25	11.0	1.07
MTR	26.4	5.74	26.88	1.46
MTS	20.7	8.53	20.5	1.41
G_{1-16} :				
TRT	14.6	4.97	14.75	1.67
MTR	30.2	5.77	30.63	1.92
MTS	26.9	8.72	26.63	1.69

The above table shows that for all the three groups, the results obtained during the second year of the study were similar to those obtained during the first year of the study and consistent results were obtained for all the three groups at both the levels of acquisition of general teaching competence. The groups differed from year to year so far as their variability was concerned as can be seen from the change in SD of the groups during the second year. The variability of the groups in second year had decreased; but, in spite of the differences in SDs, the groups did not differ significantly

from year to year so far as the mean gains in general teaching competence were concerned; the values of t being less than 0.5 in all the cases. It can be inferred that in case of overall development of general teaching competence, microteaching training approach would yield similar results from year to year.

4.3 Sex and Acquisition of GTC

Individual differences are accepted as existing in the acquisition of teaching skills and this is also a common observation among student teachers under training. Teaching is considered, especially abroad, as a female profession and this is increasingly true upto secondary levels. Mehta (1972), in a factorial analysis of teaching abilities of graduate pupil-teachers of secondary teachers' training colleges reports differences in teaching ability components of male and female pupil-teachers. The study revealed that men were more out-going, assertive, venturesome, shrewd and radical than women pupil-teachers. Such differences would no doubt affect the teaching competence gained through the training programme.

Several studies have been reported about sex differences among teachers. Roy (1965) found that there was no characteristic pattern of differences between successful male and female teachers. In a study by Malhotra (1976), FIACS was used as a tool and it was found that the male and female teachers did not differ in indirect-direct teacher-classroom behaviour. A study by Methew (1976) also reports similar results. In yet another study by

Mehta (1976), the male teachers were not found to differ from the female teachers significantly regarding indirect / direct behaviour and teacher response ratio. A study by Nair (1974) reports that sex was not found to be affecting teaching ability. An only study regarding the effect of sex on development of general teaching competence through microteaching is by Das et al (1978) wherein it was found that the interaction effect of sex and treatment of microteaching was not significant and that there was no sex difference in the development of general teaching competence of student-teachers trained through microteaching technique.

In order to study the effect of sex on the development of general teaching competence in the present investigation, the three groups viz., the TRT, the MTR and the MTS, were divided into male and female groups to make six groups in all and F ratio was computed to see whether the groups differed significantly or not. The following Tables 8 and 9 give the results of analysis of variance for G_{1-11} and G_{1-16} :

Table 8 : Analysis of Variance for G_{1-11} : Groups Divided According to Sex

Source of Variance	df	Ss	Variance	F
Among the Means	5	2399.49	479.9	19.63 *
Within Treatments	48	1173.77	24.45	

* Significant at 0.01 level

Table 9 : Analysis of Variance for G_{1-16} : Groups divided according to Sex

Source of Variance	df	Ss	Variance	F
Among the Means	5	2500.26	500.1	19.77 *
Within Treatments	48	1214.57	25.3	

* Significant at 0.01 level

The results of the analysis of variance show, as it is clear from the above tables, that F ratio is significant for both the levels of acquisition and that the group means differ significantly. It was further necessary to know which means among the six differed significantly from each other and Duncan's multiple choice range test was applied to locate the significant differences. The following table gives the result of the test for the acquisition of general teaching competence at 11th practice teaching lesson level :

Table 10 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Group divided according to Sex

Groups Means	(1) TRT.F 9.57	(2) TRT.M 11.36	(3) MTS.M 19.27	(4) MTS.F 22.71	(5) MTR.F 26.43	(6) MTR.M 26.73	SSR at .05 level
(1) 9.57		1.79	9.7	13.14	16.86	17.16	R_2=4.79
(2) 11.36			7.91	11.35	15.07	12.37	R_3=5.05
(3) 19.27				3.44	7.16	7.46	R_4=5.21
(4) 22.71					3.72	4.02	R_5=5.32
(5) 26.43						0.3	R_6=5.42
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

Table 10 shows that the acquisition of general teaching competence was higher for males in case of the TRT and the MTR groups, while males in the MTS group scored lower. Considering the differences it can be seen that the TRT group differed significantly from the other two groups. Males and females in the MTS group did not differ significantly but the MTS.M group differed significantly from the MTR group, while the MTS.F group did not differ significantly from the MTR group.

The following Table 11 gives the results of Duncan's multiple range test for G_{1-16} means :

Table 11 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Sex

Groups	(1) TRT.F	(2) TRT.M	(3) MTS.M	(4) MTS.F	(5) MTR.F	(6) MTR.M	SSR at .05 level
Means	13.29	15.55	25.64	28.57	30.29	30.45	
(1) 13.29		2.26	12.35	15.28	17.0	17.16	R_2=4.88
(2) 15.55			10.09	13.02	14.74	14.9	R_3=5.14
(3) 25.64				2.93	4.65	4.81	R_4=5.30
(4) 28.57					1.72	1.88	R_5=5.42
(5) 30.29						0.16	R_6=5.52
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

It can be seen from the above table that the two TRT subgroups differed significantly from the other two main groups while the other four groups did not differ significantly among themselves.

A comparison of the two tables 10 and 11 shows that in case of the NTS.M group, the difference with the MTR group was significant at 11the practice teaching lesson level but the difference was not significant at 16th practice teaching lesson level. Thus, it can be concluded that sex differences were effective in development of general teaching competence through microteaching practice only; but, the difference was eliminated when the microteaching training was followed by traditional practice teaching lessons. Another fact that is evident from Table 10 is that, though the MTR and the MTS groups as a whole differed significantly in mean G_{1-11} (Table 6), when divided according to sex, the MTS.M group only differed significantly from the other three groups, viz., MTS.F, MTR.M and MTR.F.

Figure 5 shows the effect of sex on the gain in general teaching competence through the three training approaches. It can be seen that for all the three groups taken separately, the lines for G_{1-11} and G_{1-16} are almost parallel thereby showing that there are no sex differences in individual groups from G_{1-11} to G_{1-16} and sex did not contribute as an effective factor during the development of general teaching competence from 11th practice teaching lesson to 16th practice teaching lesson. The effect of sex is apparent when the MTS group is compared to the MTR and the TRT groups. Females in the MTS group score higher at both G_{1-11} and G_{1-16} stages while males in the MTR and the TRT groups score higher for both the levels of acquisition of general teaching

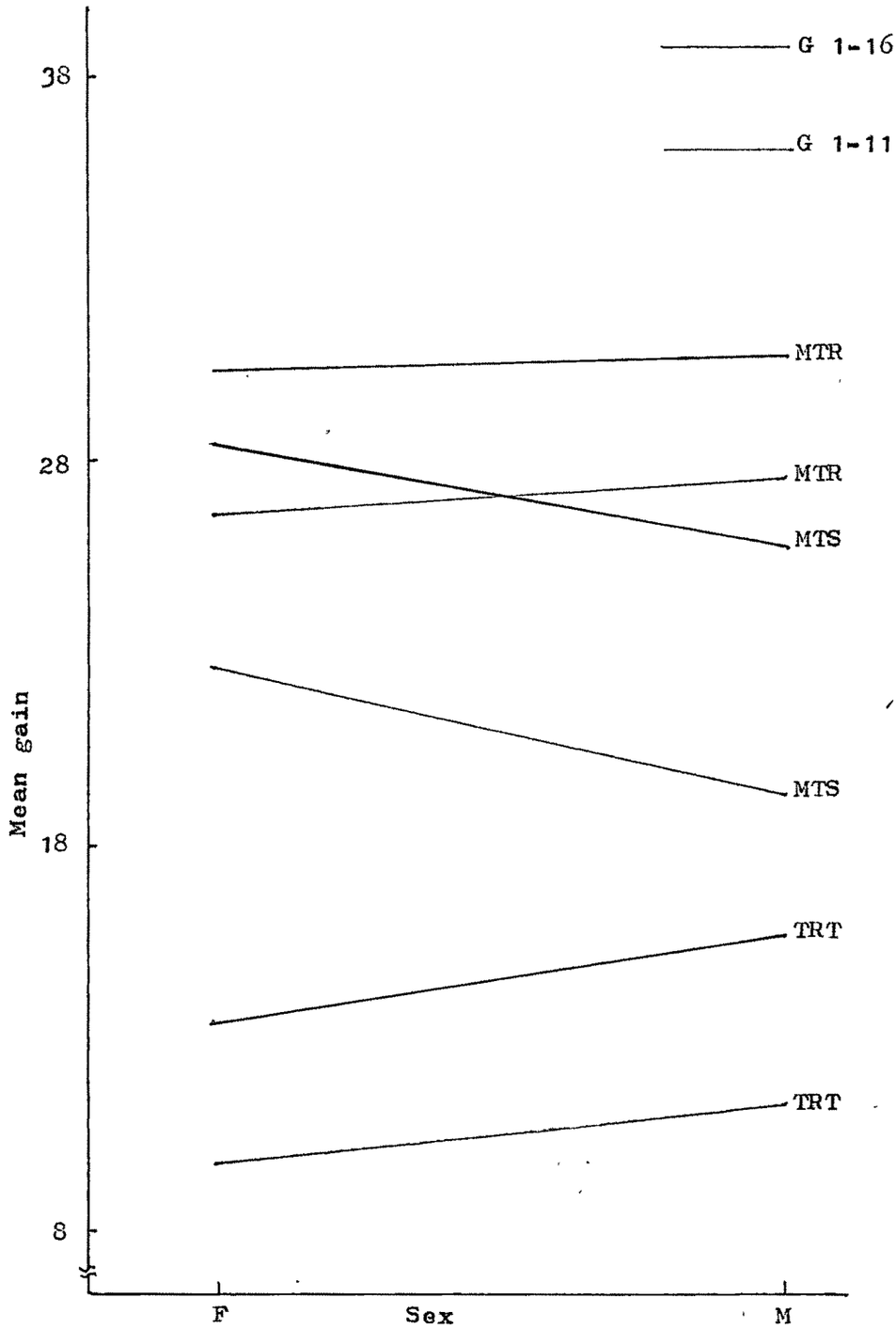

Fig. 5 Sex and gain in GTC

competence. Considering this effect of sex on the three groups, hypothesis No.6, viz. sex has no significant effect on the acquisition of general teaching competence through the three training approaches is rejected.

To sum up, it can be said that there are no sex differences so far as the traditional training coupled with auto-instructional material and the microteaching training in real situation are concerned. In microteaching training under simulated condition, there are sex differences at the initial stage of acquisition of general teaching competence, i.e. at 11th practice teaching lesson stage, the males scoring lower but the difference is wiped out through the traditional training which follows the microteaching training.

4.4 SES and Acquisition of GTC

The personal characteristics of teachers are major factors that shape their activities and achievement as teachers. Social and economic background form one of the several factors like educational background, personality, perception of teaching etc., in an individuals decision to become a teacher. On the basis of income, family occupation, type of home and family, cultural level of home etc., teachers belong to different strata in society and this, in turn, affect their frame of references and their acts of teaching. A teacher's effectiveness is thus affected by his personal history and his environment which are determined by his SES.

Several investigations have studied SES as a factor which determine teachers' effectiveness. Sharma (1971) has shown that the combination of five factors in order, viz. teaching aptitude, academic grades, SES, teaching experience and age appeared to be sound predictors of teaching effectiveness. In a study by Grewal (1976), one of the findings was that main predictors of teacher effectiveness were home, health and social, emotional and total adjustment. Gupta (1977) also reports a similar finding. A study by Dasgupta (1977) also revealed that the efficiency of the teacher was affected by the presence of certain factors such as human relations, SE condition of teachers and socio-cultural settings of the community. In one study by Sashikala (1978), teacher behaviour was measured through FIACS and the study reports that SES and modernity were not significantly related to any of the teacher behaviour indices. In yet another study by Nair (1974), the hypothesis to be tested was that teaching ability would not be positively related to SES and it was found that teachers' parental socio-economic conditions had a negative influence on teaching ability. One investigation on student-teachers as the subjects is reported by Patel (1977) wherein the performance of the student-teachers at university examination was studied in relation to certain other factors like SES, nAch, anxiety etc. and it was found that there was not any effect of the interaction of the variables under study on the performance of the student-teachers.

In the present investigation the aim was to study the effect of SES on the development of general teaching competence. SES of the subjects was measured by two tools, viz. SES Scale (Rural) by Pareek and Trivedi (Appendix VII) and SES Scale (Urban) by Kuppuswami (Appendix VIII). Of the total 54 subjects in the present study, 37 came from rural locations and 17 were from urban areas. The SES score range for the urban group was from 15 to 28, mean being 20.12 while the score range for the rural group was from 19 to 44, mean being 30.8. The groups were divided into higher and lower categories of SES according to their means i.e. those having score less than 21 in urban group and those having score less than 31 in rural groups were placed in the lower SES category. F ratios for these six groups thus formed were computed through analysis of variance for the two levels of acquisition of general teaching competence i.e. at 11th practice teaching lesson stage and 16th practice teaching lesson stage. The results of the analysis are given in the following tables.

Table 12 : Analysis of Variance for G_{1-11} : Groups divided according to SES

Source of Variance	df	Ss	Variance	F
Among the Means	5	2412.78	482.56	18.92 *
Within Treatments	48	1224.48	25.51	

* Significant at 0.01 level

Table 13 : Analysis of Variance for G_{1-16} : Groups divided according to SES

Source of Variance	df	Ss	Variance	F
Among the Means	5	2532.05	506.41	20.55 *
Within Treatments	48	1182.78	24.64	

* Significant at 0.01 level

Analysis of variance for groups divided according to higher and lower SES as shown in the above tables 12 and 13 indicate that F ratio at both the levels of acquisition of general teaching competence is significant at 0.01 level and thus the groups differed significantly among themselves for both G_{1-11} and G_{1-16}. In order to pin-point the significant differences among the six groups, group means were further analysed through Duncan's multiple range test. Table 14 below presents the results of the test for G_{1-11}.

Table 14 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to SES

Groups	(1) TRT.H	(2) TRT.L	(3) MTS.H	(4) MTS.L	(5) MTR.H	(6) MTR.L	SSR at .05 level
Means	9.5	11.6	19.18	22.86	26.45	26.86	
(1) 9.5		2.1	9.68	13.36	16.95	17.36	R_2=4.99
(2) 11.6			7.58	11.26	14.85	15.26	R_3=5.26
(3) 19.18				3.68	7.27	7.68	R_4=5.42
(4) 22.86					3.59	4.0	R_5=5.54
(5) 26.45						0.41	R_6=5.65
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlihed do not differ significantly.

From the Table 14, it can be seen that for all the original three groups viz. the TRT, the MTR and the MTS groups, higher SES groups have shown a lesser degree of the acquisition of general teaching competence whereas the lower SES groups have scored higher. In spite of this tendency of the lower SES groups to achieve higher G_{1-11} means, this difference between the higher and the lower SES groups within the three main groups is not significant as can be seen from the table. One another aspect that becomes apparent from the division of the groups according to the high and the low SES level is that originally the MTR and the MTS groups as whole differed significantly in G_{1-11} means (Table 5) whereas, considering the effects of SES, it is observed that only the MTS.H group differed significantly from the MTR group while the MTS.L group did not differ significantly from the MTR group. This shows the effect of SES on the training approaches i.e. so far as microteaching training was concerned, microteaching in simulated condition for the lower SES group and microteaching in real situation for lower as well as higher SES groups were equally effective in the development of general teaching competence. Originally the TRT group differed significantly from both the MTS and the MTR groups in mean G_{1-11} (Table 5) and this difference is maintained even when the groups are further divided into higher and lower SES categories. Thus, for the TRT group, a division into higher and lower SES categories did not result into elimination of the original difference at G_{1-11} with the MTS and the MTR groups. Thus, it can be said that

SES proved an affecting factor so far as microteaching training approach was concerned but not for traditional training approach coupled with auto-instructional material.

Differences among the six groups at the 16th practice teaching level were also studied through Duncan's multiple range test. The following Table 15 shows the significant differences among the higher and the lower SES groups for G_{1-16} means :

Table 15 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to SES

Groups	(1) TRT.H	(2) TRT.L	(3) MTS.L	(4) MTS.H	(5) MTR.H	(6) MTR.L	SSR at .05 level
Means	13.38	15.70	25.27	29.14	30.09	30.86	
(1) 13.38		2.32	11.89	15.76	16.71	17.48	R_2=4.79
(2) 15.70			9.57	13.44	14.39	15.16	R_3=5.05
(3) 25.27				3.87	4.82	5.59	R_4=5.21
(4) 29.14					0.95	1.72	R_5=5.32
(5) 30.09						0.77	R_6=5.42
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

It can be seen from the above table that in the TRT and the MTR groups, the lower SES groups showed higher mean acquisition while in the MTS group, the higher SES group has shown higher acquisition of general teaching competence. The three training group viz. the TRT, the MTS and the MTR, when divided according to SES level did not show any significant differences. Considering

the original differences among the three groups (Table 6), the significant difference of the TRT group from the other two groups is retained when divided according to SES level but the effect of such a division is shown in the differences among subgroups of the MTS and the MTR which did not differ originally in G_{1-16} means. The table shows that the MTS.L group differed significantly from the MTR.L group for G_{1-16} means. Thus, here at the second level of the acquisition of general teaching competence also, the effect of SES is apparent on the MTS and the MTR groups but not on the TRT group.

Comparing the two tables, it can be observed that the MTS.H group differed significantly from the MTR group at 11th practice teaching level but traditional training that followed microteaching training in simulated condition reduced this difference, and at 16th practice teaching stage, only the MTS.L group differed significantly from the MTR.L group. Yet another effect of the traditional training that followed microteaching in simulated condition is that, at 11th practice teaching lesson stage the MTS.H group showed a lesser acquisition of general teaching competence while at 16th practice teaching lesson stage the MTS.L group showed a lessef acquisition though the differences were not significant. This interaction effect of SES levels is clear in Figure 6. The lines representing the acquisition of general teaching competence level for the TRT as well as the MTR groups are almost parallel thereby showing no effect of SES on the acquisition of general teaching competence for the two groups and also the

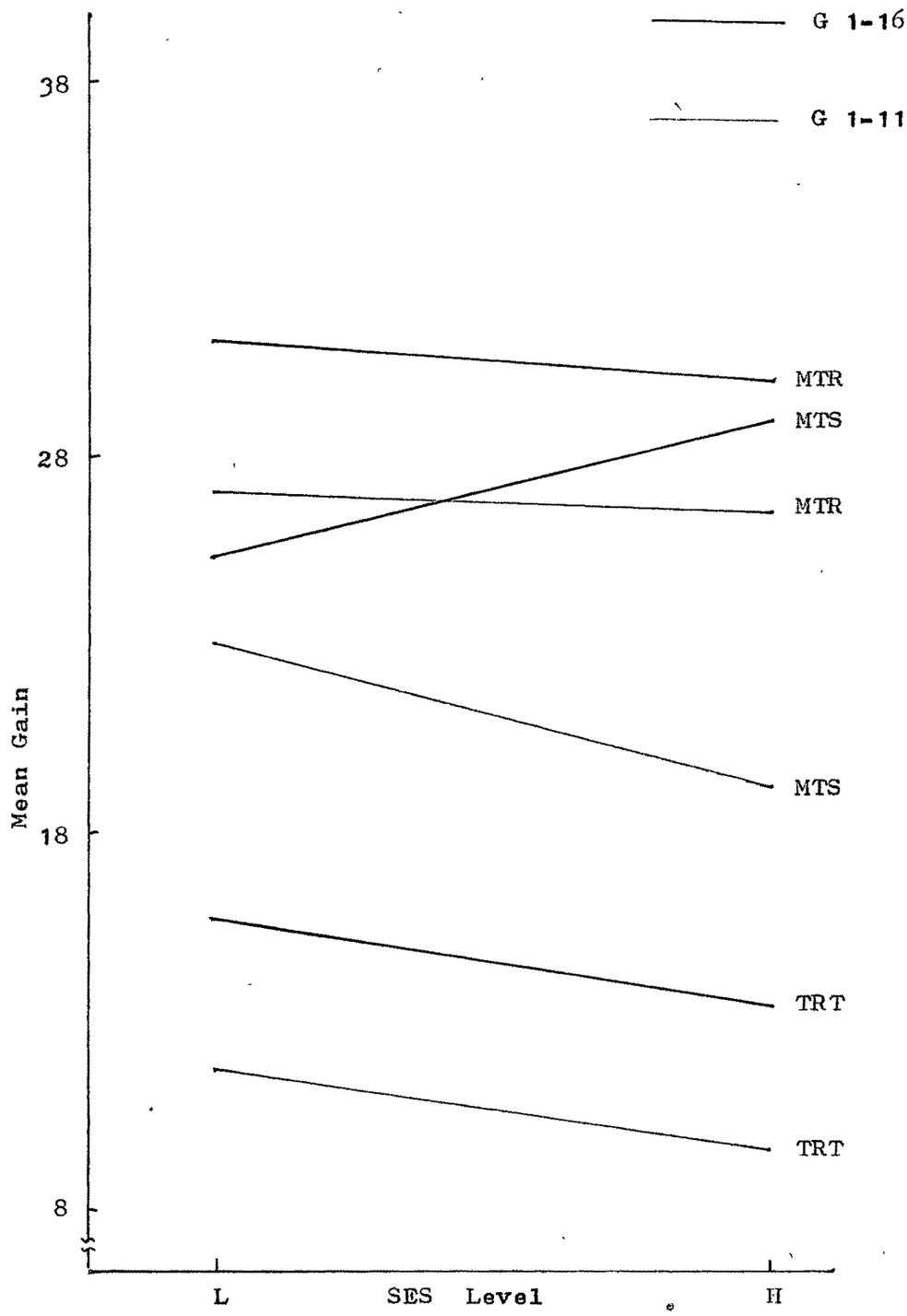

Fig. 6 SES and gain in GTC

development in general teaching competence level from 11th to 16th practice teaching level. In the case of the MTS group however, the lines have opposite slopes which clearly shows the effect of SES on the acquisition of general teaching competence.

To sum up, it can be observed that SES is not a determining factor in the development of general teaching competence so far as the traditional training approach coupled with auto-instructional material is concerned, but in case of two microteaching groups however, SES becomes an affecting factor in the development of general teaching competence and differences previously observed change when the groups are divided into higher and lower SES categories. Thus, as the level of SES does have an effect on the acquisition of general teaching competence, hypothesis No. 9 is rejected. One another fact that can be observed is that, though not differing significantly, the lower SES groups showed a higher acquisition of general teaching competence for G_{1-11} and this tendency is maintained in the TRT and the MTR groups even for G_{1-16}. This tendency for the lower SES group to acquire higher gain means can be attributed to perhaps a higher level of desire to do better in the lower SES groups, and this finding is similar to one by Nair (1974) where it was observed that teachers' parental socio-economic condition had a negative effect on teaching ability.

4.5 Intelligence and Acquisition of GTC

The teachers' profession is believed to be one where the level of intelligence as a group is above average, and this is true for the profession if a proper educational selection is involved in becoming a teacher. It is a 'must' that teachers have above average intelligence and numerous investigations have shown this to be the case; but, there are also investigations that have also shown that (i) the mean IQ of students preparing to be teachers is rather low as compared to those of the students preparing for technology, medicine and accountancy, (ii) the mean IQ of students in British Colleges of Education tends to be lower than those of university students, and (iii) students intending to be primary school teachers are more interested in intellectual activities and are more intelligent. (Morrison et al., 1973, p. 46).

Intellectual ability of a teacher trainee is an important input in teacher training programme and a comparative study of levels of intelligence among professional groups by Mathur (1966) revealed that students admitted to various professional courses were not necessarily of high intellectual ability and the mean IQ of entrants to teaching courses was 101. So far as predictive value of intelligence is concerned, Sherry (1964) found that intelligence was the most important factor for success in teaching and Grewal (1976) reports that verbal and non-verbal intelligence was one of the main predictors of teacher effectiveness. Suraj (1965) studied the relationship between teacher trainees'

intellectual efficiency and teaching skill. His findings suggest that most of the variance in teaching skills could be attributed to or associated with variance in teaching effectiveness and that teaching effectiveness could be predicted through regression equation when a trainee's score on intellectual efficiency was given.

The above cited studies are about two aspects of intelligence viz. the level of IQ of teachers as a group and IQ as a predictor of success in teaching. No study has been reported about the way in which intelligence may interact with the training approach in teacher training and one of the objectives of the present study was to see whether or not intelligence as a covariate affects the acquisition of general teaching competence through the three training approaches. The tool used to measure IQS of the subjects was Madhooker Patel's Intelligence Test and the range of the IQs obtained was from 84 to 134, mean being at 118.52. The high mean shows that the subjects as a group were above average level as against that reported by Mathur (1966) where the mean IQ was 101. The subjects were divided into the higher and lower groups by making a spit at the mean i.e. those having IQ of 118 or less were put into the lower group and those having IQ of 119 or more were put into the higher group. For the six groups thus obtained, F ratios for G_{1-11} and G_{1-16} were computed by analysis of covariance taking the IQs of the subjects as a covariate. The following Tables 16 and 17 give the results of analysis of covariance for the two levels of acquisition of general teaching competences.

Table 16 : Analysis of Covariance for G_{1-11} : Groups divided according to IQ

Source of Variance	df	Ss	Variance	F
Among the Means	5	2394.76	478.95	29.97*
Within Treatments	47	751.02	15.98	

* Significant at 0.01 level

Table 17 : Analysis of Covariance for G_{1-16} : Groups divided according to IQ

Source of Variance	df	Ss	Variance	F
Among the Means	5	929.19	185.84	3.69*
Within Treatments	47	2364.03	50.3	

* Significant at 0.01 level

The above two tables show that F obtained through analysis of covariance for both the levels of acquisition of general teaching competence is significant at 0.01 level. This proves that the six group means, even when adjusted for differences in IQ, differed significantly among themselves for both G_{1-11} and G_{1-16} . Pin-pointing the differences among the groups was done through Duncan's multiple range test, the results of which for G_{1-11} are tabulated in Table 18 on the next page.

The Table 18 shows that for all the three training approaches, means of lower IQ groups were higher, the differences in means being 3.33, 0.9 and 9.31 for the TRT, the MTS and the MTR groups respectively. Of these differences, only the difference of 9.31

Table 18 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to IQ

Groups Means	(1) TRT.H 9.57	(2) TRT.L 12.9	(3) MTS.H 20.64	(4) MTS.L 21.54	(5) MTR.H 22.64	(6) MTR.L 31.95	SSR at .05 level
(1) 9.57		3.33	11.07	11.97	13.07	22.38	R_2=3.88
(2) 12.9			7.74	8.64	9.74	19.05	R_3=4.10
(3) 20.64				0.9	2.0	11.31	R_4=4.22
(4) 21.54					1.1	10.41	R_5=4.32
(5) 22.64						9.31	R_6=4.40
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

between the MTR.H and the MTR.L group was significant at 0.05 level. For the TRT group, both the means for higher and lower groups differed significantly from the groups means of the MTS and the MTR groups which shows that the original difference of the TRT group as a whole from both the microteaching groups (Table 5) was retained even when the group was divided according to IQ levels. Similarly, the MTS and the MTR group means differed significantly but when divided into higher and lower IQ groups, it was found that the group mean for the MTR.L group was the highest and differed significantly from the other groups whereas the three groups viz. the MTS.H, the MTS.L and the MTR.H did not differ significantly among themselves. This shows a clear effect of intelligence as a covariate on the development of general teaching competence through microteaching.

A very similar picture emerged when G_{1-16} means for the groups divided into higher and lower IQ groups were studied for significance of differences through Duncan's multiple range test. The following table shows the results of the test :

Table 19 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to IQ

Groups Means	(1) TRT.H 13.26	(2) TRT.L 17.34	(3) MTR.H 26.33	(4) MTS.H 26.83	(5) MTS.L 27.75	(6) MTR.L 35.78	SSR at .05 level
(1) 13.26		4.08	13.07	13.57	14.49	22.52	R_2=6.86
(2) 17.34			8.99	9.49	10.41	18.44	R_3=7.24
(3) 26.33				0.5	1.42	9.45	R_4=7.45
(4) 26.83					0.92	8.95	R_5=7.62
(5) 27.75						8.03	R_6=7.77
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly.

It is clear from the above table that both the subgroups of the TRT group did not differ significantly from each other but differed significantly from the other groups. Mean for the MTR.L group was the highest and differed significantly from the other groups. The groups MTS.H, the MTS.L and the MTR.H did not differ significantly from each other. The differences that are significant show that the differences in means among the six groups are quite similar at G_{1-11} and G_{1-16} level of acquisition of general teaching competence, the only change being that the MTR.H group mean was higher than the MTS.H and the MTS.L group means for G_{1-11} whereas it was lower than the other two for G_{1-16}. At both

the levels of acquisition, means for the MTR.L group were the highest and differed significantly from the other group means.

Figure 7 shows the interaction effect of intelligence on gains in general teaching competence. Considering the levels of acquisition at 11th practice teaching lesson level and 16th practice teaching lesson level, the lines representing the two stages are almost parallel thereby showing that intelligence had no effect on the development of general teaching competence from 11th to 16th practice teaching lesson. That the effect of intelligence is apparent when different groups are compared and this was especially true for the MTR group can be shown by comparing the slopes of the lines of the MTR group with those for the TRT and the MTS groups.

To sum up it can be said that microteaching training in real situation proved more beneficial to the lower IQ group as discussed above. It was observed by the investigator during the experiment that the trainees in higher IQ group were rather sceptical about the training approach and this may be a probable reason for their low acquisition of general teaching competence. One another fact that stood out was that the MTR.H group mean for G_{1-11} did not differ significantly from the group means of two subgroups of the MTS group though the MTS group as a whole differed significantly from the MTR group. The results obtained for both the levels of acquisition of general teaching competence show how intelligence effects the development of general teaching

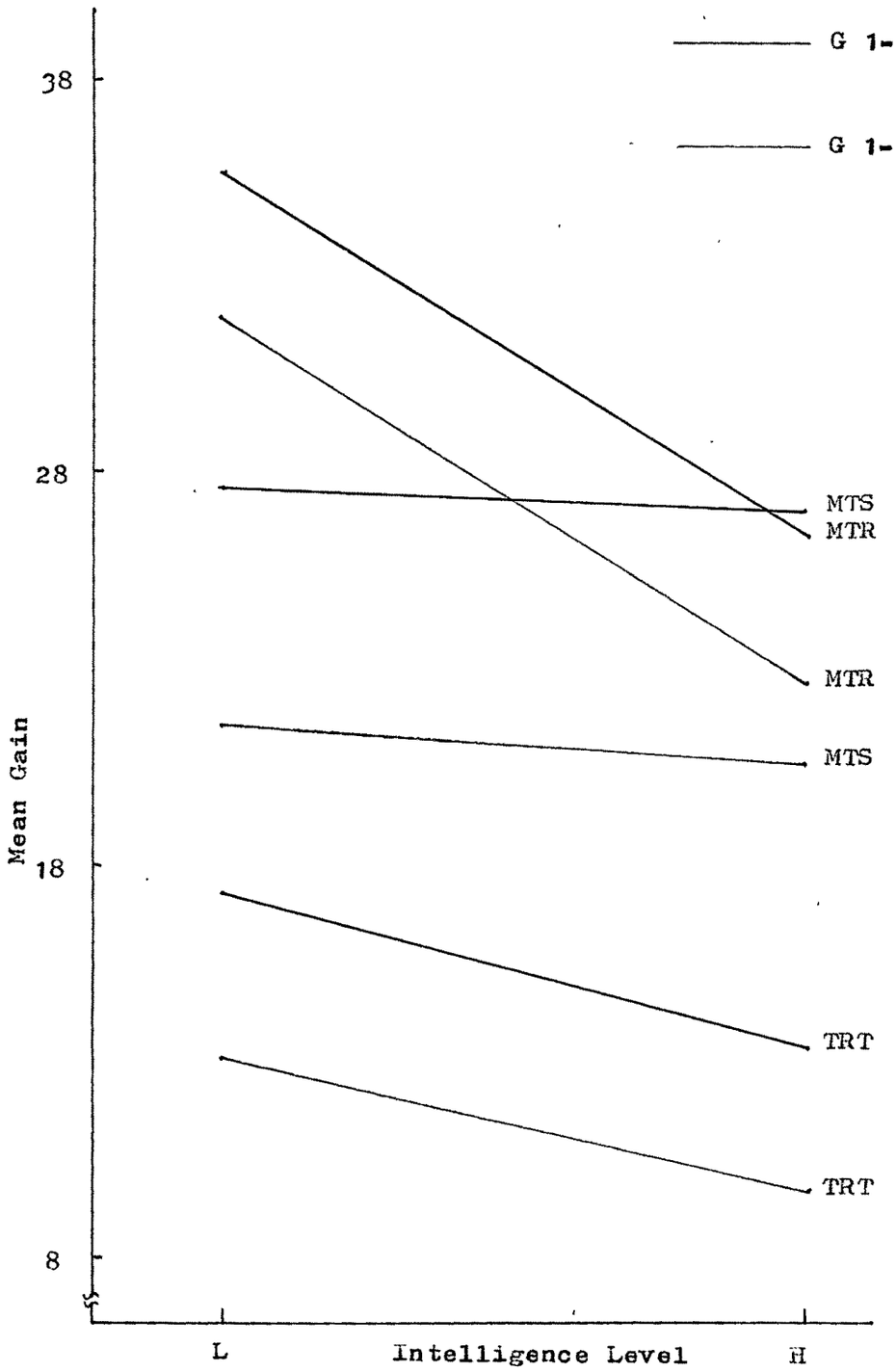

Fig. 7 Intelligence and gain in GTC

competence and so hypothesis No.5 is rejected and it can be said that the level of intelligence of trainees and the training approach decide the level of acquisition of general teaching competence.

4.6 Anxiety and Acquisition of GTC

Anxiety is a complex emotional state with apprehension or dread as its most prominent component for a person with high anxiety, it is not always necessary that anxiety is maintained with reference to a specific referent as to what it is that the person is anxious about. It is a general truth that all people experience anxiety though the sources for the anxiety may be many and varied. They may range from vague fear about something to immediate concern for what is happening at present. The degree of anxiety vary from individual to individual.

The experimental evidence relating to performance and anxiety level agrees with the general observation of human behaviour under stressful conditions. If stress and subsequent anxiety are not too high, performance increments are noted. Taylor (1951) and Spence et al. (1954), in studies of eyelid conditioning using groups with high and low scores on manifest anxiety scale, have shown that high anxious subjects showed a greater number of conditions responses than non-anxious subjects. If however anxiety level became too high, performance breaks down and irrelevant nonadaptive responses are observed. Taylor et al. (1952) and Matarazzo et al. (1955) have shown that in maze learning, greater

number of errors and trials to criterion were made by anxious subjects. It is frequently noted that an individual is not doing so well at a task because he is trying too hard i.e. his drive level resulting from anxiety is too high. Gordon et al. (1954) using a verbal learning task found that, after informing anxious subjects that the task was a measure of intelligence and their performance was below average, their errors increased.

It seems that low anxiety group would show a higher performance level. Pandit (1969) reports that so far as learning and academic achievement are concerned, anxiety bore a negative relationship with the two and subjects having less anxiety were found superior in learning and achievement. Gurbaksh (1974), in a study of the effect of anxiety on success in teaching, found that high vocational anxiety was inversely related to teaching success but high general anxiety was not associated with teaching success and that interaction effect of vocational anxiety on teaching success was significant. In a study related to performance gains in teacher trainees, Lakshmi (1977) found that high anxiety students showed more significant gains in performance but so far as teaching practice was concerned, the low anxiety teacher-trainees gained more in performance than the high anxiety teacher-trainees.

One of the aims of the present investigation was to study the effect of anxiety on the acquisition of general teaching competence through the three training approaches. The anxiety levels of the subjects under study were measured by Sinha's

Anxiety Scale (Appendix 5) for which the score range is 0 to 100. The actual score range obtained was from 2 to 79, mean being at 26.94. Accordingly, the three training approach groups were further divided into higher and lower anxiety groups i.e. the subjects scoring 27 or less on the Scale were put into lower anxiety group and those scoring 28 and above were placed in the higher anxiety group. The six groups thus formed were given statistical treatment of analysis of covariance and F ratios were computed for G_{1-11} and G_{1-16} means which is given below in the tables 20 and 21.

Table 20 : Analysis of Covariance for G_{1-11} : Groups divided according to Anxiety

Source of Variance	df	Ss	Variance	F
Among the Means	5	2406.1	481.22	19.47 *
Within Treatments	47	1161.62	24.72	

* Significant at 0.01 level

Table 21 : Analysis of Covariance for G_{1-16} : Groups divided according to Anxiety

Source of Variance	df	Ss	Variance	F
Among the Means	5	2468.44	493.69	18.89 *
Within Treatments	47	1228.03	26.13	

* Significant at 0.01 level

Analysis of covariance for both the levels of acquisition of general teaching competence, as shown in the above tables, point out that F ratio far exceeds the significant limits and thus the group means for both the levels of acquisition differ significantly among themselves. Whether or not these differences

are due to break up into higher and lower anxiety groups was studied through Duncan's multiple range test, the results of which for G_{1-11} are given in the following Table 22.

Table 22 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Anxiety

Groups Means	(1) TRT.L 9.8	(2) TRT.H 11.89	(3) MTS.L 18.6	(4) MTS.H 22.76	(5) MTR.H 25.25	(6) MTR.L 26.87	SSR at .05 level
(1) 9.8		2.09	8.8	12.96	15.45	17.07	R_2=4.93
(2) 11.89			6.71	10.87	13.36	14.98	R_3=5.20
(3) 18.6				4.16	6.65	8.27	R_4=5.36
(4) 22.76					2.49	4.11	R_5=5.48
(5) 25.25						1.62	R_6=5.59
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above Table 22 shows that the higher anxiety groups in the TRT and the MTS groups and the low anxiety group in the MTR group had shown a greater acquisition of general teaching competence but the differences were not significant. The original differences among the three groups (Table 5) are maintained in the case of the TRT group as is evident from the table that the TRT.L and the TRT.H groups differed significantly from the other four groups. In the case of the two microteaching groups, however, the effect of anxiety was shown when the groups were divided according to anxiety levels. The MTS.L and the MTS.H groups did not differ significantly from each other, but so far as their

differences with the MTR groups were concerned, only the MTS.L group differed significantly from the MTR group. The MTS.H group showed a mean gain of 22.76 which did not differ significantly from the MTR.H and the MTR.L groups as is shown in Table 22.

The differences that arose due to the division of the training groups into subgroups according to anxiety levels were however eliminated when microteaching training was followed by traditional practice teaching and when measures were taken for G_{1-16}. The following table shows the results of Duncan's multiple range test for differences among the groups for G_{1-16} :

Table 23 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Group divided according to Anxiety

Groups Means	(1) TRT.L 13.95	(2) TRT.H 15.74	(3) MTS.L 25.70	(4) MTS.H 27.73	(5) MTR.H 28.84	(6) MTR.L 30.94	SSR at .05 level
(1) 13.95		1.79	11.75	13.78	14.89	16.99	R_2=5.07
(2) 15.74			9.96	11.99	13.1	15.2	R_3=5.35
(3) 25.70				2.03	3.14	5.24	R_4=5.51
(4) 27.73					1.11	3.21	R_5=5.64
(5) 28.84						2.1	R_6=5.74
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

The above Table 23 shows that the TRT.L and the TRT.H groups do not differ significantly from each other, but they differ significantly from the other microteaching groups. The microteaching groups however, when divided according to high and low anxiety

levels, did not show any significant differences in mean G_{1-16} as is clear from the table that the four groups viz. the MTS.L, the MTS.H, the MTR.H and the MTR.L, did not differ significantly among themselves. This picture is in confirmity with the original differences among the three training groups (Table 6) i.e. the TRT groups differed significantly from the two microteaching groups but the two microteaching groups did not differ significantly from each other.

Referring to the Tables 22 and 23, it can also be observed that only in the MTR group the lower anxiety group showed a higher acquisition of general teaching competence, while in the other two groups i.e. the TRT and the MTS, the higher anxiety groups showed higher acquisition. The fact that high anxiety groups in the TRT and the MTS groups showed a higher acquisition indicates a result in contrary to that of Lakshmi (1977) where it was found that low anxiety teacher-trainees gained more in performance in practice teaching. This tendency to achieve better is also clear in Figure 8, where the slope of the lines for the MTR group is different from those of the TRT and the MTS groups. The two lines for the two levels of acquisition for groups taken individually are almost parallel thereby showing that the development of general teaching competence from 11th practice teaching lesson stage to 16th practice teaching lesson stage was not affected by anxiety levels of the groups. The only differences that developed due to anxiety levels were during the initial stage of the training

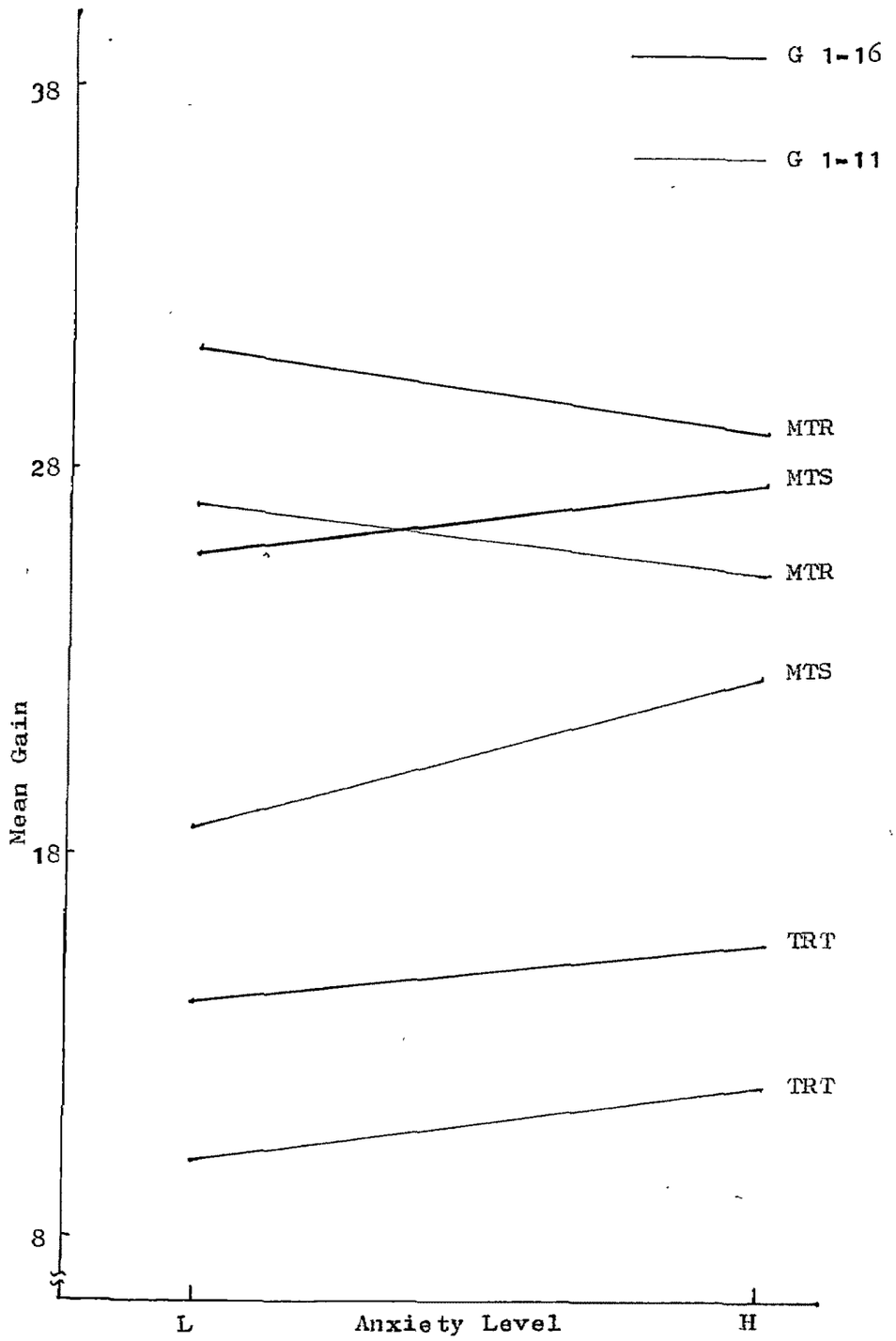

Fig. 8 Anxiety and gain in GTC

programme i.e. from pre-training to the 11th practice teaching lesson stage. The figure shows how the MTR group differed from the MTS and the TRT groups, but statistical analysis discussed above have shown that so far as the two microteaching groups are concerned, the MTR group differed significantly from only the MTS.L group at G_{1-11} level and at G_{1-16} it did not differ significantly from the MTS group.

It is a common notion that high anxiety level is detrimental to achievement. The results of the present study however, show that high anxiety groups had a higher mean gain in general teaching competence scores for the TRT and the MTS groups. So far as the effect of anxiety on the acquisition of general teaching competence is concerned, it can be said that the levels of anxiety were effective in microteaching groups at G_{1-11} level and hypothesis No.7 is rejected as the original differences were not maintained when the groups were divided into higher and lower anxiety groups. The original differences among the three training groups are however maintained at G_{1-16} level and that shows that anxiety had no effect on the acquisition of general teaching competence when traditional practice teaching followed microteaching training. As was observed by the investigator the experiment, it seems that anxiety as a factor operated only during the microteaching training approach which was a novel thing for the teacher-trainees and created some problems of adjustment to the training method whereas the trainees were on the whole better adjusted to the traditional practice teaching training.

4.7 Teacher Attitude and Acquisition of General Teaching Competence

Attitude is more or less a stable set of opinion, interest or purpose involving expectancy of a certain kind of experience and readiness with an appropriate response. Thus, attitudes are learned predispositions to react in certain ways to aspects of our environment. Any tool that measures attitudes towards teaching can predict how well a teacher will get along with pupils and how well satisfied he will be with teaching as a vocation. Differences in teacher attitude result from numerous factors including academic and social intelligence, general knowledge, abilities, social skills, personality traits, energy, values and teaching techniques; but, in spite of the influences of such factors, teacher attitude scales afford a key to the prediction of the type of harmonious social atmosphere a teacher will maintain in the classroom.

Several investigations have studied the relation of teacher attitude with teachers' efficiency and prediction of success in teaching. Samantaroy (1971) studied the relation of teacher attitude with teaching efficiency and statistical analysis of chi-square showed that there existed some degree of positive relationships between the two thereby showing that superior efficiency goes with favourable attitude. In a study by Gupta (1977), professional attitudes of teachers was measured by Minnesota Teacher Attitude Scale and it was found that success in

teaching was significantly related to professional attitude. Quraishi (1972) studied the relation of attitude of teachers and their classroom behaviour measured through FIACS and it was found that teachers' attitude towards democratic classroom procedures correlated significantly with I/D and i/d ratios. Malhotra (1976) found that teachers with positive attitudes were more indirect in their classroom behaviour than the teachers with negative attitude as measured on Minnesota Teacher Attitude Inventory. In yet another study by Singh (1974), the sample consisted of B.Ed. students and it was found that there was a significant relationship between attitude towards teaching and classroom verbal interaction of student teachers.

In the present investigation, Minnesota Teacher Attitude Inventory was used to measure the attitude of the student teachers. The tool has a score range of -150 to +150 and the obtained scores of the student-teachers ranged from -19 to 42. One of the aims of the present study was to see whether teacher attitude affects significantly the acquisition of general teaching competence through the three training approaches and in order to test the null hypothesis, the three training groups were further divided into six groups according to higher or lower level of teacher attitude. F ratios through analysis of covariance were computed for six groups for both the levels of acquisition i.e. gain at 11th and 16th practice teaching lesson level. The results of the analysis are tabulated below

Table 24 : Analysis of Covariance for G_{1-11} : Groups divided according to Teacher Attitude

Source of Variance	df	Ss	Variance	F
Among the Means	5	3958.45	791.69	27.8 *
Within Treatments	47	1338.71	28.48	

* Significant at 0.01 level

Table 25 : Analysis of Covariance for G_{1-16} : Groups divided according to Teacher Attitude

Source of Variance	df	Ss	Variance	F
Among the Means	5	2463.04	492.61	19.68 *
Within Treatments	47	1176.55	25.03	

* Significant at 0.01 level

The above tables show that F is significant at both the levels of acquisition of general teaching competence and that the group means for G_{1-11} and G_{1-16} differ significantly even after allowances are made for differences in teacher attitude scores of the subjects. In order to study the differences among the groups and to locate significant differences among the group means, Duncan's Multiple Range Test was used for both G_{1-11} and G_{1-16}. The following Table 26 gives the results obtained for G_{1-11}.

The Table 26 shows that for all the three training groups, means for the lower teacher attitude groups were higher, the differences being 0.25, 1.06 and 5.8 for the TRT, the MTS and the MTR groups respectively. Of these three differences between

Table 26 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Teacher Attitude

Groups Means	(1) TRT.H 10.09	(2) TRT.L 10.34	(3) MTS.H 20.48	(4) MTS.L 21.54	(5) MTR.H 24.08	(6) MTR.L 29.88	SSR at .05 level
(1) 10.09		0.25	10.39	11.45	13.99	19.79	R_2=5.22
(2) 10.34			10.14	11.20	13.74	19.54	R_3=5.5
(3) 20.48				1.06	3.60	9.40	R_4=5.67
(4) 21.54					2.54	8.34	R_5=5.8
(5) 24.08						5.80	R_6=5.91
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

the means of higher and lower teacher attitude groups, only the difference of 5.8 between the MTR.H and the MTR.L groups was significant at 0.05 level. In the case of the TRT group, it can be observed that both the means for the higher and the lower groups did not differ significantly but they differed significantly from the other means of the MTS and the MTR groups. This shows that the original difference of the TRT group from the MTS as well as the MTR groups (Table 5) was not affected when the groups were divided according to teacher attitude. However, the effect of teacher attitude is apparent when the two microteaching groups are considered. It can be seen from the table that the original difference between the MTR and the MTS groups was not retained when the groups were divided further. Group mean for the MTR.L group was the highest and differed significantly from the other

three groups means for the MTS.H, the MTS.L and the MTR.H groups while the three groups viz. the MTS.H, the MTS.L and the MTR.H did not differ significantly among themselves. This shows a clear effect of teacher attitude as a covariate on the development of general teaching competence through the two micro-teaching approaches.

A very similar picture of the effect of division according to higher and lower teacher attitude on the group means for G_{1-16} emerged when the differences among the six groups at 16th practice teaching lesson level were studied through Duncan's Multiple range test. The following Table 27 gives the results of the test and the significant differences among the means :

Table 27 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Teacher Attitude

Groups	(1) TRT.H	(2) TRT.L	(3) MTS.H	(4) MTS.L	(5) MTR.H	(6) MTR.L	SSR at .05 level
Means	14.29	15.34	26.74	27.63	27.92	33.54	
(1) 14.29		1.05	12.45	13.34	13.63	19.25	R_2=4.88
(2) 15.34			11.40	12.29	12.58	18.20	R_3=5.14
(3) 26.74				0.89	1.18	6.80	R_4=5.30
(4) 27.63					0.29	5.91	R_5=5.42
(5) 27.92						5.62	R_6=5.52

(1) (2) (3) (4) (5) (6) *

* Groups underlined do not differ significantly

The above table shows that for the TRT group, the group as whole differed significantly from the two microteaching groups whereas the TRT.H and the TRT.L groups did not differ significantly

from each other. So far as the two microteaching groups are concerned, the group mean for the MTR.L group was the highest and differed significantly from the other three whereas the MTS.H, the MTS.L and the MTR.H groups did not differ significantly among themselves. In view of the fact that the MTR and the MTS groups as whole originally did not differ significantly (Table 6), the effect of division of groups showed a clear effect of teacher attitude on the development of general teaching competence as the MTR.L group had the highest mean which differed significantly from the other means. The differences among the groups at both the level of acquisition of general teaching competence show clearly the effect of teacher attitude on the development of general teaching competence and hence the hypothesis that the teacher attitude has no significant effect on the acquisition of general teaching competence through the three training approaches is rejected.

Comparing the significant differences among the groups at the two levels of the acquisition of general teaching competence, it can be observed that the pattern of differences did not change from G_{1-11} to G_{1-16}. Figure 9 shows that the lines representing the three groups are almost parallel for the two levels of acquisition of general teaching competence which shows that the effect of the traditional practice teaching after the initial phase of the training i.e. from 11th to 16th practice teaching lesson level was similar for all the three training groups. The

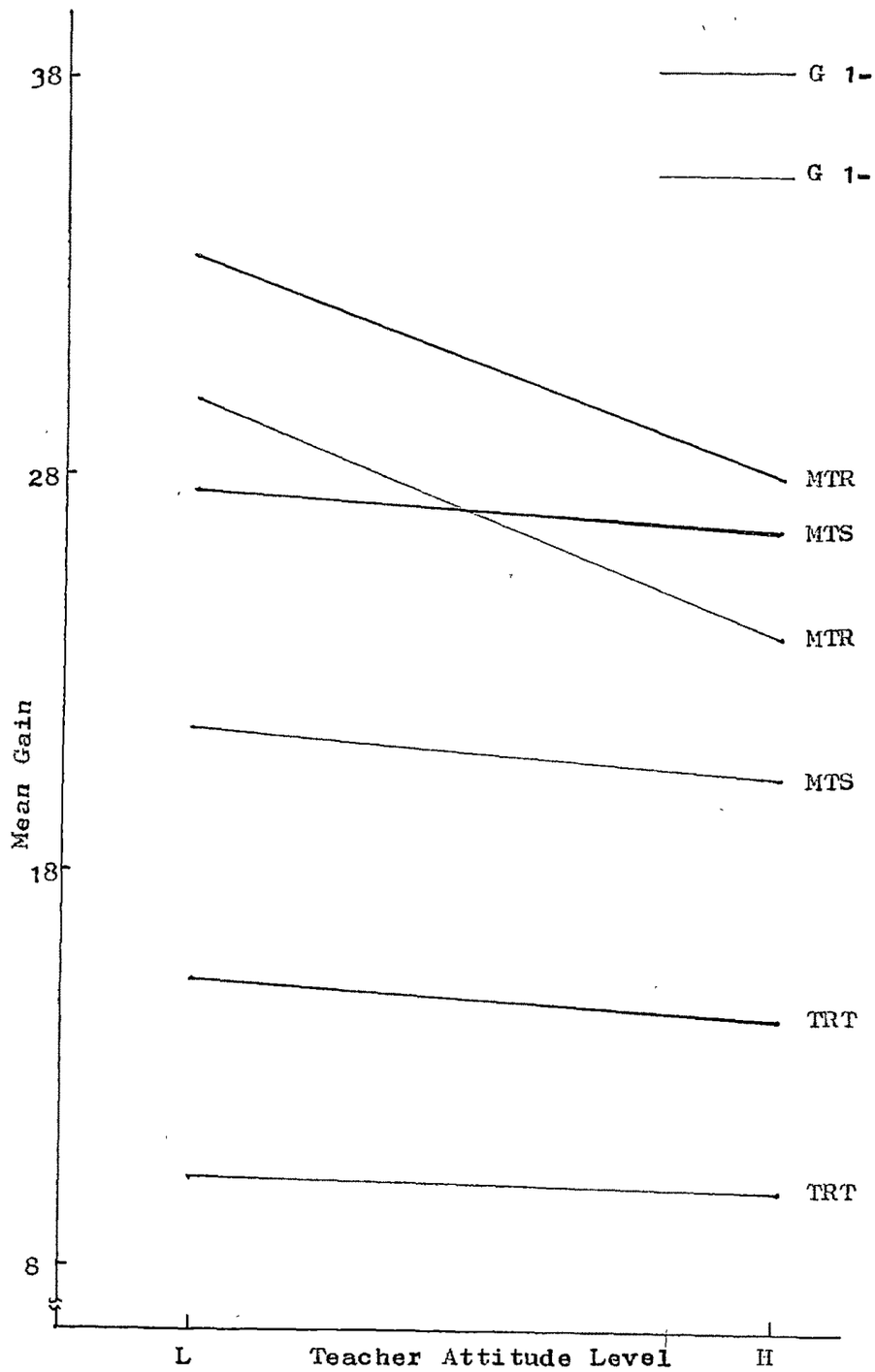

Fig. 9 Teacher attitude and gain in GTC

lines for the TRT and the MTS groups are almost horizontal thereby showing that the group means for the two levels of teacher attitude did not differ significantly. As against this, the lines for the MTR group for both the levels of acquisition of general teaching competence are more slant and thereby show clearly the effect of the levels of teacher attitude on the development of general teaching competence through microteaching in real situation.

A very curious fact that is observed from tables 26 and 27 and from Figure 9 that for all the three training approaches, the lower teacher attitude groups have higher group means. So far as the TRT and the MTS groups are concerned, the means for the higher and the lower groups did not differ significantly but in the case of the MTR group, it is observed that the MTR.L group had a higher group mean which differed significantly from the MTR.H group mean. As stated before, Samantroy (1971) has shown that teacher attitude and teaching efficiency are positively related and a study by Gupta (1977) revealed that success in teaching was significantly related to professional attitude. Common notion about the relation between teacher attitude and success in teaching is supported by these two findings. The results obtained in case of the MTR group show a marked deviation from the common trend while in the case of other two groups, the higher teacher attitude groups did not show significantly better acquisition of general teaching competence. A probable reason for

this can be that the person that came for training, particularly in the area where the present study was carried out, are attracted towards the profession not because of their attitudes and aptitudes for teaching profession but for other reasons of their own and this would result in such a finding viz. teacher attitude and development of general teaching competence are not related to each other. In fact, the coefficients of correlation between teacher attitude and development of general teaching competence were +0.15 and +0.14 for G_{1-11} and G_{1-16} respectively, which show a very low negligible relationship between the two variables. In the present study, teacher attitude was measured at the beginning of the experiment and it is possible that development in teacher attitude in positive direction may take place during the training. A study to relate the pre-training and post-training measures of teacher attitude with the development of general teaching competence through various training approaches may reveal interesting results.

4.8 Need for Achievement and Acquisition of General Teaching Competence

Success and achievement in life and learning depend to a great extent upon how much one really wants to succeed and to achieve. Motivation is the vital condition and a powerful director for all learning. Motivation is a factor that stimulates and directs learning. Unless there is an inner urge driving a person towards a goal which means a great deal for him, learning is not effective

for him. Motivation leads to achievement and when a person is highly motivated for achievement i.e. when his need for achievement is high, his behaviour is marked by a persistant striving aimed at achieving success either in a vocation or in a school or in a social hierarchy. Achievement motivation or need for achievement (nAch.) is a learned motive to compete and strive for success and standards of excellence.

Studies in the area of achievement motivation are recent ones and those that relate nAch. with academic success or success in teaching are but few. In a study by Christian (1977) at Sardar Patel University, the subjects were 500 girl students of the University and it was found that there was a significant positive correlation between nAch and students' academic performance. In a study by Patel (1977) interrelationship among SES, level of anxiety and the level of nAch. was studied with reference to the performance of the student teachers of Gujarat at university examination. The study revealed that there was a significant positive relationship between nAch and performance. Lakshmi (1977) at M.S. University conducted an achievement motivation development programme on teacher trainees and effect of such a programme on their performance was studied. It was found that achievement motivation was developed significantly by the specially designed input programme, the input programme for developing nAch of students had effected significant decrease in anxiety and that during teaching practice, the low anxiety students gained more in performance than the high anxiety group.

The tool to measure nAch was a series of six TAT pictures used for studies in the area of achievement motivation at Vidyanagar, Baroda and Meghalaya. This picture test is a group test standardized for Delhi and Gujarat projects and the nAch score range obtained on it is -6 to 66. The actual range of scores obtained in the present study was -4 to 32, mean being at 10.76. In order to study the effect of nAch on the development of general teaching competence, the three training groups were further divided into higher and lower groups by splitting at the mean and analysis of covariance for six groups thus obtained was carried out for both the levels of acquisition of general teaching competence. The following two tables give the results of the analysis :

Table 28 : Analysis of Covariance for G_{1-11} : Groups divided according to nAch.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2312.39	462.48	17.73 *
Within Treatments	47	1225.59	26.08	

* Significant at 0.01 level

Table 29 : Analysis of Covariance for G_{1-16} : Groups divided according to nAch.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2538.57	507.71	20.48 *
Within Treatments	47	1165.01	24.79	

* Significant at 0.01 level

The above tables show that the F ratios are 17.73 and 20.48 for G_{1-11} and G_{1-16} respectively. This indicates that, when three training groups were divided according to high and low nAch, the

means of six groups thus obtained differed significantly among themselves even after adjustments for differences in nAch scores were made. The six group means were further tested for pinpointing the significant differences among the means through Duncan's multiple range test. The following Table 30 shows the results of the test for the acquisition of general teaching competence at 11th practice teaching lesson level :

Table 30 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to nAch.

Groups	(1) TRT.L	(2) TRT.H	(3) MTS.H	(4) MTS.L	(5) MTR.L	(6) MTR.H	SSR at .05 level
Means	10.19	10.52	21.24	21.25	24.34	29.92	
(1) 10.19		0.33	11.05	11.06	14.15	19.73	R_2=4.99
(2) 10.52			10.72	10.73	13.82	19.40	R_3=5.26
(3) 21.24				0.01	3.10	8.68	R_4=5.42
(4) 21.25					3.09	8.67	R_5=5.54
(5) 24.34						5.58	R_6=5.65
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above table shows that in the case of the TRT group, the difference between the means of the TRT.L and the TRT.H groups was 0.33 which was not significant at 0.05 level. In the case of the two microteaching groups however, the means for the MTS.H, the MTS.L and the MTR.L groups did not differ significantly from one another but the mean for the MTR.H group was the highest and differed significantly from the other group means. Considering the

original differences that existed among the three training groups (Table 5), it is observed that the original difference is maintained in case of the TRT group only whereas for the two microteaching groups, the effect of division according to nAch level is apparent through the fact that the mean for the MTR.H group differs significantly from the means of the MTS group as well as the MTR.L group. Another fact that is revealed from the table is that the higher nAch groups had higher group means in case of the TRT and the MTR groups and contrary to this, higher nAch group in the MTS group i.e. the MTS.H group had a lower mean than the MTS.L group. However, it can be observed from the table that the difference between the means of the higher and the lower nAch groups is significant only in the case of the MTR group.

A similar pattern of differences emerged when the means of gain in general teaching competence at 16th practice teaching lesson level were studied through Duncan's multiple range test. The following Table 31 on the next page gives the results of the test for G_{1-16} :

It can be seen from the table that the differences between the means of the TRT.L and the TRT.H groups was 0.59 which was not significant. In the case of the MTS group, both the MTS.L and the MTS.H groups had the same group mean and no difference existed between the two groups. The difference between the means of the MTR.L and the MTR.H groups was 5.10 which was significant

Table 31 : Duncan's Multiple Range Test for Differences Among G_{1-16} Means : Groups divided according to nAch.

Groups Means	(1) TRT.L 14.1	(2) TRT.H 14.69	(3) MTS.L 27.32	(4) MTS.H 27.32	(5) MTR.L 28.46	(6) MTR.H 33.56	SSR at .05 level
(1) 14.1		0.59	13.22	13.22	14.36	19.46	R_2 =4.85
(2) 14.69			12.63	12.63	13.77	18.87	R_3 =5.11
(3) 27.32				0.0	1.14	6.24	R_4 =5.27
(4) 27.32					1.14	6.24	R_5 =5.39
(5) 28.46						5.10	R_6 =5.49

(1) (2) (3) (4) (5) (6) *

* Groups underlined do not differ significantly

at 0.05 level thus showing the effect of nAch. on the acquisition of general teaching competence at 16th practice teaching lesson level. Considering the groups together, it can be seen that there was no significant difference among the means of the MTS.L, the MTS.H and the MTR.L groups whereas the mean of the MTR.H group stood the highest and differed significantly from the other means.

From the above two tables, it can be observed that the original differences are not retained when the groups are divided according to higher or lower nAch scores and this shows that the level of nAch affects the acquisition of general teaching competence. Thus, hypothesis No. 10 that need for achievement has not significant effect on the acquisition of general teaching competence is rejected.

A comparison of the two tables shows that the development of general teaching competence from 11th to 16th practice teaching lesson level is similar in case of all the three training groups and this is also clearly apparent from Figure 10 which shows that the pairs of the lines showing the two levels of acquisition for all the three groups are almost parallel. The Figure shows that the lines for the TRT and the MTS groups are almost horizontal, thereby showing that the group means for the lower and the higher nAch groups did not differ from each other. The effect of nAch on the MTR group is quite clear as shown by the pair of lines of the MTR group which are slant and show a better acquisition of general teaching competence for the higher nAch group.

High nAch is associated with hard work, accepting challenges, persistence, striving to do better and pleasure from achievement only. Thus, it would be natural to expect high nAch group to gain better in general teaching competence and this has been found true for the TRT and the MTR groups. In the case of the MTS group, however, the higher nAch group i.e. the MTS.H group showed a lesser mean G_{1-11} as compared to the other groups, though the difference in means was only 0.01 which was not significant. It was observed by the investigator during the experiment that the trainees in the MTS group felt that the microteaching situation with peers as pupils was not so challenging and satisfying as working with real pupils. The difference between the means of the

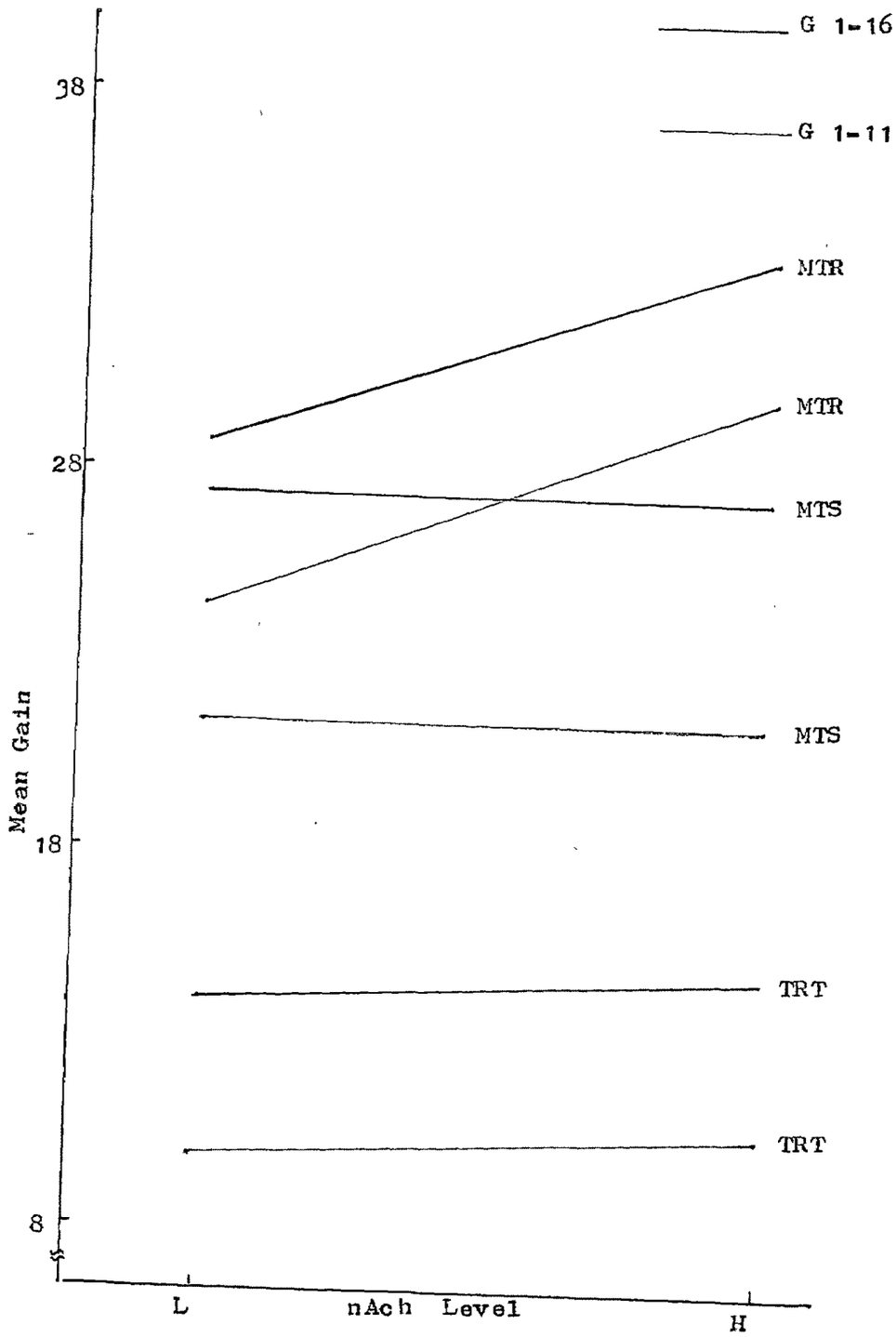

Fig. 10 nAch and gain in GTC

MTR.H and the MTR.L groups. for both the levels of acquisition of general teaching competence is significant and it is probable that, if the microteaching training task is made equally challenging for the MTS group, higher nAch group in the MTS group may show a significantly better acquisition of general teaching competence.

4.9 Personality Factors and Acquisition of General Teaching Competence

Personality, in a broad sense, can be said to be a sum total of one's characteristic way of behaving. More specifically put, personality refers to the integrated and consolidated sum total of one's behavioural tendencies in so far as they have social references. Drever (1974) explains personality as the integrated and the dynamic organization of the physical, mental, moral and social qualities of an individual that manifest itself to other people in the give and take of social life. Personality has also been explained in stimulus or response terms. Overt activity in a social situation can be either a stimulus or a response, depending upon the particular point of reference. In a classroom situation, teacher personality would refer to his characteristic mode of behaviour before the pupils. Teacher behaviour in presence of the pupils would be an expression of his behavioural traits and it would also serve as a stimulus pattern that impress the pupils in certain ways and influences their reaction. Thus, teacher personality in a classroom situation will always have a circular or reciprocating characteristics.

Teachers who are effective in their work as a teacher and are popular among the students are generally more out-going, are intelligent, are self-controlled and relaxed, venture upon new ideas and are emotionally stable. Such personality characteristics have been found to affect their classroom teaching positively. A study by Washburne et al. (1960) classified teachers as spontaneous, orderly and fearful and further sub-divided the categories as superior and inferior according to their warmth and responsiveness to pupils. According to them, the teachers under study ranged from superior orderly (warm, relatively dominant and businesslike) to superior spontaneous (warm, exuberant, highly independent with a strong liking for expression of ideas) down to inferior sponteneous. A study by Deva (1966) about prediction of student teaching success reports that personality was the most important and intelligence the least important in predicting success in student teaching. Kaul (1972) in a factorial study of personality variables of popular teachers in secondary schools reports that the popular teachers distinguished themselves as more out-going, intelligent, emotionally more stable, sober, conscientious, venturesome, tough-minded, shrewd, placid, controlled and relaxed and these popular teachers were found to be more effective in their work as teachers.

Chhaya (1974) studied the psychological characteristics of effective school teachers and the study revealed that effective teachers, as compared to ineffective ones, had better personality adjustment, were emotionally more stable, were not more extrovert and were less authoritarian. So far as extrovert

tendency of teachers is concerned, it seems that they would elicit better student participation. Goel (1978) reports that extrovert teachers seemed to have greater interchange of classroom events, provided more opportunity for pupil participation and had a tendency to break the silence or confusion in the classroom by asking questions more frequently.

A study by Gupta (1977) was aimed at finding out the personality traits of successful teachers and to differentiate them from less successful teachers. 16 PF inventory of Cattell was used as a tool to measure personality traits. The study revealed that success in teaching was significantly related to personality factors A, B, C, F, G, H, I, L, O, Q_3 and Q_4, and that these personality characteristics among others were the determinants of success in teaching. Gupta (1976), in a study about prediction of teacher effectiveness through personality test, also used Cattell's 16 PF questionnaire to differentiate high effective teachers from average effective teachers and low effective teachers. The study showed that the high effective teachers differed significantly from the general population with respect to 9 personality factors out of 16. They were more affecto-thymic (A +), more intelligent (B +), had more ego strength (C +), were more surgent (F +), more self-sentiment (Q_3+), less suspicious (L -), less guilt prone (O-) and less radical (Q_1-). Besides these nine factors, it was also found that, in comparison to average effective teachers, high effective

teachers were significantly more assertive (E+), more conscientious (G+), more adventurous (H+), more tenderminded (I+), were less self-sufficient (Q_2-) and less tense and frustrated (Q_4-). Besides the above differences, high effective teachers were less imaginative (M-) as compared to low effective teachers.

The above cited studies have taken into account how the personality factors go togather with effective teaching and what are the personality traits of successful teachers. The present investigation aimed at studying how the personality factors affect the development of general teaching competence in student teachers during training. The researcher has experienced during his years as supervisor that the trainees who are outgoing (A +), more assertive (F +) and relaxed (Q_4 -) do better during the practice teaching programme and are apt to gain mastery over the teaching process more quickly. Whether these casual observation stand against experimental evidence or not was a question that the researcher has attempted to answer by taking the different personality factors as covariates and studying their effect on the acquisition of general teaching competence during the training through the three approaches.

As mentioned earlier, the personality factors of the subjects were measured by Cattell's 16 PF questionnaire. Of the 16 personality factor that the tool measures, Factor B is not taken up for discussion under this head as it refers to intelligence

and that has already been discussed as a separate covariate. The sections that follow give the results of statistical analysis and the inferences thereto for the remaining 15 factors. In order to explore the effects of these 15 personality factors on the development of general teaching competence, the three training groups viz. the TRT, the MTS and the MTR groups were further divided according to high or low factor score and the group means of the six groups thus obtained were analysed for significant differences among themselves through analysis of covariance and Duncan's multiple range test.

4.9.1 Personality Factor A : Score on personality Factor A gives an indication whether a person is reserved or outgoing. A high score of this factor (A+) indicates that the person is outgoing, warmhearted, easygoing and participating. As against this, a low score (A-) indicates that the person is reserved, detached, critical in appraising situations and is cool.

The following two tables give the results of analysis of covariance at both the levels of acquisition of general teaching competence i.e. at 11th and 16th practice teaching lesson level :

Table 32 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor A

Source of Variance	df	Ss	Variance	F
Among the Means	5	2438.48	487.7	21.55 *
Within Treatments	47	1063.64	22.63	

* Significant at 0.01 level

Table 33 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor A

Source of Variance	df	Ss	Variance	F
Among the Means	5	2462.97	492.99	19.86 *
Within Treatments	47	1166.33	24.82	

* Significant at 0.01 level

The Tables 32 and 33 reveal that F is significant at both the levels of acquisition of general teaching competence and the six group means differ significantly among themselves even after allowances are made for differences in the scores of personality Factor A. Pinpointing the pattern of differences among the groups was studied through Duncan's multiple range test, the results of which for G_{1-11} means are given below in Table 34.

Table 34 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor A.

Groups	(1) TRT.L	(2) TRT.H	(3) MTS.H	(4) MTS.L	(5) MTR.H	(6) MTR.L	SSR at 0.05 level
Means	8.95	12.42	18.95	22.29	24.34	28.0	
(1) 8.95		3.47	10.0	13.34	15.39	19.05	R_2=4.54
(2) 12.42			6.53	9.87	11.92	15.58	R_3=4.78
(3) 18.95				3.34	5.39	9.05	R_4=4.93
(4) 22.29					2.05	5.71	R_5=5.04
(5) 24.34						3.66	R_6=5.14
	(1)	(2)	(3)	(4)	(5)	(6)	

* Groups underlined do not differ significantly.

The Table 34 shows that in the case of traditional training coupled with autoinstructional material, the TRT.H group had a higher mean while in both the microteaching training groups, the MTS.L and the MTR.H had higher group means though the differences between the pairs of higher and lower groups were not significant. The TRT group as a whole differed significantly from the other groups; but, in the case of the two microteaching groups, the pattern of differences was changed from the original (Table 5), in the sense that the MTS.L group and the MTR.H group did not differ significantly in their means. Thus, the fact that the MTS group differed significantly from the MTR group at G_{1-11} changed when the groups were divided into higher and lower categories according to personality factor A.

A similar but simpler pattern of differences emerged when Duncan's test was applied to the six groups means of G_{1-16}. The following Table 35 gives the results of the test.

Table 35 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor A

Groups Means	(1) TRT.L 13.15	(2) TRT.H 16.23	(3) MTS.H 24.97	(4) MTS.L 26.61	(5) MTR.H 28.23	(6) MTR.L 31.63	SSR at .05 level
(1) 13.15		3.08	11.82	13.46	15.08	18.48	R_2=4.76
(2) 16.23			8.74	10.38	12.0	15.4	R_3=5.02
(3) 24.97				1.64	3.26	6.66	R_4=5.17
(4) 26.61					1.62	5.02	R_5=5.29
(5) 28.23						3.40	R_6=5.39
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The Table 35 shows that at the 16th practice teaching lesson level the means of gain in general teaching competence for the six groups had the same order as that for G_{1-11}. The TRT.H group had a higher group mean while the MTS.L and the MTR.L groups had higher group means when higher and lower pairs of means for a training approach was considered. However, these differences were not significant but means of the TRT group as whole i.e. both the means of the TRT.H and the TRT.L groups differed significantly from the other means of microteaching groups. In the two microteaching groups, the MTS.H, the MTS.L and the MTR.H groups did not differ significantly among themselves. Similarly, the MTS.L, the MTR.H and the MTR.L groups did not differ significantly from one another.

Figure 11 shows the comparison of the acquisition of general teaching competence by the three training groups at both the levels of acquisition. The pairs of lines for the TRT, the MTS and the MTR groups are almost parallel which shows that the development of general teaching competence from 11th to 16th practice teaching lesson was similar for all the three training approaches. The interaction between the effect of the traditional training approach and the two microteaching approaches is apparent as the lines representing the two training approaches are having different slopes.

At both the levels of acquisition of general teaching competence i.e. for G_{1-11} as well as for G_{1-16}, it can be seen that the original differences among the groups as whole were not

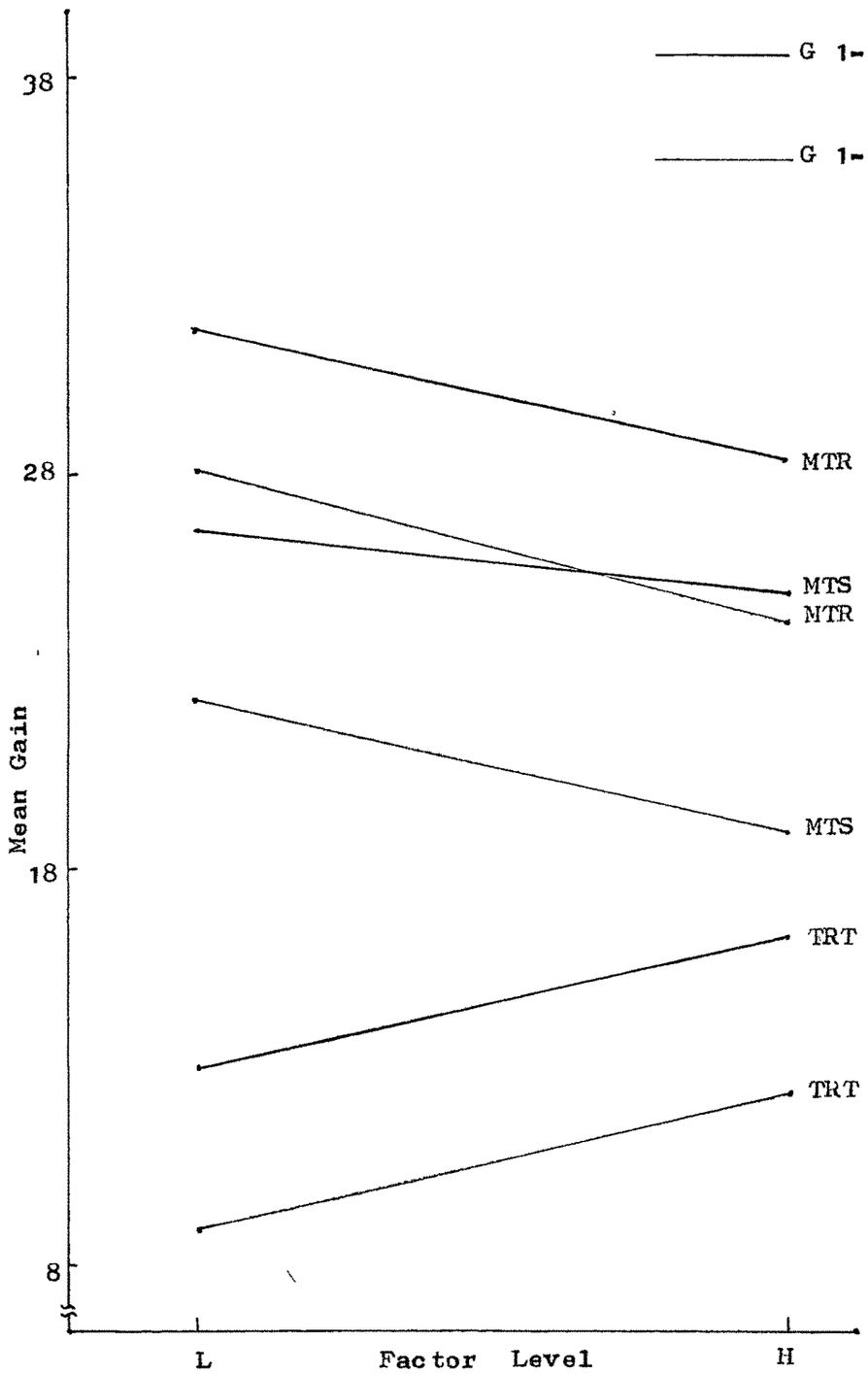

Fig. 11 Personality factor A and gain in GTC

retained in the same fashion which shows the effect of personality Factor A on the development of general teaching competence.

It can be observed that the TRT.H group had a higher mean for G_{1-11} and G_{1-16} which indicates that, though the differences were not significant, the group which was outgoing, warmhearted, easygoing and participating (A+) showed better gain during the training. As against this, for both the micro-teaching groups, the MTS.L and the MTR.L groups had a higher means for G_{1-11} and G_{1-16}. In spite of the fact that the differences were not significant, the fact remains that the group which was reserved, detached and critical (A-) showed a better gain in general teaching competence. A probable reason for this tendency can be that the TRT group worked with whole class of pupils and thus had a better opportunity to be more outgoing whereas during the microteaching training, the higher group (A+) did not find sufficient opportunities to bring into play their outgoing nature. The results thus in a way agree with the results of Gupta (1977) and Gupta (1976) for only the traditional training and not microteaching training.

4.9.2 Personality Factor C : Measures on personality Factor C indicate whether a person is affected by feelings or is emotionally stable. A high score of this factor (C+) indicates that the person is calm and can face realities. A low score of this factor (C-) indicates a person who is emotionally less

stable and gets easily upset.

The following two tables give the results of the analysis of covariance for G_{1-11} and G_{1-16} :

Table 36 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor C.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2364.63	472.93	18.48 *
Within Treatments	47	1202.58	25.59	

* Significant at 0.01 level

Table 37 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor C.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2479.98	496.0	18.88 *
Within Treatments	47	1234.63	26.27	

* Significant at 0.01 level

The above two tables show that the F ratios are 18.48 and 18.88 at the two levels of acquisition viz. G_{1-11} and G_{1-16} respectively. Both the values of F are highly significant which indicate that the group means differed significantly even after allowances were made for differences due to personality factor scores. Duncan's multiple range test was used to study these differences in detail. The Table 38 on the next page gives the results of the test for G_{1-11} :

Table 38 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor C.

Groups Means	(1) TRT.H 10.22	(2) TRT.L 11.37	(3) MTS.L 19.64	(4) MTS.H 21.78	(5) MTR.H 26.07	(6) MTR.L 27.52	SSR at .05 level
(1) 10.22		1.15	9.42	11.56	15.85	17.3	R_2 = 4.88
(2) 11.37			8.26	10.41	14.7	16.15	R_3= 5.14
(3) 19.64				2.14	6.43	7.88	R_4= 5.30
(4) 21.78					4.29	5.74	R_5= 5.42
(5) 26.07						1.45	R_6= 5.52
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

The above table shows that in the case of the TRT and the MTR groups, the lower factor level groups (C-) had a higher group mean and in the case of the MTS group, the higher group had a higher group mean but the differences between the lower and the higher groups within the three training groups were not significantly which showed that so far as any one training approach was concerned, the personality Factor C did not prove effective as a covariate. When, however, the differences among the three groups are considered, it can be seen that both the TRT.L and the TRT.H groups differed significantly from the remaining four groups but the pattern of differences among these microteaching groups was one of overlapping differences. The MTS.L and the MTS.H groups did not differ significantly but the MTS.L group differed significantly from the

MTR.H group, whereas the MTS.H group did not differ significantly from the MTR.H group. Similarly, there was no significant difference between the MTS.H and the MTR.H groups, but the MTS.H group differed significantly from the MTR.L group. This shows how a division of the two microteaching groups into lower and higher groups according to personality factor C developed an overlapping pattern of differences among the group means.

When the initial phase of training was followed by a traditional practice teaching phase, this pattern of differences among the groups was maintained but in a simpler form. The following Table 39 gives the results of Duncan's test for this level of acquisition of general teaching competence i.e. for G_{1-16}:

Table 39 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor C.

Groups Means	(1) TRT.H 14.93	(2) TRT.L 15.14	(3) MTS.L 25.65	(4) MTS.H 28.06	(5) MTR.H 29.90	(6) MTR.L 31.30	SSR at .05 level
(1) 14.93		0.21	10.72	13.13	14.97	16.37	R_2=4.93
(2) 15.14			10.51	12.92	14.76	16.16	R_3=5.20
(3) 25.65				2.41	4.25	5.65	R_4=5.36
(4) 28.06					1.03	3.24	R_5=5.48
(5) 29.90						1.40	R_6=5.59
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The Table 39 shows that at the 16th practice teaching lesson stage, the means of gain in general teaching competence for the six groups had the same order as that for G_{1-11}. The TRT.H group had a lower group mean than the TRT.L group and the difference was not significant but they differed significantly from the remaining four groups. In the two microteaching groups it can be observed that the MTS.L, the MTS.H and the MTR.H groups did not differ significantly from one another. Similarly, the MTS.H, the MTR.H and the MTR.L groups did not differ significantly from one another but the MTS.L group significantly differed from the MTR.L group.

Figure 12 shows the comparison of the acquisition of general teaching competence by the three training groups at both the levels of acquisition i.e. at G_{1-11} and G_{1-16}. The pairs of lines representing the two microteaching groups are almost parallel which shows that the development of general teaching competence from 11th to 16th practice teaching lesson was similar in case of these two groups. In the case of the TRT group, however, the lines are not parallel and it can be seen that further practice teaching after 11th practice teaching lesson reduced the difference between the higher and the lower groups from 1.15 to 0.21. The lines for the MTS and the MTR groups have different slopes which indicate an interaction effect of personality Factor C on the training through the two microteaching approaches.

Considering the original pattern of differences among the three groups (Tables 5, 6), it can be seen that for both the levels

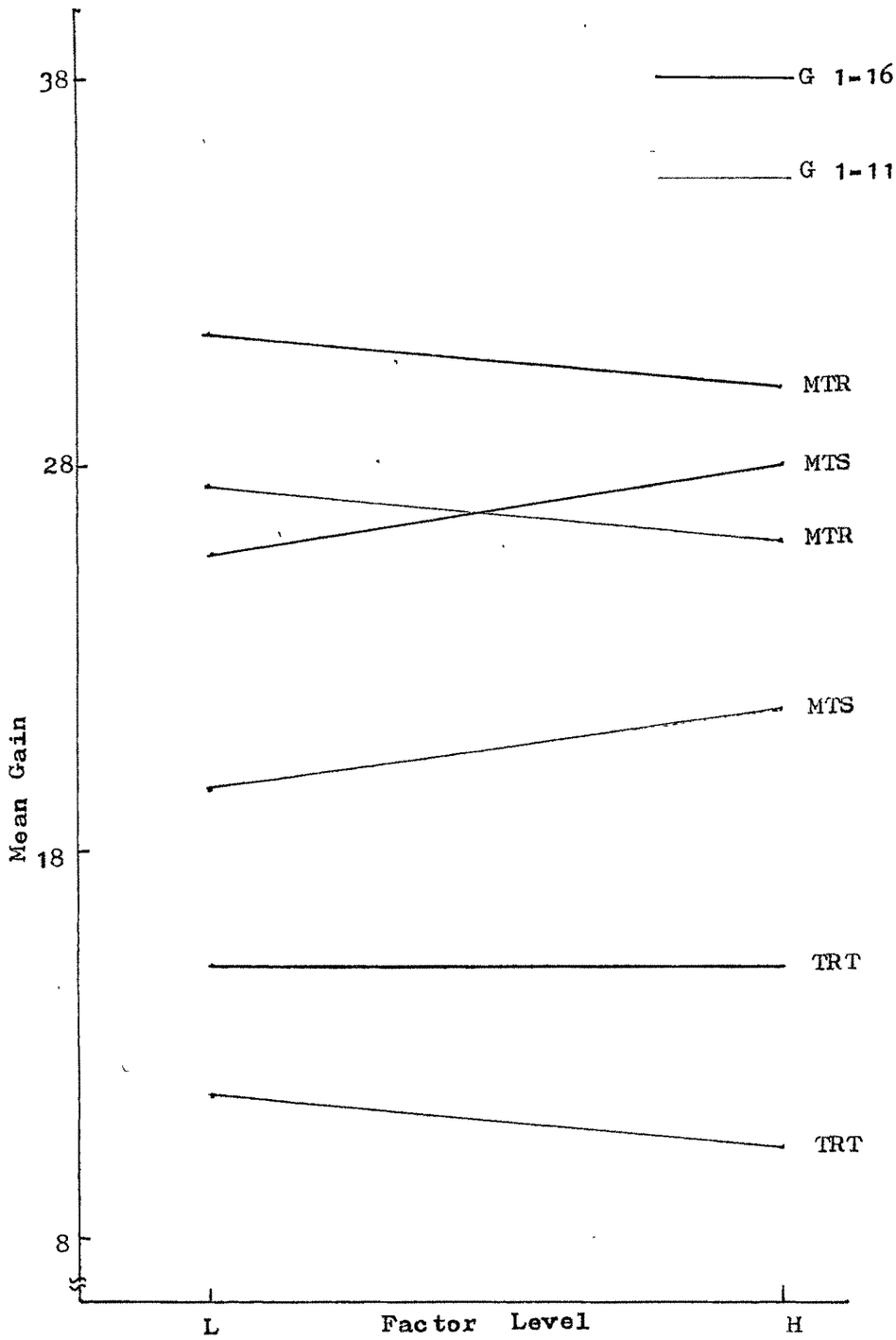

Fig. 12 Personality factor C and gain in GTC

of acquisition of general teaching competence, the original pattern is not maintained when the groups are divided into lower and higher groups according to personality Factor C, and this shows the effect of this factor as a covariate on the development of general teaching competence.

The above tables show that for the TRT as well as for the MTR group, the lower groups have showed a higher group mean. Though the differences were not significant, the fact remains that for traditional training coupled with auto-instructional material and for microteaching in real situation the group which was more affected by feelings (C-) showed better results during the training. As against this, for microteaching, under simulated condition ~~group~~, the group that was emotionally more stable (C+) showed better results. The findings of Gupta (1977) and Gupta (1976) indicate that a higher factor level goes with success in teaching and the findings discussed above support this trend only for microteaching training under simulated condition. A probable reason for the trend revealed in the present study can be that the trainees in the MTR and the TRT groups worked with real pupils, had better chances to show their feelings for the pupils which helped create a better classroom climate and thus proved themselves better during the training. Feelings and resulting classroom interaction play an important role in classroom treatment; and, as the MTS group worked with the peers only, they had a lesser chance to be affected by feelings, and hence the lower group i.e. the MTS.L group showed a lower group mean. It seems that a low factor

level (C-) would prove more effective for traditional training coupled with auto-instructional material and for microteaching training in real situation.

4.9.3 Personality Factor E : Measures on personality Factor E indicate whether a person is humble or assertive. A high score of this factor (E+) would show a person who is assertive in his work, is independent, shows aggresive tendencies, and is stubborn. As against this, a low score of this factor (E-) indicates a person who is mild, obedient in nature and confronting.

In order to study whether the six groups differed significantly or not, analysis of covariance was carried out, the results of which are given below for both the levels of acquisition of general teaching competence.

Table 40 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor E.

Source of Variance	df	Ss	Variance	F
Among the means	5	2427.57	484.51	20.43 *
Within Treatments	47	1117.05	23.77	

* Significant at 0.01 level

Table 41 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor E.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2521.4	504.28	20.33 *
Within Treatments	47	1165.38	24.8	

* Significant at 0.01 level

The Tables 40 and 41 show that the obtained F ratios for both the levels of acquisition of general teaching competence are highly significant which proves that the group means differed significantly among themselves even after allowances were made for differences due to the scores of personality Factor E. Pinpointing the significant differences among the groups was carried out through Duncan's multiple range test. The following table gives the results of the test for gain in general teaching competence at the 11th practice teaching lesson level :

Table 42 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Group divided according to Personality Factor E.

Groups Means	(1) TRT.L 9.85	(2) TRT.H 11.07	(3) MTS.H 20.21	(4) MTS.L 21.13	(5) MRT.H 25.83	(6) MRT.L 29.26	SSR at .05 level
(1) 9.85		1.22	10.36	11.28	15.98	19.41	R_2=4.79
(2) 11.07			9.14	10.06	14.76	18.19	R_3=5.05
(3) 20.21				0.92	5.62	9.05	R_4=5.21
(4) 21.13					4.70	8.13	R_5=5.32
(5) 25.83						3.43	R_6=5.42
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above Table 42 shows that in the TRT group, the higher group (E+) had a higher group mean whereas in the MTS and MTR groups, the lower groups (E-) had higher group means. The differences among the lower and the higher subgroups in the three groups were, however, not significant which showed that

considering any one training approach only, division into lower and higher groups according to the scores of personality Factor E did not give rise to any significant differences; but in the two microteaching groups, an overlapping pattern of significant differences developed through such a division. The MTS.H group did not differ significantly from the MTS.L group but differed significantly from the MTR.H and the MTR.L groups. Similarly, the MTS.L group did not differ significantly from the MTR.H group but differed significantly from the MTR.L group. So far as the TRT group was concerned, the TRT.L and the TRT.H groups did not differ significantly from each other but differed significantly from the other remaining four groups. This shows that the levels of personality Factor E affected the acquisition of general teaching competence in the microteaching groups.

When the group means for the second level of acquisition of general teaching competence i.e. G_{1-16} were studied through Duncan's multiple range test, a similar but simpler pattern of differences emerged. The following Table 43 gives the results of the test for G_{1-16} :

The Table 43 on the next page shows that, so far as the TRT group is concerned, the TRT.H and the TRT.L groups differed in their means by 0.92 - a difference which was not significant. Just as at the G_{1-11} level, here also the TRT group differed significantly from the other microteaching groups. In microteaching groups, however, the MTS.H and the MTS.L groups did not differ

Table 43 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor E.

Groups	(1) TRT.L	(2) TRT.H	(3) MTS.H	(4) MTS.L	(5) MTR.H	(6) MTR.L	SSR at .05 level
Means	14.04	14.96	26.31	27.47	29.53	33.0	
(1) 14.04		0.92	12.27	13.43	15.49	18.96	R_2=4.90
(2) 14.96			11.35	12.51	14.57	18.04	R_3=5.17
(3) 26.31				1.16	3.22	6.69	R_4=5.33
(4) 27.47					2.06	5.53	R_5=3.45
(5) 29.53						3.47	R_6=5.55
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

significantly from each other and also, these two groups did not differ significantly from the MTR.H group but differed significantly from the MTR.L group. The two subgroups of the MTR group viz. the MTR.H and the MTR.L groups did not differ significantly from each other.

Figure 13 shows that, so far as the development of general teaching competence from 11th to 16th practice teaching lesson was concerned, the effect was similar for all the three training groups. The pairs of lines representing the two levels of acquisition of general teaching competence for the three groups are almost parallel showing a similarity of development for all the three groups after the initial training. The figure also shows that the lower factor level group (E-) showed a lesser development of general teaching competence in the TRT group, the development was almost equal for the lower level group and the higher level group in the MTS group whereas, the higher factor level group (E+) showed a lesser development of general teaching competence in the MTR group.

The above two tables 42, 43 and Figure 13 show how the personality Factor E affects the development of general teaching competence. It can be observed that the original pattern of differences among the three training groups at both the levels of acquisition of general teaching competence (Tables 5, 6) is not retained when the groups are divided according to higher or lower factor level. The tables show that the effect of this personality factor on the development of general teaching

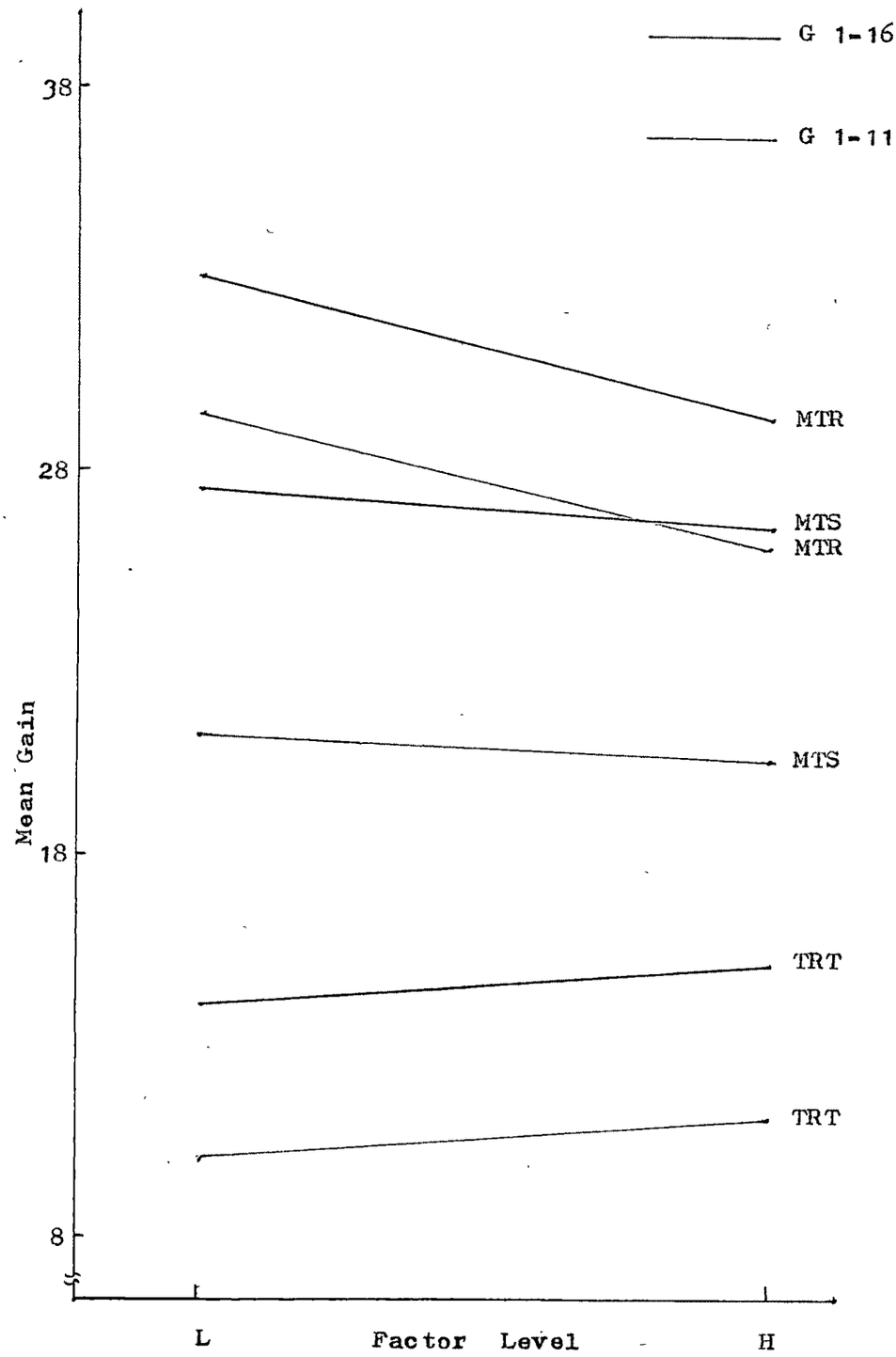

Fig. 13 Personality factor E and gain in GTC

competence is significant when the student-teachers are trained through the two microteaching approaches. It seems that a lower factor level (E-) would prove beneficial when the student-teachers are trained through the two microteaching approaches.

The study of Gupta (1976) has revealed that success in teaching is significantly related to a higher level of this personality factor (E+), i.e. the successful teachers tend to be more assertive. The findings of the present study, as related to the development of general teaching competence during training, show that a higher factor level (E+) was beneficial for the TRT group only and as against this, the lower factor level groups (E-) in the microteaching groups showed a better development of general teaching competence. It may be a fact that the trainees in the TRT group had a chance to work independently, had freedom to work with a whole class of pupils, had better chances to show the assertive side of their nature; and, as a result, showed a better development. In the microteaching groups, however, independent working was controlled and chances to show assertive side of their nature was less which might have resulted into the lower factor level (E-) groups showing better development. Aggressive persons (E+) would not fit into a controlled situation like microteaching training set-up as easily as mild and obedient (E-) persons.

4.9.4 Personality Factor F : Scores of the personality factor F tell whether a person is sober or happy-go-lucky. A high score of this factor (F+) indicates that the person is gay, enthusiastic

and is heedless. He takes events as they come and is happy-go-lucky in nature. As against this, a low score of this factor (F-) indicates that the person is serious, is prudent about his ways and is sober.

The following two tables give the results of the analysis of covariance for the two levels of the acquisition of general teaching competence i.e. for G_{1-11} and G_{1-16} :

Table 44 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor F.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2562.98	512.6	24.34 *
Within Treatments	47	989.71	21.06	

* Significant at 0.01 level

Table 45 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor F.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2624.74	524.95	23.02 *
Within Treatments	47	1071.37	22.8	

* Significant at 0.01 level

The above tables show that the F ratios were 24.34 and 23.02 for G_{1-11} and G_{1-16} respectively. These highly significant ratios clearly lead to the inference that the six group means at both the levels of acquisition of general teaching competence differed significantly among themselves even after adjustments were made

for the differences in the scores of personality Factor F. Duncan's multiple range test was used to study these differences in detail. The following Table 46 gives the obtained results for the first level of the acquisition of general teaching competence i.e. G_{1-11} :

Table 46 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor F.

Groups Means	(1) TRT.L 10.43	(2) TRT.H 11.07	(3) MTS.H 16.99	(4) MTS.L 23.51	(5) MTR.L 24.26	(6) MTR.H 27.83	SSR at .05 level
(1) 10.43		0.64	6.56	13.08	13.83	17.4	R_2=4.51
(2) 11.07			5.92	12.44	13.19	16.76	R_3= 4.75
(3) 16.99				6.52	7.27	10.84	R_4= 4.90
(4) 23.51					0.75	4.32	R_5= 5.01
(5) 24.26						3.57	R_6= 5.10
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly.

The above table shows that at the 11th practice teaching lesson level, G_{1-11} in the TRT group and the MTR group was higher for higher factor level ; whereas, in the MTS group, it was lower for the higher factor level group. The difference between the group means of the TRT.L and the TRT.H groups was 0.64 which was not significant at 0.05 level, but the TRT group as a whole differed significantly from the remaining four microteaching subgroups. In the case of microteaching groups, the MTS.H group

had the lowest group mean and it differed significantly from the other means. As against this, the MTS.L group, the MTR.L group and the MTR.H group did not differ significantly among themselves. The effect of division according to the higher and the lower factor level was quite apparent in case of the MTS group. The mean gain for the trainees having higher factor level (F+) and trained through microteaching under simulated condition was the lowest in all the microteaching groups and differed significantly from the other group means.

When the effect of traditional training after the initial microteaching training was considered, this pattern of differences was retained with a slight variation. The following Table 47 gives the results of Duncan's multiple range test for G_{1-16} :

Table 47 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor F.

Groups Means	(1) TRT.L 14.34	(2) TRT.H 15.06	(3) MTS.H 23.86	(4) MTR.L 27.94	(5) MTS.L 29.10	(6) MTR.H 31.75	SSR at .05 level
(1) 14.34		0.72	9.52	13.6	14.76	17.41	R_2=4.71
(2) 15.06			8.80	12.88	14.04	16.69	R_3=4.96
(3) 23.86				4.08	5.24	7.89	R_4=5.11
(4) 27.94					1.16	3.81	R_5=5.23
(5) 29.10						2.65	R_6=5.33
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

It can be seen from the Table 47 that for the TRT group, the difference in group means between the TRT.H and the TRT.L groups was only 0.72 and this difference was not significant at 0.05 level. In the microteaching groups, the MTS.H group and the MTR.L group did not differ significantly from each other while the MTS.H group differed significantly from the MTS.L and the MTR.H groups. The MTR.L group with the MTS.L and the MTR.H groups formed a group where significant differences did not exist.

A comparison of the development of general teaching competence at the two levels, as shown in Figure 14, reveals that, in case of the traditional training coupled with autoinstructional material, significant differences did not exist between the higher and the lower factor level groups and the development of general teaching competence from the 11th to the 16th practice teaching lesson was the same for the TRT.H and the TRT.L groups. The effect of personality Factor F is quite apparent in case of the two micro-teaching groups. The pairs of lines for the MTS and the MTR groups are almost parallel which shows a similar development from the 11th to the 16th practice teaching lesson but the interaction effect of the personality factor is clear as shown by the different slopes of the lines for the MTS and the MTR groups. The higher factor level trainees in the MTS group showed a lesser development of general teaching competence while the lower factor level trainees in the MTR group showed a lesser development of general teaching competence. It can be observed that the microteaching training in

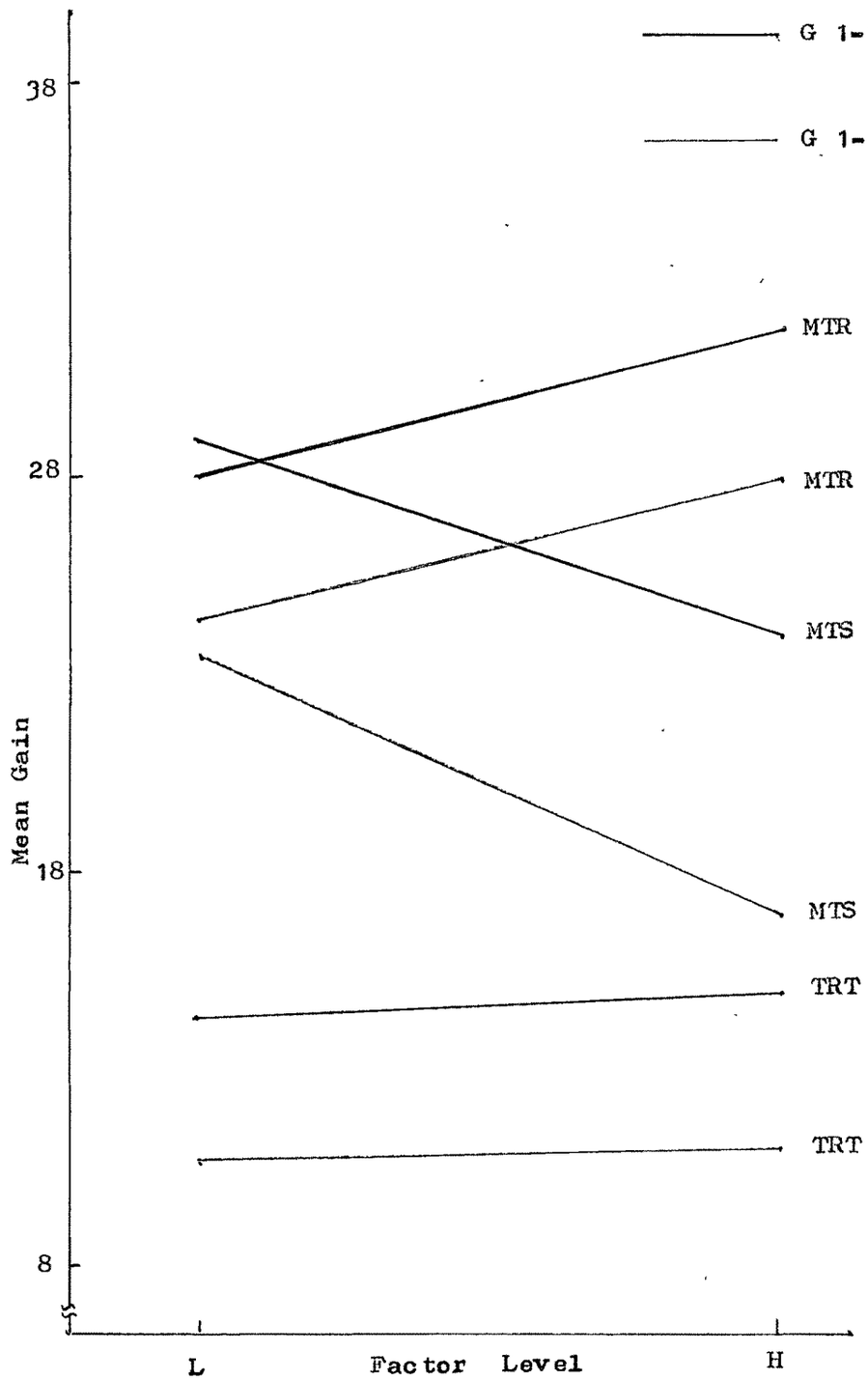

Fig. 14 Personality factor F and gain in GTC

simulated condition was significantly less effective for the MTS.H group at G_{1-11} as well as G_{1-16} level.

Studies of Gupta (1979) and Gupta (1976) have shown that a high factor level (E+) is significantly related to success in teaching and highly effective teachers have a higher factor level. So far as training is concerned, this seems to be true for the traditional training coupled with autoinstructional material and microteaching training in real situation where the TRT.H and the MTR.H groups have shown a better development of general teaching competence. The results for the microteaching training under simulated condition are contrary to this and the analysis has shown that the MTS.H group showed a significantly lesser development of general teaching competence as compared to the MTS.L group. Enthusiastic and happy-go-lucky trainees (F+) did better in traditional training as well as microteaching training in real situation and this may be due to the fact that they worked with real pupils. In the case of microteaching training under simulated condition, it is probable that, in the controlled condition of microteaching class with peers as pupils before them, enthusiastic and happy-go-lucky trainees were not in a situation in tune with their nature, while the serious and the sober group of trainees (F-) found this condition more adjusted to their nature and hence gained significantly better.

4.9.5 Personality Factor G

Personality Factor G refers to whether a person is conscientious or expedient. A high score of this factor (G+) indicates that the person is conscientious and persevering. He is serious about his work and does things according to rules. He is rule-bound in his life. As against this, a low score of this factor (G-) tells that the person is expedient. He does not like to work according to rules, is a law to himself and by-passes obligations.

In order to study whether the groups differed significantly or not, analysis of covariance for both the levels of acquisition of general teaching competence i.e. G_{1-11} and G_{1-16} was carried out the results of which are given in the tables below :

Table 48 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor G.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2335.75	467.15	18.57 *
Within Treatments	47	1182.24	25.15	

* Significant at 0.01 level

Table 49 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor G.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2448.44	489.69	18.79 *
Within Treatments	47	1224.64	26.06	

* Significant at 0.01 level

These highly significant F ratios viz. 18.57 at G_{1-11} and 18.89 at G_{1-16} levels indicate that the groups differed significantly from one another even after adjusting for differences due to personality factor scores. Duncan's multiple range test pin-pointed the significant differences that existed among the groups. The following Table 50 gives the results of the test for G_{1-11}.

Table 50 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor G.

Groups Means	(1) TRT.L 10.58	(2) TRT.H 10.90	(3) MTS.L 19.86	(4) MTS.H 22.01	(5) MTR.L 26.42	(6) MTR.H 26.84	SSR at .05 level
(1) 10.58		0.32	9.28	11.43	15.84	16.26	R_2=4.88
(2) 10.90			8.96	11.11	15.52	15.94	R_3=5.14
(3) 19.86				2.15	6.56	6.98	R_4=5.30
(4) 22.01					4.41	4.83	R_5=5.42
(5) 26.42						0.42	R_6=5.52
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above table shows that for all the three training approaches, the higher factor level groups had a higher mean gain but these higher mean gains were not significant. The difference between the means of the TRT.L and the TRT.H groups was 0.32, that between the means of the MTS.L and the MTS.H groups was 2.15 and that between the means of the MTR.L and the MTR.H groups was 0.42 and these differences were not significant at 0.05 level. The only new differences that developed among the group as against the original

differences (Table 5) was in microteaching groups, where the MTS.L group differed significantly from the MTR.L and the MTR.H groups whereas the MTS.H group did not differ significantly from these two groups i.e. the MTR.L and the MTR.H groups. This shows that the effect of this personality factor G was limited to only the groups which received the microteaching training under simulated condition.

When the phase of traditional practice teaching followed the microteaching training, these differences were also eliminated as shown in Table 51 below which gives the results of Duncan's multiple range test for G_{1-16}.

Table 51 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor G.

Groups Means	(1) TRT.L 14.19	(2) TRT.H 15.53	(3) MTS.L 25.92	(4) MTS.H 28.39	(5) MTR.L 30.08	(6) MTR.H 30.76	SSR at .05 level
(1) 14.19		1.34	11.73	14.2	15.89	16.57	R_2=4.96
(2) 15.53			10.39	12.86	14.55	15.23	R_3=5.23
(3) 25.92				2.47	4.16	4.84	R_4=5.39
(4) 28.39					1.69	2.37	R_5=5.51
(5) 30.08						0.68	R_6=5.62
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

The above table shows that in the case of the TRT group, the difference between the group means of the TRT.L and the

TRT.H groups is 1.34 which is not significant at 0.05 level. In the microteaching groups also, all the four groups fall in a single group where no significant differences exist among the group means.

So far as the development of general teaching competence from the 11th to the 16th practice teaching lesson is concerned. Figure 15 shows that the development was similar in case of all the three training approaches. The lines representing the TRT group and the MTR group are almost horizontal thereby showing that no significant differences existed between the lower factor level group and the higher factor level groups for these two training approaches. In the case of the MTS group, the lines are comparatively less horizontal but the foregone discussion has shown that here also, the higher factor level group and the lower factor level group did not differ significantly at both the levels of acquisition of general teaching competence. The effect of personality Factor G is apparent only on the MTS group at G_{1-11} level where it is seen from the Table 50 that the MTS.H group did not differ significantly from the MTR.L and the MTR.H groups, whereas originally the MTS group as whole differed significantly from the MTR group.

It is a common observed fact that a more conscientious person would prove successful in a profession of his choice and this is true for teaching profession also. Gupta (1977) has shown that success in teaching is significantly related to a high factor level (G+). Gupta (1976) has also shown that highly effective

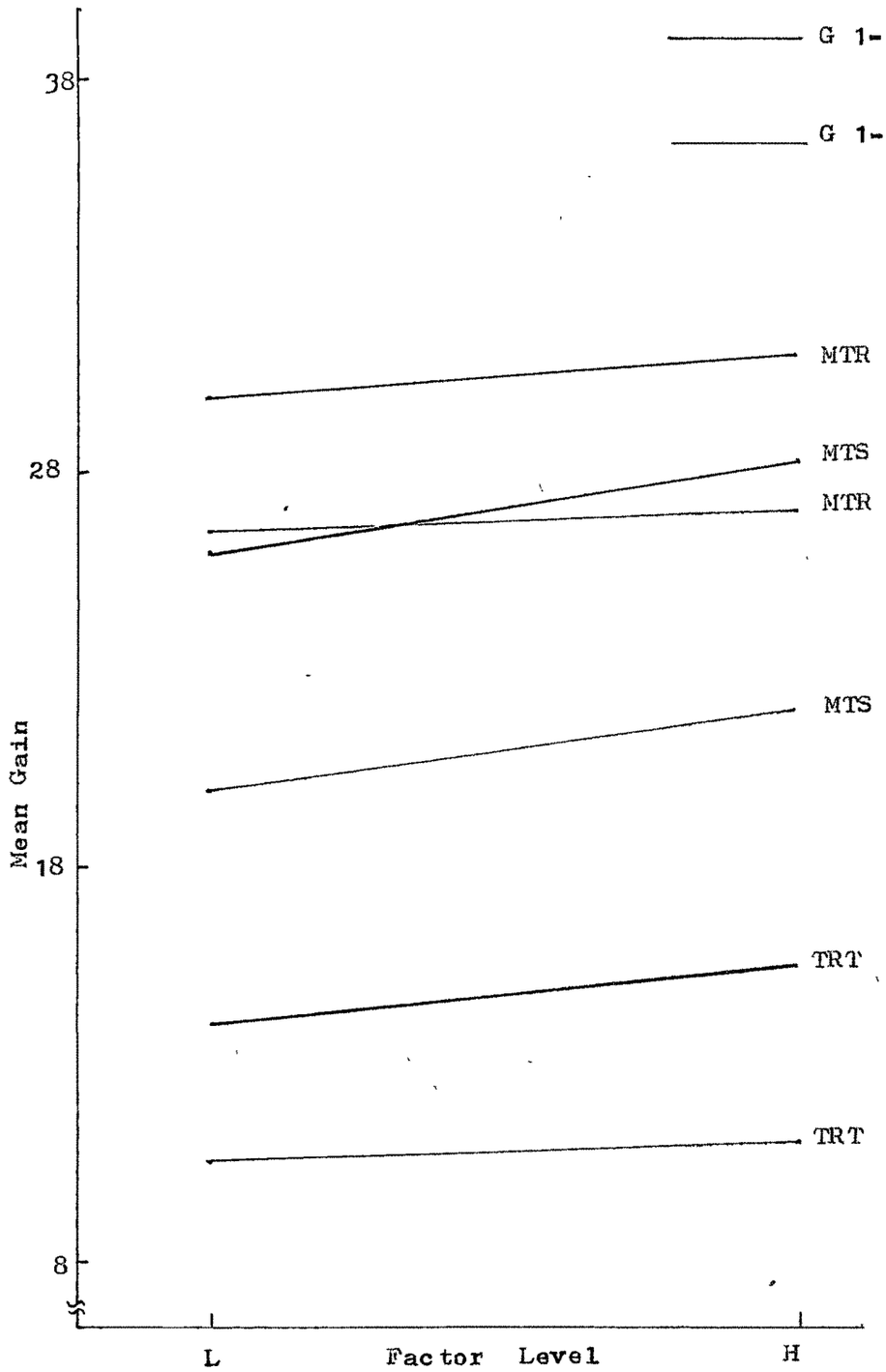

Fig. 15 Personality factor G and gain in GTC

teachers scored higher on this personality factor. The findings of the present study also reveal that the group having high factor level (G+) had a higher mean gain for all the three training approaches. This seems to be in accordance with the observed general fact that a conscientious, persevering teacher will develop better skills and abilities to teach during training.

4.9.6 Personality Factor H : The scores of personality factor H indicate whether a person is shy or venturesome. A high score of this factor (H+) indicates that the person is spontaneous in his actions, is not bound by inhibitions and is socially bold. As against this, a low score (H-) indicates a person who is shy and timid. He is restrained in his actions and is diffident.

Analysis of covariance was carried out for the six groups and the following two tables give the results of the analysis for G_{1-11} and G_{1-16} :

Table 52 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor H.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2413.93	482.79	20.43 *
Within Treatments	47	1110.92	23.63	

* Significant at 0.01 level

Table 53 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor H.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2531.04	506.21	20.96 *
Within Treatments	47	1134.98	24.15	

* Significant at 0.01 level

The Tables 52 and 53 show that the F ratios are 20.43 and 20.96 for G_{1-11} and G_{1-16} respectively. These ratios are highly significant and indicate that the groups differed significantly among themselves at both the levels of the acquisition of general teaching competence. To locate the significant differences that existed among the groups, Duncan multiple range test was used. The following Table 54 gives the results of the test for G_{1-11}.

Table 54 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor H.

Groups Means	(1) TRT.L 9.97	(2) TRT.H 11.17	(3) MTS.L 18.94	(4) MTS.H 21.77	(5) MTR.H 25.81	(6) MTR.L 28.45	SSR at .05 level
(1) 9.97		1.20	8.97	11.8	15.84	18.48	R_2=4.71
(2) 11.17			7.77	10.6	14.64	17.28	R_3=4.96
(3) 18.94				2.83	6.87	9.51	R_4=5.11
(4) 21.77					4.04	6.68	R_5=5.23
(5) 25.81						2.64	R_6=5.33
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

The above table shows that in the case of the TRT group, the difference in group means between the TRT.H and the MRT.L groups was 1.2 which was not significant. Similarly for the MTS group, the difference in group means between MTS.H and the MTS.H groups was 2.83 which was not significant. In the MTR group also, the difference in group means for the two subgroups was 2.64 which was not significant. The TRT group as a whole differed significantly from

the two microteaching groups, but for the two microteaching groups, an overlapping pattern of differences developed due to the division of the groups into lower or higher factor level. The table shows that the MTS.L group did not differ significantly from the MTS.H group but differed significantly from the MTR.H and the MTR.L groups. The MTS.H group did not differ significantly from the MTR.H group but differed significantly from the MTR.L group. This shows the effect of the division of the groups according to lower or higher factor levels where the original differences among the groups (Table 5) are not retained in the same fashion.

The overlapping pattern of differences persisted even at the second level of the acquisition of general teaching competence, but in a simpler form. The following Table 55 gives the results of Duncan's multiple range test for G_{1-16} which shows this fact clearly.

Table 55 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor H.

Groups Means	(1) TRT.L 13.80	(2) TRT.H 15.25	(3) MTS.L 24.61	(4) MTS.H 28.44	(5) MTR.H 29.21	(6) MTR.L 32.20	SSR at .05 level
(1) 13.80		1.45	10.81	14.64	15.41	18.4	R_2=4.76
(2) 15.25			9.36	13.19	13.96	16.95	R_3=5.02
(3) 24.61				3.83	4.60	7.59	R_4=5.17
(4) 28.44					0.77	3.76	R_5=5.29
(5) 29.21						2.99	R_6=5.39
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The Table 55 shows that even at the 16th practice teaching lesson level, the TRT group as whole differed significantly from the two microteaching groups, but the lower and the higher factor level groups in the TRT group i.e. the TRT.L and the TRT.H groups did not differ significantly from each other. Considering the microteaching groups, it can be observed that the MTS.L and the MTS.H groups did not differ significantly from the MTR.H group but differed significantly from the MTR.L group. This shows that a division into lower and higher factor level groups gave rise to new significant differences even at G_{1-16} level.

Comparing the two tables, it can be observed that at both the levels of acquisition of general teaching competence, higher factor level groups had a higher group mean for traditional training coupled with autoinstructional material and microteaching approach in simulated condition. As against this, the lower factor level group showed a better gain in general teaching competence in the trainees that received microteaching training in real situation. Figure 16 shows this quite apparently where it can be seen that the pairs of lines representing the MTR group has a different slope from the pairs representing the MTS and the TRT groups. The figure shows the interaction effect of this personality factor on the development of general teaching competence through the two microteaching approaches and a comparison at the two levels shows that the difference in mean gains between the MTS.H and the MTR.H group decreased when microteaching training was followed by the traditional practice teaching programme.

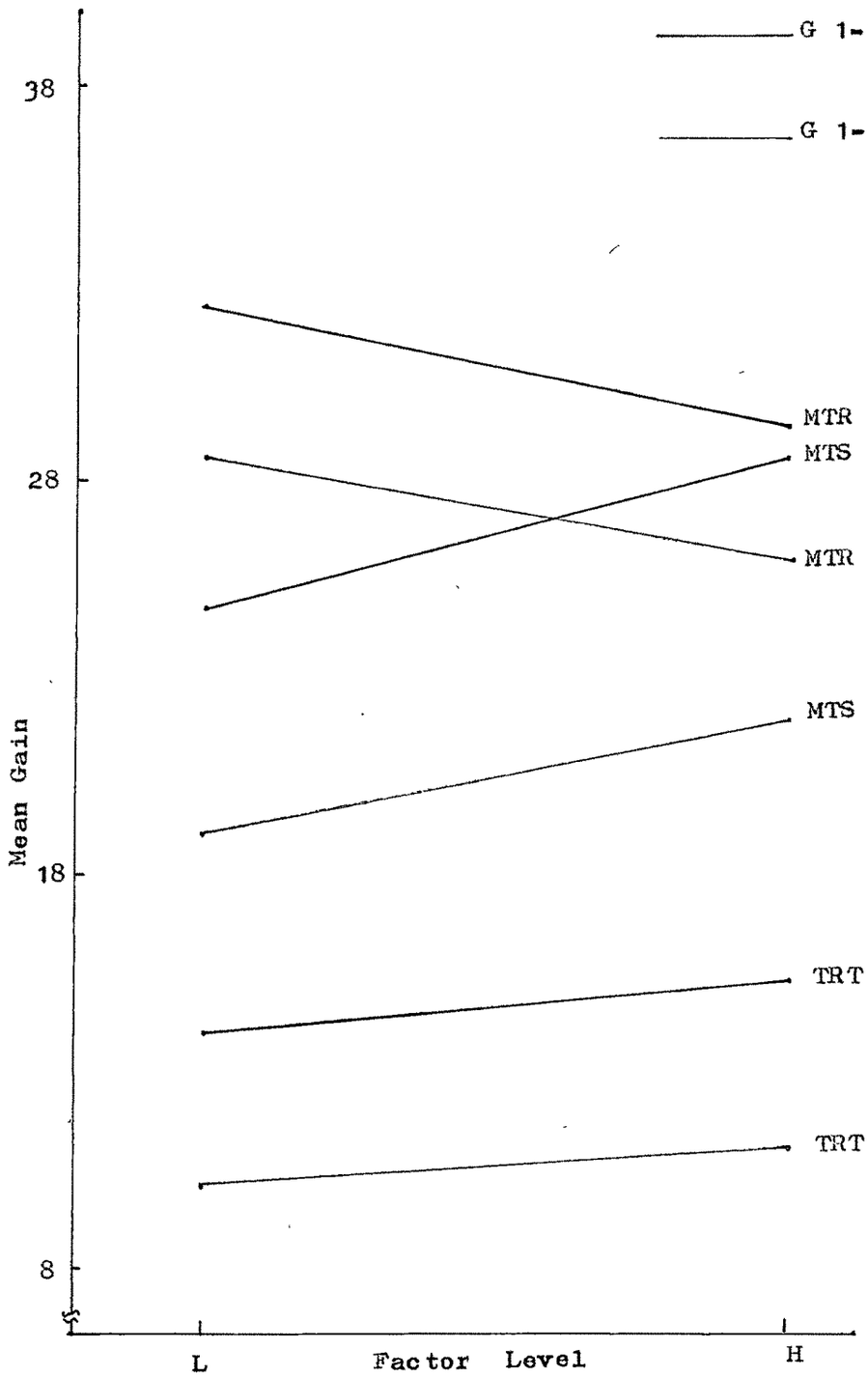

Fig. 16 Personality factor H and gain in GTC

Though the differences are not significant, the group of trainees having a higher factor level (H+) have showed higher gain in general teaching competence in the TRT and the MTS groups. Studies of Gupta (1976) and Gupta (1977) have also shown that successful teaching is significantly related to the higher factor level (H+). The present study shows for the gain in general teaching competence during the training, this is true only for traditional training and microteaching training under simulated condition. A probable reason that for this trend may be that in the traditional training, the trainees did not face a novel situation while in the microteaching training under simulated condition, the trainees did face a novel situation but were in a group of their peers only. Thus, the trainees in the TRT and the MTS groups had more chances to be venturesome and socially bold and this may in turn lead to a higher acquisition of general teaching competence for trainees having a higher factor level (H+). As against this, microteaching in real situation was a quite different set-up with only five pupils before the teacher and a controlled condition. Thus, it is probable that the trainees in the MTR group had less opportunity to be venturesome and thus those trainees that were having a higher factor level (H+) in the group showed a lesser mean gain in general teaching competence.

4.9.7 Personality Factor I : Scores on personality factor I reveal whether a person is tough-minded or tender-minded. A low score of this factor (I-) indicates that the person is tough-minded and is realistic in his outlook. He is self-reliant and

allows no nonsense in his work. Contrary to this, a high score of this factor (I+) indicates a person who is tender-minded and sensitive. Such a person tends to be over-protected, is dependent on others and is not self-reliant.

The six groups were tested for differences among them by analysis of covariance and the following Tables 56 and 57 give the results of the analysis for G_{1-11} and G_{1-16} :

Table 56 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor I.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2473.34	494.67	21.82 *
Within Treatments	47	1065.46	22.67	

* Significant at 0.01 level

Table 57 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor I.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2622.45	524.49	23.06 *
Within Treatments	47	1068.8	22.74	

* Significant at 0.01 level

The results of the analysis of covariance as given in the two above tables show that the obtained F ratios are highly significant at both the levels of acquisition of general teaching competence. It can be inferred from this that, even after allowances were made for differences in personality factor scores, the six group

means differed significantly among themselves . Duncan's multiple range test was used to locate the significant differences among the groups and the table that follows gives the obtained results for G_{1-11}.

Table 58 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor I.

Groups Means	(1) TRT.L 9.07	(2) TRT.H 11.96	(3) MTS.L 20.52	(4) MTS.H 21.32	(5) MTR.H 25.30	(6) MTR.L 27.98	SSR at .05 level
(1) 9.07		2.89	11.45	12.25	16.23	18.91	R_2=4.59
(2) 11.96			8.56	9.36	13.34	16.02	R_3=4.84
(3) 20.52				0.8	4.78	7.46	R_4=4.99
(4) 21.32					3.98	6.66	R_5=5.10
(5) 25.30						2.68	R_6=5.20
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

The above table shows that the difference between the group means of the TRT.L and the TRT.H groups was 2.89 which was not significant at 0.05 level. Similarly, the differences between the higher and the lower factor level groups in the MTS and the MTR groups were 0.8 and 2.68 respectively and these differences were also not significant. The effect of personality Factor I is seen in the microteaching groups where the MTS.L and the MTS.H groups did not differ significantly from the MTR.H group but differed significantly from the MTR.L group. Thus, the

original difference between the two microteaching groups at G_{1-11} level is changed when the groups are divided into higher or lower groups according to their scores on personality Factor I.

The effect of personality Factor I on the microteaching groups became more pronounced when traditional practice teaching followed the microteaching training. Table 59 below shows the pattern of differences among the six groups at the 16th practice teaching lesson level.

Table 59 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor I.

Groups Means	(1) TRT.H 13.86	(2) TRT.L 16.07	(3) MTS.H 24.59	(4) MTR.H 26.69	(5) MTS.L 29.39	(6) MTR.L 35.38	SSR at .05 level
(1) 13.86		2.21	10.73	12.83	15.53	21.52	R_2=4.62
(2) 16.07			8.52	10.62	13.32	19.31	R_3=4.87
(3) 24.59				2.10	4.80	10.79	R_4=5.02
(4) 26.69					2.70	8.69	R_5=5.13
(5) 29.39						5.99	R_6=5.23
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above table shows that in the case of the TRT group, the higher factor level groups did not differ significantly. In the case of microteaching groups, however, the most pronounced effect of this personality factor was on the MTR.L group. Closely agreeing with the results at the G_{1-11} level, the MTS.H, the MTS.L and the MTR.H groups did not differ significantly from one

another but the MTR.L group had the highest group mean of 35.38 which differed significantly from the remaining groups. Thus, it is clear that the self-reliant group of trainees benefitted the most from the traditional practice teaching training that followed the microteaching training in real situation.

Figure 17 shows a comparison of the acquisition of general teaching competence by the three training groups at the two levels of the personality Factor I. Comparing the tables 58 and 59, it can be seen that the order of the group mean changed from G_{1-11} to G_{1-16} in case of the TRT and the MTS groups and this is apparent from Figure 17 as shown by the opposite slope for the pair of lines for the TRT and the MTS groups. In both the groups, it can be observed that the mean gain in general teaching competence from the 11th to the 16th practice teaching lesson was greater for the lower factor level groups. In the case of the MTR group, the line for G_{1-16} is more slant than the line for G_{1-11} which shows that the lower factor level group benefitted more by the training during the second phase of the training programme and this is also clear from the Table 59 which shows that the MTR.L group had the highest group mean which differed significantly from all the other group means.

Study of Gupta (1977) has shown that success in teaching is significantly related to higher factor level (I+). Gupta (1976) has also shown that highly effective teachers were having a higher score on this factor. So far as training is concerned,

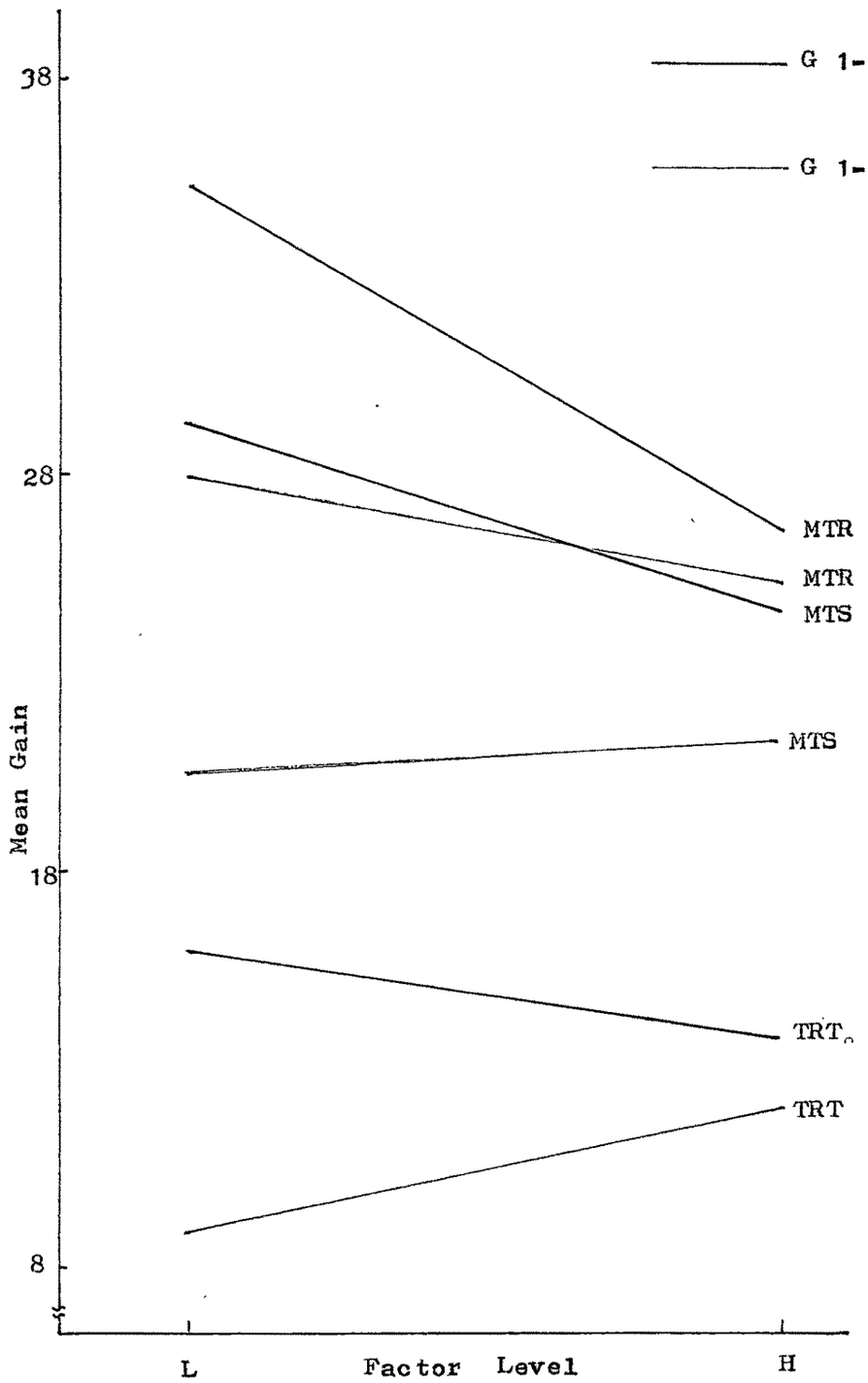

Fig. 17 Personality factor I and gain in GTC

curious results have been revealed through the foregone discussion. The tender-minded and dependent group of trainees (I+) in the traditional training approach coupled with auto-instructional material showed a better gain at the 11th practice teaching lesson level but the realistic and self-reliant group of trainees (I-) gained more at the 16th practice teaching lesson level. It is probable that in the TRT group, the tendency to be self-reliant and realistic had a better chance to come into action at the latter stage of training. The results for the group that received microteaching training under simulated condition are also similar to that of the TRT group. It seems that in the microteaching training under simulated condition, tender-minded and dependent trainees (I+) benefitted to a larger extent from the training. It is probable that they found the training situation better suited to their nature. It is possible that when the traditional practice teaching followed, self-reliant group found the situation better suited to their nature as in the TRT group and hence acquired a better gain at the 16th practice teaching lesson level. So far as micro-teaching training in real situation is concerned, it is quite reasonable to expect and is probable that the self-reliant and realistic group of trainees (I-) found the training situation more suited to this personality aspect of their nature and the general trend of lower factor level group showing higher gain also proved true for them.

4.9.8 Personality Factor L : Scores on personality Factor L suggest whether a person is trusting or suspicious. A low score of this factor would point out a person who is of a trusting type and is free of jealousy. Such a person is easy to get along with, is adaptable and is a pleasant person to work with. As against this, a high score of this factor indicates a person who is suspicious. Such a person is hard to work with and is self-opiniated. He is hard to be befooled and does not easily adopt with other persons.

The differences among the group means for G_{1-11} and G_{1-16} were studied through analysis of covariance and the following two tables give the results of the analysis for G_{1-11} and G_{1-16} :

Table 60 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor L.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2449.0	489.8	21.16 *
Within Treatments	47	1088.08	33.15	

* Significant at 0.01 level

Table 61 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor L.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2565.27	513.05	21.49 *
Within Treatments	47	1122.11	23.87	

* Significant at 0.01 level

It can be seen from the Tables 60 and 61 that F ratios at both the levels of acquisition are highly significant and it can be easily inferred that the group means differed significantly even after adjustment were made for the differences in the personality factor scores. Duncan's multiple range test was applied to the group means to study how the groups differed from one another. The following Table 62 gives the results of the test for G_{1-11} :

Table 62 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor L.

Groups / Means	(1) TRT.L 10.26	(2) TRT.H 10.99	(3) MTS.L 17.92	(4) MTS.H 22.83	(5) MTR.L 23.30	(6) MTR.H 29.20	SSR at .05 level
(1) 10.26		0.73	7.66	12.57	13.04	18.94	R_2=4.56
(2) 10.99			6.93	11.84	12.31	18.21	R_3=4.81
(3) 17.92				4.91	5.38	11.28	R_4=4.96
(4) 22.83					0.47	6.37	R_5=5.07
(5) 23.30						5.90	R_6=5.17
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly.

The above Table 62 shows that the division of training groups into higher and lower levels of personality Factor L was quite effective in bringing out the significant differences among the groups especially for the microteaching training approaches. For the TRT group, the difference in group means between the TRT.L and the TRT.H group was 0.73 which was not

significant. As against this, in case of the microteaching groups, the difference in group means between the MTS.L and the MTS.H group was 4.91 and that between the MTR.L and the MTR.H groups was5 5.9. Both these differences were significant at 0.05 level and it can be inferred from this that the MTS.H and the MTR.H groups differed significantly from their corresponding lower groups. This suggests that the microteaching training was more effective for those trainees that had scored higher on the personality Factor L. The Table also shows that the MTS.H and the MTR.L groups did not differ significantly from each other. This suggests that micro-teaching training under simulated condition for the higher factor level group and the microteaching training in real situation for the lower factor group were equally effective in developing general teaching competence. These results show that the personality Factor L proved effective in the development of general teaching competence in the trainees.

The differences that clearly existed at G_{1-11} level changed into an overlapping pattern of differences when traditional practice teaching followed the microteaching training. The Table 63 on the next page gives the results of Duncan's multiple range test for G_{1-16}.

The results given in the table show that for the TRT group, the higher factor level group and the lower factor level group did not differ significantly. In the case of microteaching groups, the MTS.L group did not differ significantly from the MTR.L group

Table 63 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor L.

Groups Means	(1) TRT.L 13.93	(2) TRT.H 15.26	(3) MTS.L 23.81	(4) MTR.L 26.81	(5) MTS.H 29.25	(6) MTR.H 33.15	SSR at .05 level
(1) 13.93		1.33	9.88	12.88	15.32	19.22	R_2=4.65
(2) 15.26			8.55	11.55	13.99	17.89	R_3=4.90
(3) 23.81				3.0	5.44	9.34	R_4=5.05
(4) 26.81					2.44	6.34	R_5=5.17
(5) 29.25							R_6=5.26
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

but differed significantly from the MTS.H and the MTR.H groups. Similarly, the MTR.L group did not differ significantly from the MTS.H group but differed significantly from the MTR.H group. So far as the higher factor level groups were concerned, the MTS.H and the MTR.H groups did not differ significantly.

A comparison of the above two tables reveal that in micro-teaching groups, the order of group means and the significant differences changed from G_{1-11} to G_{1-16}. The MTS.L group differed significantly from the MTR.L group at the 11th practice teaching lesson level but did not differ significantly at the 16th practice teaching lesson level. This indicates that the two groups reached at an equal level of general teaching competence when traditional practice teaching followed the microteaching training. It can also be seen that the MTS.H and the MTR.L groups did not differ

significantly at both the levels of acquisition of general teaching competence; but at G_{1-11} level, the MTR.L group had a higher group mean (difference of 0.47) while at the G_{1-16} level the MTS.H group had a higher group mean (difference of 2.44). This suggests that the traditional practice teaching that followed the microteaching training was effective to a greater extent for the trainees that had higher factor level L and received training through microteaching under simulated condition as compared to those trainees who had lower factor level L and received training through microteaching in real situation.

So far as development from G_{1-11} to G_{1-16} is concerned, Figure 18 shows that the pairs of lines representing the three groups are almost parallel which indicate that the development from the 11th to the 16th practice teaching lesson was similar for all the three training approaches except that the gain is more for the MTS group. The lines for the microteaching groups are more slant than those for the TRT group which shows that the microteaching training was more effective for the higher factor level groups.

That the higher factor level groups (L+) showed a better acquisition of general teaching competence is a curious result which goes against the common notion that the adaptable trusting type of persons (L-) would prove more effective as teachers. The study of Gupta (1976) also revealed the same generally accepted

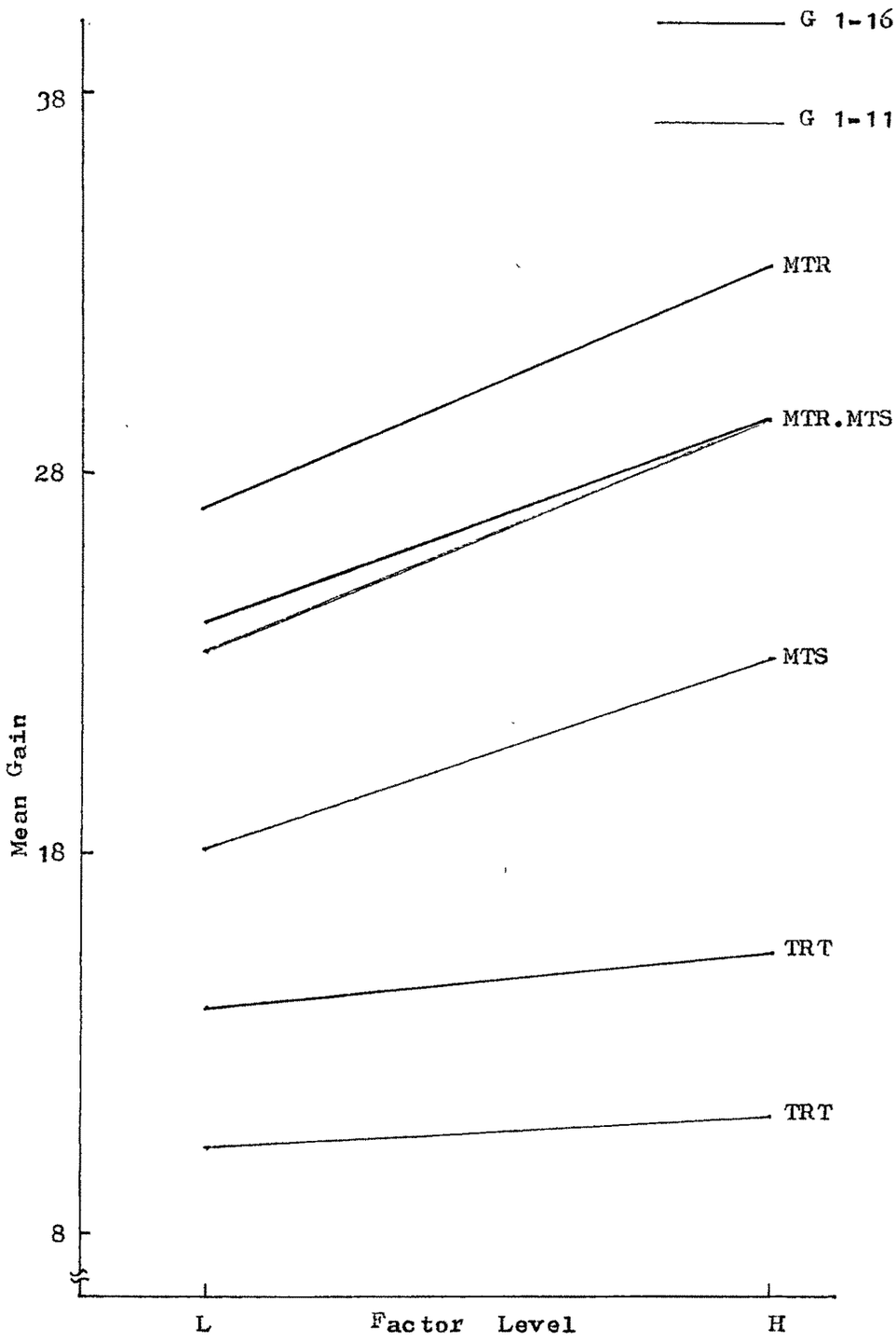

Fig. 18 Personality factor L and gain in GTC

fact that trusting and adaptable (L-) teachers were highly effective ones. Not only did the MTS.H and the MTR.H groups show higher group means but they also differed significantly from their corresponding lower factor level groups. It is probable that the self-opiniated trainees (L+) in the micro-teaching situations were more self-critical, could perceive the development of skills more efficiently and hence acquired a better level of general teaching competence.

4.9.9 Personality Factor M : Personality Factor M refers to whether a person is practical or imaginative. A high score on this factor suggests that the person is careless of practical matters and is bohemian in nature. He is wrapped up in inner urgencies and is an imaginative day-dreaming type of person. A low score on this factor reveals that the person is practical in his outlook. He is regulated by external realities and is careful and conventional in his work.

The following two tables give the results of analysis of covariance for G_{1-11} and G_{1-16} levels :

Table 64 : Analysis of Covariance by G_{1-11} : Groups divided according to Personality Factor M.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2440.65	488.13	20.56 *
Within Treatments	47	1115.85	23.74	

* Significant at 0.01 level

Table 65 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor M.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2545.72	509.14	20.82
Within Treatments	47	1149.43	24.46	

* Significant at 0.01 level.

The above tables 64 and 65 show that the obtained F ratios are 20.58 and 20.82 for G_{1-11} and G_{1-16} respectively. As these two F are significant at 0.01 level, it can be concluded that the group means at both the levels of the acquisition of general competence differed significantly among themselves. In order to pin-point the significant differences among the groups. Duncan's multiple range test was used and the results obtained for G_{1-11} are given below in Table 66.

Table 66 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor M.

Groups Means	(1) TRT.H 8.26	(2) TRT.L 14.70	(3) MTS.H 20.24	(4) MTS.L 21.17	(5) MTR.H 26.05	(6) MTR.L 27.00	SSR at .05 level
(1) 8.26		6.44	11.98	12.91	17.79	18.74	R_2=4.68
(2) 14.70			5.54	6.47	11.35	12.30	R_3=4.93
(3) 20.24				0.93	5.81	6.76	R_4=5.08
(4) 21.17					4.88	5.83	R_5=5.20
(5) 26.05						0.95	R_6=5.30
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly.

Table 66 shows that the difference between the group means of the MTS.H and the MTS.L groups was 0.93 which was not significant. Similarly the difference between the group means of the MTR.H and the MTR.L groups was 0.95 which was also not significant. However, the MTS and the MTR groups as whole differed significantly from each other even after division according to lower and higher factor level. Thus, the original pattern of difference (Table 5) so far as micro-teaching groups are concerned was retained at G_{1-11} level. It can be inferred that the microteaching training in real situation was more effective than that under simulated condition even after adjustment was made for differences due to personality factor M. The effect of division according to higher or lower score of personality factor was more pronounced on the TRT group. The group means of the TRT.H group and the TRT.L group were 8.26 and 14.7 respectively, and they differed significantly at 0.05 level. Thus, it can be said that traditional training coupled with autoinstructional material was significantly more effective for the lower factor level group of trainees i.e. the trainees who were careful and conventional had a significantly better gain in general teaching competence when they were trained through the traditional training approach. Thus, it can be seen that the personality Factor M was effective as a covariable in case of traditional training only.

The original pattern of differences among the three training groups (Table 6) was retained to some extent even at

the 16th practice teaching lesson level. Table 67 below gives the results of Duncan's multiple range test for G_{1-16}.

Table 67 : Duncan's Multiple Range Test for Differences Among G_{1-16} Means : Groups divided according to Personality Factor M.

Groups Means	(1) TRT.H 12.24	(2) TRT.L 18.79	(3) MTS.H 26.66	(4) MTS.L 27.12	(5) MTR.H 29.49	(6) MTR.L 31.20	SSR at .05 level
(1) 12.24		6.55	14.42	14.88	17.25	18.96	R_2=4.76
(2) 18.79			7.87	8.33	10.70	12.41	R_3=5.02
(3) 26.66				0.46	2.83	4.54	R_4=5.17
(4) 27.12					2.37	4.08	R_5=5.29
(5) 29.49						1.71	R_6=5.39
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above table shows that in the microteaching groups, all the four groups means did not differ significantly from one another. This shows that when microteaching training was followed by traditional practice teaching, the difference in between the MTS and the MTR groups was eliminated and the division of the groups into higher and lower factor level groups did not significantly affect the development of general teaching competence. In the case of the TRT group, however, the difference between the TRT.L and the TRT.H groups that developed at the 11th practice teaching lesson level was retained even at the 16th practice teaching lesson level, thus

confirming the fact that the traditional training was more effective for lower factor level group. Thus, it can be observed that the personality Factor M was an effective covariate for the traditional training only and not for microteaching training.

Figure 19 shows that the lines representing the MTS and the MTR groups are almost horizontal which indicate that the higher and the lower groups in the MTS and the MTR groups did not differ significantly. The lines representing the TRT groups are more slant and show clearly the significantly higher acquisition of general teaching competence for the lower factor level groups. The pairs of lines for all the three training groups are almost parallel which indicate that the development of general teaching competence from the 11th to the 16th practice teaching lesson was similar for all the three groups.

Gupta (1976) has shown that the highly effective teachers had a lower factor level (M-). So far as training is concerned, it is observed in the present discussion that in all the three training approaches, careful conventional and practical (M-) trainees acquired a better general teaching competence, though the difference was significant only for the traditional training group. In the traditional training group, trainees who were imaginative and careless of practical matters (M+) had a significantly lesser development of general teaching competence. A probable reason for this group showing lesser development may

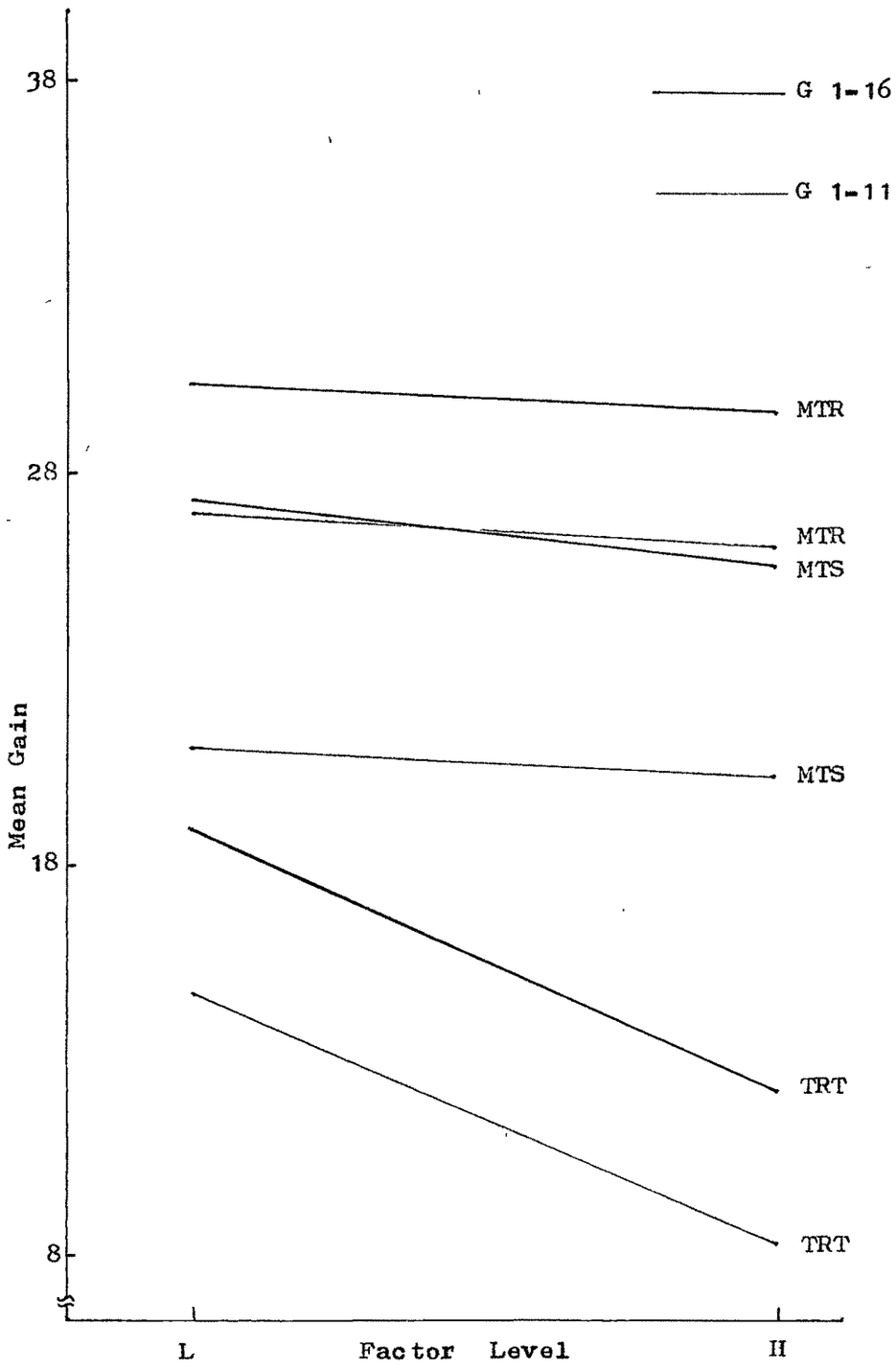

Fig. 19 Personality factor M and gain in GTC

be that, being wrapped up in inner urgencies and being of day-dreaming type, the trainees in this group could not readily accept the challenges before them during the training and thus could not attain the level reached by the lower factor level group of trainees.

4.9.10 Personality Factor N : Measures of personality factor N tell us whether a person is forthrite or shrewd. A low score of this factor indicates a person who is natural in his ways, is not a show-man and is sentimental. Contrary to this, a high score of this factor indicates that the person is worldly in his outlook and is calculating and penetrating.

The three training groups were divided into six groups according to the higher or the lower score on this factor and the following two tables give the results of the analysis of covariance for G_{1-11} and G_{1-16} :

Table 68 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor N.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2429.18	485.84	20.15 *
Within Treatments	47	1133.11	24.11	

* Significant at 0.01 level

Table 69 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor N.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2482.68	496.54	20.0 *
Within Treatments	47	1167.17	24.83	

* Significant at 0.01 level

The tables 68 and 69 show that for both the levels of acquisition of general teaching competence, the obtained F ratios are highly significant, showing thereby that the groups differed significantly even after adjustments were made for the differences in the personality factor scores. Further, differences among the groups were pin-pointed through Duncan's multiple range test, the results of which for G_{1-11} are given below in Table 70.

Table 70 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor N.

Groups Means	(1) TRT.H 9.43	(2) TRT.L 11.30	(3) MTS.L 19.04	(4) MTS.H 21.39	(5) MTR.H 24.09	(6) MTR.L 28.20	SSR at .05 level
(1) 9.43		1.87	9.61	11.96	14.66	18.77	R_2=4.88
(2) 11.30			7.74	10.09	12.79	16.90	R_3=5.14
(3) 19.04				2.35	5.05	9.16	R_4=5.30
(4) 21.39					2.70	6.81	R_5=5.42
(5) 24.09						4.11	R_6=5.52
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly.

It can be seen from the above table that the difference between the group means of the TRT.H and the TRT.L groups was 1.87, that between the group means of the MTS.H and the MTS.L groups was 2.35 and that between the group means of the MTR.H and the MTR.L groups was 4.11. All these differences were not significant at 0.05 level which shows that so far as any one

training approach was concerned, the higher factor level group and the lower factor level group did not differ significantly. So far as the TRT group is concerned, both the means of the TRT.H and the TRT.L groups differed significantly from the means of the microteaching groups. In the microteaching groups, it can be seen that the MTS.L and the MTS.H groups did not differ significantly from each other and also they did not differ significantly from the MTR.H group. Considering the groups as whole, the MTS group differed significantly from the MTR group (Table 5) but a division according to the factor level shows that microteaching training in simulated condition was equally effective as microteaching training in real situation for higher factor level group of trainees.

The MTR.L group had the highest group mean at the 11th practice teaching lesson level but it did not differ significantly from the MTR.H group. When microteaching was followed by traditional practice teaching programme, difference between these two groups developed. Table 71 gives the results of Duncan's multiple range test for G_{1-16} :

Table 71 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor N.

Groups	(1) TRT.H	(2) TRT.L	(3) MTS.L	(4) MTS.H	(5) MTR.H	(6) MTR.L	SSR at .05 level
Means	12.80	15.92	26.23	26.48	27.22	32.20	
(1) 12.80		3.12	13.43	13.68	14.42	19.40	R_2=4.93
(2) 15.92			10.31	10.56	11.30	16.28	R_3=5.20
(3) 26.23				0.25	0.99	5.97	R_4=5.36
(4) 26.48					0.74	5.72	R_5=5.48
(5) 27.22						4.98	R_6=5.59
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly.

The above table reveals that the pattern of differences at the 11th practice teaching lesson level was retained even at the 16th practice teaching lesson level except for the fact that the MTR.H and the MTR.L groups had a mean difference of 4.98 which was significant at 0.05 level. This leads to the inference that microteaching training in real situation for the lower factor level group of trainees was maximum effective as the training and the traditional practice teaching that followed resulted into that group achieving the significantly highest group mean for gain in general teaching competence. Thus, it can be seen that personality Factor N as a covariate was effective in case of microteaching training in real situation.

From the above two tables it can be observed that the lower factor level groups in the TRT and the MTR groups had a higher group mean and the higher factor level group in the MTS group had

higher group mean at both the levels of acquisition of general teaching competence. This is also apparent in Figure 20 which shows that the pairs of lines for the TRT and the MTR groups have a slope different from the pair of lines for the MTS group. Considering the development of general teaching competence from the 11th to the 16th practice teaching lesson level, it can be seen that the development was similar in case of the MTR and the TRT groups as the pairs of lines are almost parallel. As against this, in the case of the MTS group, it can be seen that the lower factor level group i.e. the MTS.L group had a lesser group mean at the 11th practice teaching lesson level but the development of general teaching competence for the group was more from the 11th to the 16th practice teaching lesson. Thus, it seems that the group of trainees who scored lower in the personality factor (N-) and were trained through microteaching under simulated condition benefitted the most from the traditional practice teaching that followed the microteaching training.

The trainees in the lower factor level group in the MTR and the TRT groups showed a better acquisition of general teaching competence and this can be probably due to the fact that they were natural and sentimental in their ways (N-), got a proper training situation where real pupils were before them and that resulted into a greater development of general teaching competence. For the trainees in the MTS group, however, the

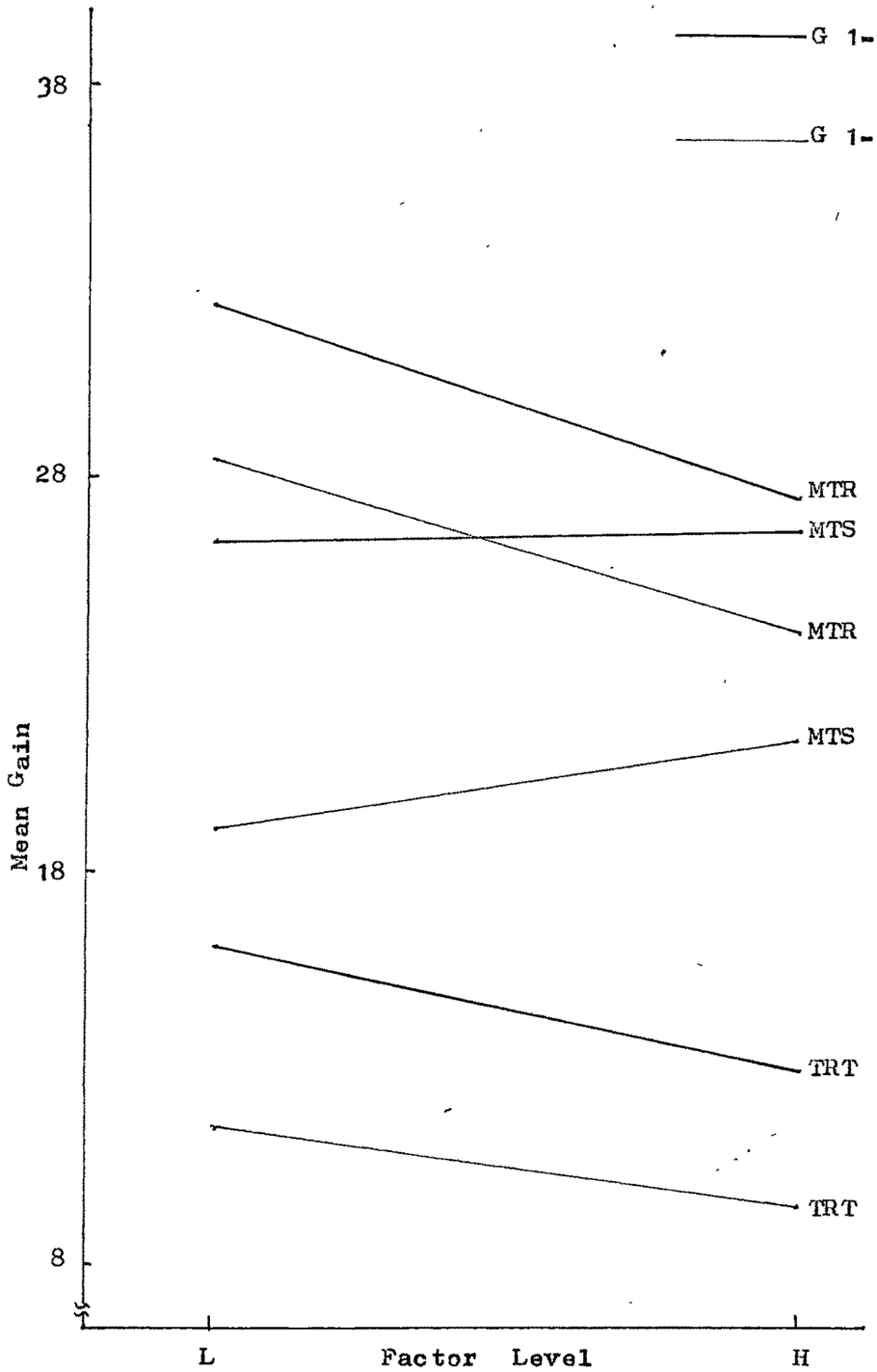

Fig. 20 Personality factor N and gain in GTC

situation was not natural but controlled with peers before them and it is probable that calculating and penetrating type of trainees (N+) found the training situation better suited to their nature and hence acquired a higher degree of competence.

4.9.11 Personality Factor O : Scores on personality factor O tell whether a person is placid or apprehensive. A higher score on this factor indicates that the person is of worrying type. He is troubled by the challenges he has to face and is, by nature, depressive. As against this, a lower score on his factor indicates that the person is placid and serena. Such a person is self-assured and confident in situation that he faces.

The three training groups, after being divided into higher and lower factor level groups, were analysed for significant differences through analysis of covariance. The following Tables 72 and 73 give the results of the analysis for G_{1-11} and G_{1-16}.

Table 72 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor O.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2232.42	446.48	17.57 *
Within Treatments	47	1194.3	25.41	

* Significant at 0.01 level

Table 73 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor O.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2332.11	466.42	17.9 *
Within Treatments	47	1224.88	26.06	

* Significant at 0.01 level

The above two tables show that F ratios are 17.57 and 17.9 for G_{1-11} and G_{1-16} respectively. Both these F ratios are highly significant which indicates that the six group means differed significantly from one another even after allowances were made for differences in the personality factor scores. Duncan's multiple range test was applied to study these differences in detail and the following table 74 gives the results of the test for G_{1-11} :

Table 74 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor O.

Groups Means	(1) TRT.L 10.03	(2) TRT.H 11.98	(3) MTS.H 20.46	(4) MTS.L 20.86	(5) MTR.L 25.53	(6) MTR.H 27.97	SSR at .05 level
(1) 10.03		1.95	10.43	10.83	15.5	17.94	R_2=4.96
(2) 11.98			8.48	8.88	13.55	15.99	R_3=5.23
(3) 20.46				0.40	5.07	7.51	R_4=5.39
(4) 20.86					4.67	7.11	R_5=5.51
(5) 25.53						2.44	R_6=5.62
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly.

The above table shows that the difference between the group means of the TRT.L and the TRT.H groups was 1.95, that for the MTS.L and the MTS.H groups was 0.4 and that for the MTR.L and the MTR.H groups was 2.44. All these differences were not significant at 0.05 level, thus indicating that the group means for the higher and the lower factor level groups in case of all

the three training approaches did not differ significantly from each other. Effect of the personality factor O as a covariate was revealed in the microteaching groups where the MTR.L group, the MTS.L group and the MTS.H groups did not differ significantly among themselves. Though the differences within the training groups were not significant, it can be observed that the group means for the TRT.H and the MTR.H groups were higher than their corresponding lower groups. This shows that the higher factor level trainees showed a trend of acquiring higher general teaching competence when trained through traditional training coupled with autoinstructional material and microteaching training in real situation. The trend was reverse in case of microteaching training under simulated condition where the lower factor level group of trainees showed a better acquisition of general teaching competence.

The following Table 75 gives the results of Duncan's multiple range test for G_{1-16} :

Table 75 : Duncan's Multiple Range Test for Differepces among G_{1-16} Means : Groups divided according to Personality Factor O.

Groups	(1) TRT.L	(2) TRT.H	(3) MTS.H	(4) MTS.L	(5) MTR.L	(6) MTR.H	SSR at .05 level
Means	14.02	15.75	26.53	27.50	29.05	32.05	
(1) 14.02		1.73	12.51	13.48	15.03	18.03	R_2=5.02
(2) 15.75			10.78	11.75	13.30	16.30	R_3=5.29
(3) 26.53				0.97	2.52	5.52	R_4=5.45
(4) 27.50					1.55	4.55	R_5=5.58
(5) 29.05						3.00	R_6=5.68
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly.

The Table 75 shows that the TRT.L and the TRT.H groups did not differ significantly from each other. In microteaching groups, the MTS.H and the MTS.L groups did not differ significantly from each other as well as from the MTR.L group but differed significantly from the MTR.H group.

A comparison of the above two tables reveal that the pattern of differences among the six groups was identical at both the levels of acquisition of general teaching competence i.e. for G_{1-11} as well as for G_{1-16} . This shows that the traditional practice teaching that followed the initial training phase for the three groups had a similar effect on all the groups and thus identical pattern of differences was retained. A comparison through Figure 21 shows that the pairs of lines in all the three groups are parallel thereby showing a similar development at the latter stage of the training except for the fact that the development of general teaching competence in this stage of training was more for the MTS group as compared to the TRT and the MTR groups.

Lower factor level group of trainees had acquired general teaching competence to a lesser degree in case of the MTR and the TRT groups. This shows that the confident and placid trainees (O-) gained less during the training. This may be due to the fact that they worked with whole class of pupils or a group of real pupils and thus had more chances to loose confidence and become less self-assured and this might have regulated into their lesser acquisition of general teaching competence.

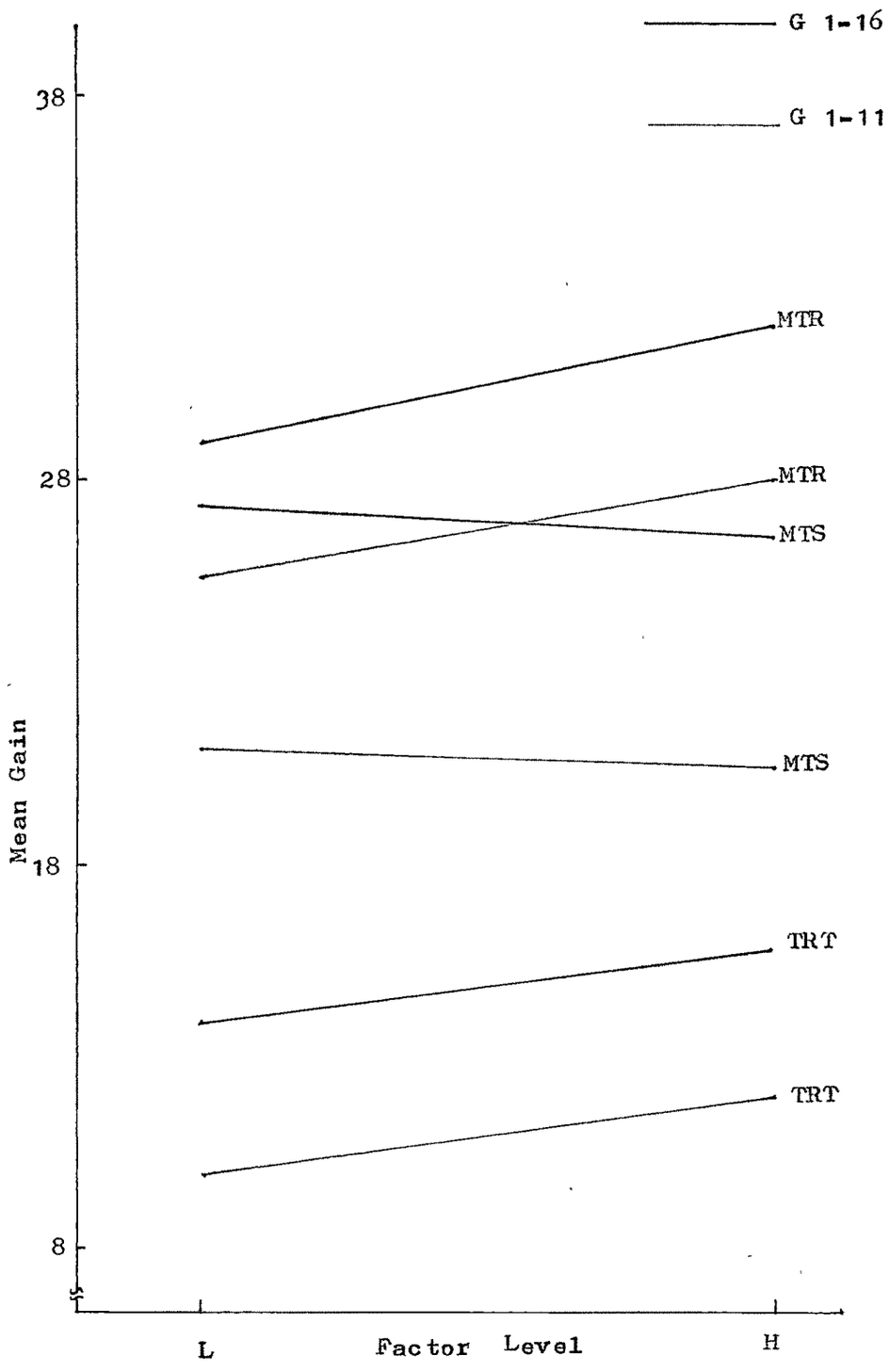

Fig. 21 Personality factor O and gain in GTC

In the case of the MTS group however, the trainees in the MTS.H group (O+) showed a lesser degree of the acquisition of general teaching competence. This may be due to the fact that their self-assurance and placid nature (O+) gave them better chances to acquire general teaching competence as they worked with their peers only where the situation was more in confirmity with their nature.

4.9.12 Personality Factor Q_1 : Level of personality factor Q_1 indicates whether a person is conservative or experimenting. The person that scores high on this factor is of experimenting type. He analyses things and situations, is free-thinking and critical by nature. As against this, a low score on this factor indicates a person who is conservative. He respects the established facts, is skeptical about changes and is tolerant of traditional difficulties. So far as teaching is concerned, Gupta (1976) has shown that highly effective teachers scored lower on this factor (Q_1-), i.e. they were conservative and respected established facts.

Analysis of covariance for the six groups was carried out and the obtained results are given below in Tables 76 and 77.

Table 76 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor Q_1

Source of Variance	df	Ss	Variance	F
Among the Means	5	2358.57	471.71	18.94 *
Within Treatments	47	1170.9	24.91	

* Significant at 0.01 level.

Table 77 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor Q_1

Source of Variance	df	Ss	Variance	F
Among the Means	5	2456.65	491.33	18.97 *
Within Treatments	47	1217.22	25.9	

* Significant at 0.01 level

The above tables show that the F ratios are 18.94 and 18.97 for G_{1-11} and G_{1-16} respectively and that the groups differed significantly among themselves even after adjustment for the differences in the personality factor scores. The following Table 78 gives the results of Duncan's multiple range test for G_{1-11} which reveal the pattern of differences that existed at the 11th practice teaching lesson level :

Table 78 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor Q_1

Groups Means	(1) TRT.L 10.50	(2) TRT.H 10.94	(3) MTS.H 19.60	(4) MTS.L 21.12	(5) MTR.H 25.76	(6) MTR.L 27.57	SSR at .05 level
(1) 10.50		0.44	9.10	10.62	15.26	17.07	R_2=4.76
(2) 10.94			8.66	10.18	14.82	16.63	R_3=5.02
(3) 19.60				1.52	6.16	7.97	R_4=5.17
(4) 21.12					4.64	6.45	R_5=5.29
(5) 25.76						1.81	R_6=5.31
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly.

The Table 78 shows that so far as the TRT group was concerned, the TRT.L and the TRT.H groups did not differ significantly from each other which indicates that the development of general teaching competence through traditional training coupled with autoinstructional material was not significantly affected by personality Factor Q_1 as a covariate. The effect of the factor as a covariate is apparent in the microteaching groups where an overlapping pattern of differences developed among the groups. The MTS.H and the MTS.L groups did not differ significantly from each other but the MTS.H group differed significantly from the MTR.H and the MTR.L groups. Similarly the MTS.L and the MTR.H group did not differ significantly but the MTS.L group differed significantly from the MTR.L group. The MTR.H and the MTR.L groups did not differ significantly. This shows that, when groups were divided according to higher or lower scores on personality Factor Q_1, the original significant differences between the MTS and the MTR groups (Table 5) gave way to the above-mentioned pattern of differences. Thus, it can be seen that personality factor Q_1 significantly affected the original differences.

When traditional practice teaching followed the microteaching training, this overlapping pattern of differences was replaced by differences identical to the original ones (Table 6). Table 79 below gives the results of Duncan's multiple range test for G_{1-16} which reveals the above change.

Table 79 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor Q_1 .

Groups Means	(1) TRT.L 14.06	(2) TRT.H 15.51	(3) MTS.H 26.53	(4) MTS.L 26.74	(5) MTR.H 29.70	(6) MTR.L 31.24	SSR at .05 level
(1) 14.06		1.45	12.47	12.68	15.64	17.18	R_2=4.85
(2) 15.51			11.02	11.23	14.19	15.73	R_3=5.11
(3) 26.53				0.21	3.17	4.71	R_4=5.27
(4) 26.74					2.96	4.50	R_5=5.39
(5) 29.70						1.54	R_6=5.49
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly

The above table shows that, considering the development of general teaching competence at the 16th practice teaching lesson level, the microteaching groups did not differ significantly from one another even when divided according to higher or lower factor level. Thus, it seems that when microteaching training under simulated condition as well as in real situation is followed by a traditional practice teaching training, personality Factor Q_1 ceases to be effective as a covariate. In the case of the TRT group also, the TRT.H and the TRT.L groups did not differ significantly at this level of acquisition.

So far as the development of general teaching competence from the 11th to the 16th practice teaching lesson is concerned,

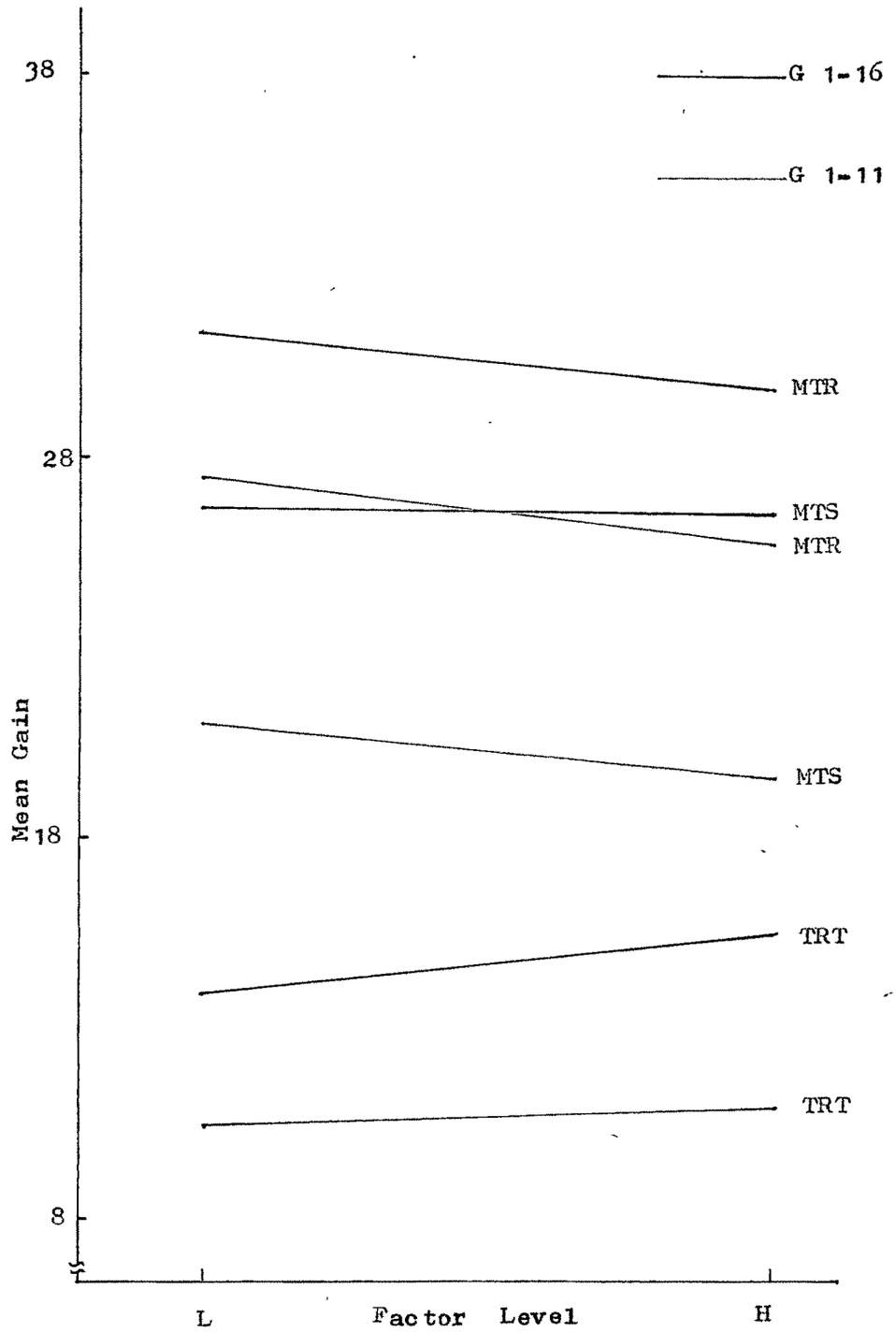

Fig. 22 Personality factor Q_1 and gain in GTC

Figure 22 shows that, in the case of the MTR group, the development was uniform for the higher as well as the lower factor level groups. In the MTS and the TRT groups, however, the higher factor level groups of trainees showed a trend towards acquiring a slightly greater general teaching competence than the corresponding lower level groups. The study of Gupta (1976) has shown that high effective teachers are conservative and respect established facts (Q_1-). So far as training and acquisition of general teaching competence is concerned, it can be seen that though not significantly higher, the lower factor level groups in the MTS and the MTR groups had a higher group mean for G_{1-11} and G_{1-16}. It is probable that conservative type of trainees (Q_1-) respected the idea of microteaching training technique, tolerated well the hurdles encountered in the new training approach and thus tended to acquire a greater general teaching competence. As against this, for the critical and free-thinking type of trainees (Q_1+) it is probable that they did not accept the new situation as it was, were critical about the training approach and thus showed a lesser acquisition of general teaching competence.

4.9.13 Personality Factor Q_2 : Personality Factor Q_2 tells whether a person is group-dependent or self-sufficient. A high score on this factor means that the person is self-sufficient. He is resourceful, can work alone and prefers his own decisions. As against this, a low score indicates that the person is not self-sufficient but dependent on group. He likes to join with other

persons in doing work or taking up new things and is a good follower. Gupta's study (1976) has shown that high effective teachers are group dependent.

The following two tables give the results of analysis of covariance for G_{1-11} and G_{1-16}.

Table 80 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor Q_2.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2368.63	473.73	18.61 *
Within Treatments	47	1196.34	25.45	

* Significant at 0.01 level

Table 81 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor Q_2.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2565.69	493.14	18.79 *
Within Treatments	47	1233.7	26.25	

* Significant at 0.01 level

The above two tables show that for both the levels of acquisition of general teaching competence, the obtained F ratios are highly significant which indicates that the group means differed significantly among themselves even after adjustment for differences in the scores of personality factor. Duncan's multiple range test revealed the significant differences that existed among the groups and the following Table 82 presents the results of the test for G_{1-11}.

Table 82 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor Q_2.

Groups	(1) TRT.L	(2) TRT.H	(3) MTS.L	(4) MTS.H	(5) MTR.L	(6) MTR.H	SSR at .05 level
Means	10.44	10.96	20.38	20.66	25.83	28.03	
(1) 10.44		0.52	9.94	10.22	15.39	17.59	R_2=4.82
(2) 10.96			9.42	9.70	14.87	17.07	R_3=5.08
(3) 20.38				0.28	5.45	7.65	R_4=5.24
(4) 20.66					5.17	7.37	R_5=5.36
(5) 25.83						2.20	R_6=5.46

(1) (2) (3) (4) (5) (6) *

* Groups underlined do not differ significantly.

The above table shows that the difference between the group means of the TRT.L and the TRT.H groups was 0.52, that between the group means of the MTS.L and the MTS.H groups was 0.28 and that between the group means of the MTR.L and the MTR.H groups was 2.2. All these differences were not significant at 0.05 level thereby showing that division into higher or lower factor level groups was not effective in developing any new differences among the groups. Considering the three training groups as whole, they differed significantly from one another which was in accordance with the results given in Table 5. Thus it is obvious that personality Factor Q_2 was not effective as a covariate so far as the development of general teaching competence through the three training approaches was concerned.

The results of Duncan's multiple range test for G_{1-16} also indicated the same thing. The following Table 83 gives the results

of the test for G_{1-16}.

Table 83 : Duncan's Multiple Range Test for Differences Among G_{1-16} Means : Groups divided according to Personality Factor Q_2.

Groups Means	(1) TRT.L 14.61	(2) TRT.H 14.77	(3) MTS.H 26.33	(4) MTS.L 27.05	(5) MTR.L 29.83	(6) MTR.H 31.56	SSR at .05 level
(1) 14.61		0.16	11.72	12.44	15.22	16.95	R_2=4.90
(2) 14.77			11.56	12.28	15.06	16.79	R_3=5.17
(3) 26.33				0.72	3.50	5.23	R_4=5.33
(4) 27.05					2.78	4.51	R_5=5.45
(5) 29.83						1.73	R_6=5.55
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly.

The Table 83 above shows that the difference between the group means of the TRT.L and the TRT.H groups was 0.16 which was not significant at 0.05 level. In case of the microteaching groups, it can be observed that the MTS.H, the MTS.L, the MTR.H and the MTR.L groups did not differ significantly from the another. This is in accordance with the results given in Table 6 viz. the MTS and the MTR groups did not differ significantly at the 16th practice teaching lesson level. Thus, it can be said that the development of general teaching competence during the traditional practice teaching that followed the microteaching training was not affected by the personality factor level.

A comparison of the acquisition of general teaching competence by the three groups as shown in Figure 23 reveal that, in the case

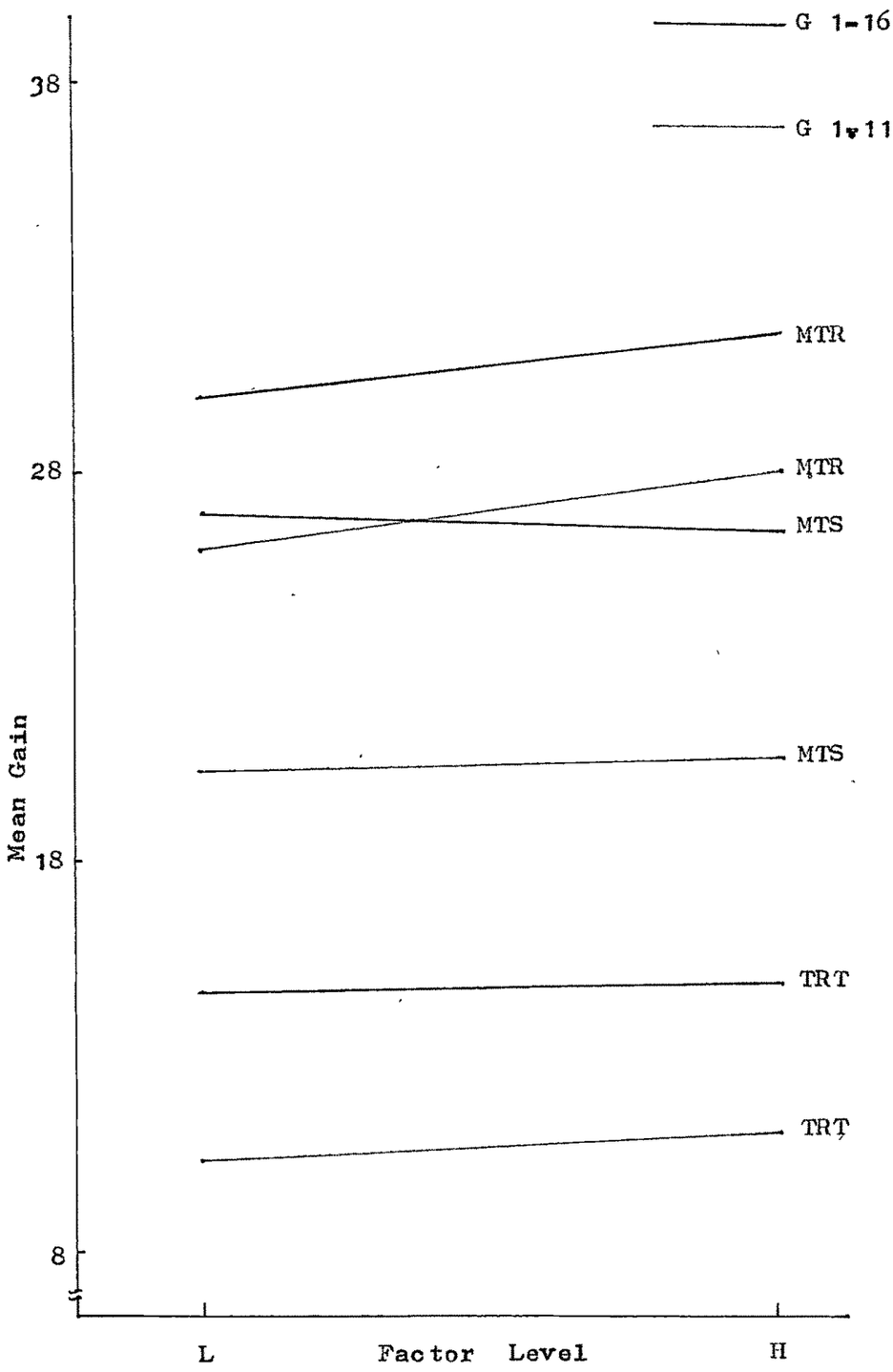

Fig. 23 Personality factor Q_2 and gain in GTC

of the TRT group, the pair of lines is almost horizontal and parallel which indicates that no significant differences existed between the higher and the lower factor level groups and the development of general teaching competence from the 11th to the 16th practice teaching lesson was uniform for both the groups. Same is true for the MTR group with only the difference that the higher factor level trainees tended to acquire a greater degree of general teaching competence. As against this, in the MTS group, the development of general teaching competence from the 11th to the 16th practice teaching lesson was slightly more for the lower factor level trainees.

The trainees who were self-sufficient and resourceful (Q_2+) tended to acquire a greater degree of general teaching competence, in the MTR group. It is probable that, working in a small group with controlled condition, the self-sufficient trainees got a situation better suited to their nature, had greater chances to be resourceful and this resulted into a greater acquisition of general teaching competence as compared with the corresponding group of trainees in the TRT and the MTS groups.

4.9.14 Personality Factor Q_3 : The score on personality factor Q_3 tells whether a person is casual or controlled. A low score of this factor indicates that the person is casual in his ways and is careless of laid down rules. He follows his own urges and is easy going in nature. As against this, a high score of this factor indicates a person who is self-disciplined. He is controlled in his ways of life and is socially precise as he respects protocol.

The three training groups after being divided into six groups according to the higher or lower scores of the personality factor, were studied for differences through analysis of covariance. The following Tables 84 and 85 give the results for G_{1-11} and G_{1-16} :

Table 84 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor Q_3

Source of Variance	df	Ss	Variance	F
Among the Means	5	2204.99	440.98	17.63 *
Within Treatments	67	1175.77	25.02	

* Significant at 0.01 level

Table 85 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor Q_3.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2336.74	467.35	17.98 *
Within Treatments	47	1222.06	26.0	

* Significant at 0.01 level.

The above two tables showing the results of the analysis of covariance reveal that the F ratios are 17.63 and 17.98 for G_{1-11} and G_{1-16} respectively. These ratios are highly significant which indicates that the groups differed significantly even after allowances were made for differences in the personality factor scores. In order to pin-point the significant differences among the groups, Duncan's multiple range test was used and Table 86 on the next page shows the results of the test for G_{1-11}.

Table 86 : Duncan's Multiple Range Test for Differences among G_{1-11} Means : Groups divided according to Personality Factor Q_3 .

Groups Means		(1) TRT.H 9.03	(2) TRT.L 12.31	(3) MTS.L 20.47	(4) MTS.H 20.79	(5) MTR.H 25.80	(6) MTR.L 27.41	SSR at .05 level
(1)	9.03		3.28	11.44	11.76	16.77	18.38	R_2=4.73
(2)	12.31			8.16	8.48	13.49	15.10	R_3=4.99
(3)	20.47				0.32	5.33	6.94	R_4=5.14
(4)	20.79					5.01	6.62	R_5=5.26
(5)	25.80						1.61	R_6=5.36

(1) (2) (3) (4) (5) (6) *

Groups underlined do not differ significantly.

The above Tablr 86 shows that the difference between the group means of the TRT.H and the TRT.L groups was 3.28, that for the MTS.H and the MTS.L groups was 0.32 and that for the MTR.L and the MTR.H groups was 1.61. All these differences were not significant at 0.05 level which shows that so far as any one individual training approach was concerned, a division into lower or higher factor group did not give rise to any new differences. The two microteaching groups as whole also differed significantly from each other. Thus even after division according to factor level, the original pattern of differences among the TRT, the MTS and the MTR groups (Table 5) is retained as before. Thus it is clear that, at the 11th practice teaching lesson level, personality Factor Q_3 had no significant effect as a covariate on any of the three training approaches.

That the personality Factor Q_3 had no significant effect on the development of general teaching competence was also true for the acquisition of general teaching competence at the 16th practice teaching lesson level. The following Table 87 gives the results of Duncan's multiple range test for G_{1-16} :

Table 87 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor Q_3

Groups	(1)	(2)	(3)	(4)	(5)	(6)	SSR at
Means	TRT.H 12.95	TRT.L 16.26	MTS.H 26.56	MTS.L 26.93	MTR.H 29.44	MTR.L 31.50	.05 level
(1) 12.95		3.31	13.61	13.98	16.49	18.55	R_2=4.85
(2) 16.26			10.30	10.67	13.18	15.24	R_3=5.11
(3) 26.56				0.37	2.88	4.94	R_4=5.27
(4) 26.93					2.51	4.57	R_5=5.39
(5) 29.44						2.06	R_6=5.49
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly

The above table shows that the difference between the group means of the TRT.H and the TRT.L groups was 3.31 and was not significant at 0.05 level. The TRT group as whole also differed significantly from the other four microteaching groups. In the case of the microteaching groups, however, the MTS.L, the MTS.H, the MTR.L and the MTR.H groups did not differ significantly among themselves. This is identical with the facts given in Table 6, i.e. the MTS and the MTR groups did not differ significantly at the 16th practice teaching lesson level. Thus, it can be said that

even when traditional training followed the microteaching training, the development of general teaching competence during the latter phase of the training i.e. from the 11th to 16th practice teaching lesson was not significantly affected by personality Factor Q_3 as a covariate.

A comparison of the development of general teaching competence for the three groups is given in Figure 24 which shows that for the MTR group as well as for the TRT group, the pairs of lines representing the groups are parallel which ascertains that the development in the latter phase of the training programme was the same for the higher as well as the lower factor level trainees. The lines for the TRT group are more slant as compared to those for the MTR and the MTS groups which reveal that, though the differences were not significant, the lower factor level trainees benefitted more from the training which is shown by their greater group mean at the 11th and 16th practice teaching lesson levels.

Though not significantly differing, it is a fact that the trainees who were casual and who did not care for laid down rules and followed their own urges (Q_3-) did better when trained through traditional training coupled with autoinstructional material. Gupta (1976) has shown that high effective teachers had a high score on this Factor (Q_3+), and the results obtained in the present study, as discussed above, show a reverse trend so far as development of general teaching competence during training is concerned. This trend is also seen in the MTR group. A probable reason for this can be that those trainees worked with whole class or a group of real pupils, had a better

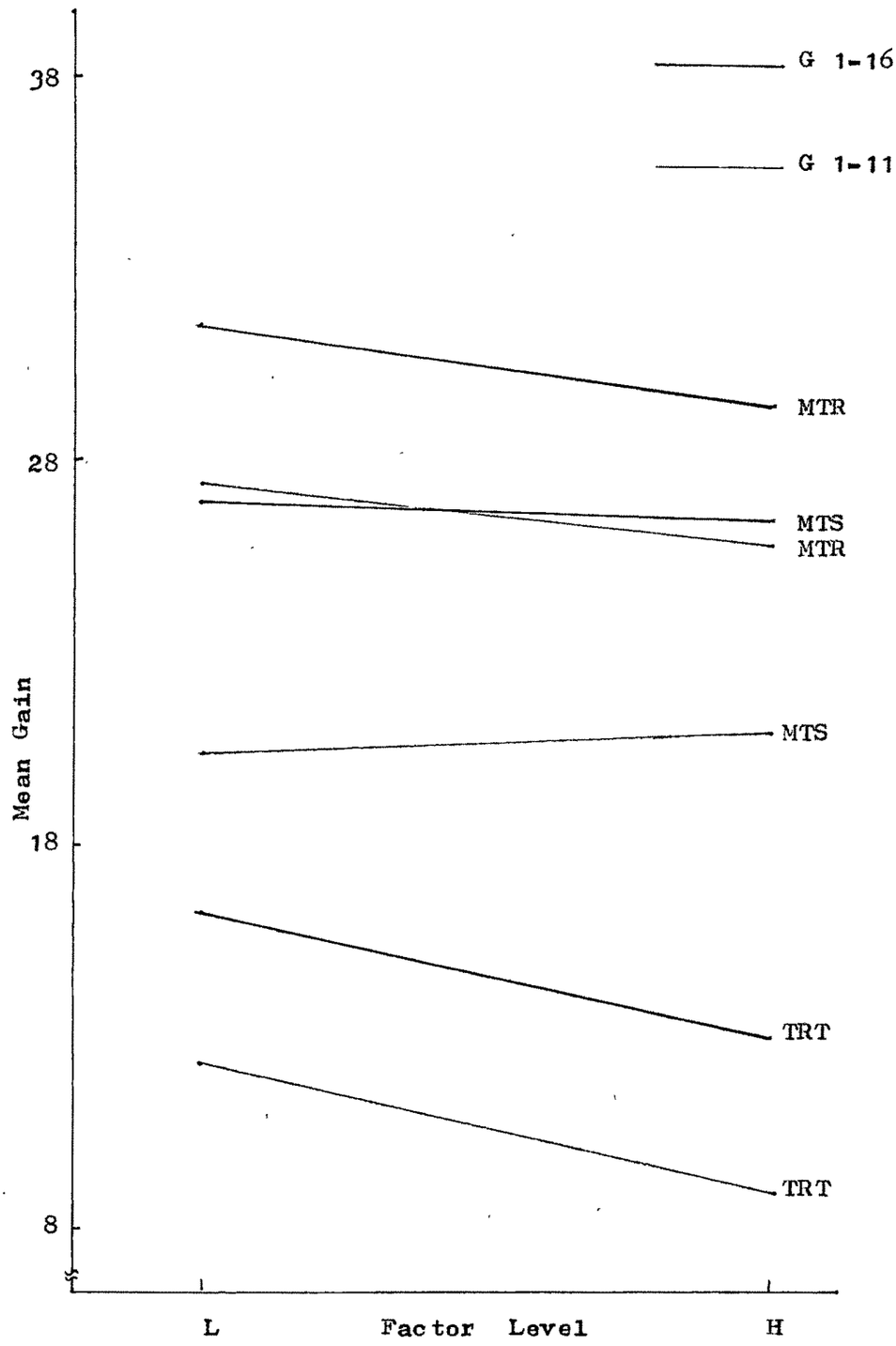

Fig. 24 Personality factor Q_3 and gain in GTC

situation to follow their own urges while teaching and this resulted into a greater development for the trainees of the lower factor level as compared to the trainees in the higher factor level group.

4.9.15 Personality Factor Q_4 : Scores on this personality factor tell whether a person is relaxed or tense. Low scoring persons on this factor are of relaxed type, they are tranquil by nature and are unfrustrated. As against this, high score on this factor indicates a person who is tense. Such a person is overwrought, is fretful and is driven by his temper. It is a commonly accepted fact that a relaxed person (Q_4 -) would be a better teacher and the study of Gupta (1976) has supported this notion with the finding that effective teachers are more relaxed and score less on this factor.

The following two tables give the results of the analysis of covariance for G_{1-11} and G_{1-16} :

Table 88 : Analysis of Covariance for G_{1-11} : Groups divided according to Personality Factor Q_4.

Source of Variance	df	Ss	Variance	F
Among the Means	5	2187.54	437.51	17.42 *
Within Treatments	47	1179.94	25.11	

* Significant at 0.01 level

Table 89 : Analysis of Covariance for G_{1-16} : Groups divided according to Personality Factor Q_4

Source of Variance	df	Ss	Variance	F
Among the Means	5	2460.39	492.08	19.44 *
Within Treatments	47	1189.37	25.31	

* Significant at 0.01 level

The Table 88 and 89 show that the F ratios are 17.42 and 19.44 for G_{1-11} and G_{1-16} respectively. These highly significant ratios suggest that the six groups differed significantly at both the levels of the development of general teaching competence even after the group means were adjusted for differences in the personality factor scores. The significant differences that existed among the groups were found through Duncan's multiple range test. The following Table 90 gives the results of the test for Q_{1-11} :

Table 90 : Duncan's Multiple Range Test for Differences Among G_{1-11} Means : Groups divided according to Personality Factor Q_4.

Groups Means	(1) TRT.H 10.45	(2) TRT.L 11.63	(3) MTS.H 18.97	(4) MTS.L 22.68	(5) MTR.H 26.10	(6) MTR.L 26.81	SSR at .05 level
(1) 10.45		1.18	8.52	12.23	15.65	16.36	R_2=4.82
(2) 11.63			7.34	11.05	14.47	15.18	R_3=5.08
(3) 18.97				3.71	7.13	7.84	R_4=5.23
(4) 22.68					3.42	4.13	R_5=5.36
(5) 26.10						0.71	R_6=5.46
	(1)	(2)	(3)	(4)	(5)	(6)	*

* Groups underlined do not differ significantly.

The Table 90 shows that in the TRT group, the TRT.L and the TRT.H groups did not differ significantly which suggests that the development of general teaching competence through the traditional training coupled with autoinstructional material was not affected by the lower or higher factor level in the trainees. The effect of the personality factor can be readily seen on the microteaching groups where it can be seen that the MTS.H group did not differ significantly from the MTS.L group but differed significantly from the MTR.L and the MTR.H groups. Whereas the MTS.L, the MTR.H and the MTR.L groups did not differ significantly in their group means. This shows that so far as microteaching training is concerned, personality factor Q_4 was effective as a covariate during the development of general teaching competence through microteaching training under simulated condition.

The following Table 91 gives the results of Duncan's multiple range test for G_{1-16}.

Table 91 : Duncan's Multiple Range Test for Differences among G_{1-16} Means : Groups divided according to Personality Factor Q_4

Groups Means	(1) TRT.L 12.90	(2) TRT.H 15.71	(3) MTS.L 26.37	(4) MTR.L 27.21	(5) MTS.H 27.45	(6) MTR.H 32.86	SSR at .05 level
(1) 12.90		2.81	13.47	14.31	14.55	19.96	R_2=4.85
(2) 15.71			10.66	11.50	11.74	17.15	R_3=5.11
(3) 26.37				0.84	1.08	6.49	R_4=5.27
(4) 27.21					0.24	5.65	R_5=5.39
(5) 27.45						5.41	R =5.49
	(1)	(2)	(3)	(4)	(5)	(6) *	

* Groups underlined do not differ significantly.

The Table 91 shows that even at the 16th practice teaching lesson level, the TRT group as whole differed significantly from the other training groups. The MTS.L, the MTR.L and the MTS.H groups did not differ significantly whereas the MTS.L and the MTR.L groups differed significantly from the MTR.H group. The table reveals that the order of means for G_{1-11} had changed to a large extent in the case of the microteaching groups and this suggests that the personality factor Q_4 was effective as a covariate in the development of general teaching competence during the latter phase of training i.e. when the traditional practice teaching followed the microteaching training.

Comparing the above two tables, it is revealed that the lower factor level group of trainees had a higher mean gain for all the three training approaches at the 11th practice teaching lesson level but it was not so at the 16th practice teaching lesson level. At the 16th practice teaching lesson level, the lower factor level group of trainees had a lower mean gain for all the three training approaches. This is also apparent in Figure 25 through the fact that the pairs of lines in each of the three groups have different slopes. Comparing the pairs for different groups from the figure it is clear that the group of trainees that were tense and fretful (Q_4+) benefitted more from the traditional practice teaching that followed the initial phase of training through the three approaches. That the relaxed and tranquil group of trainees (Q_4-) gained more in general

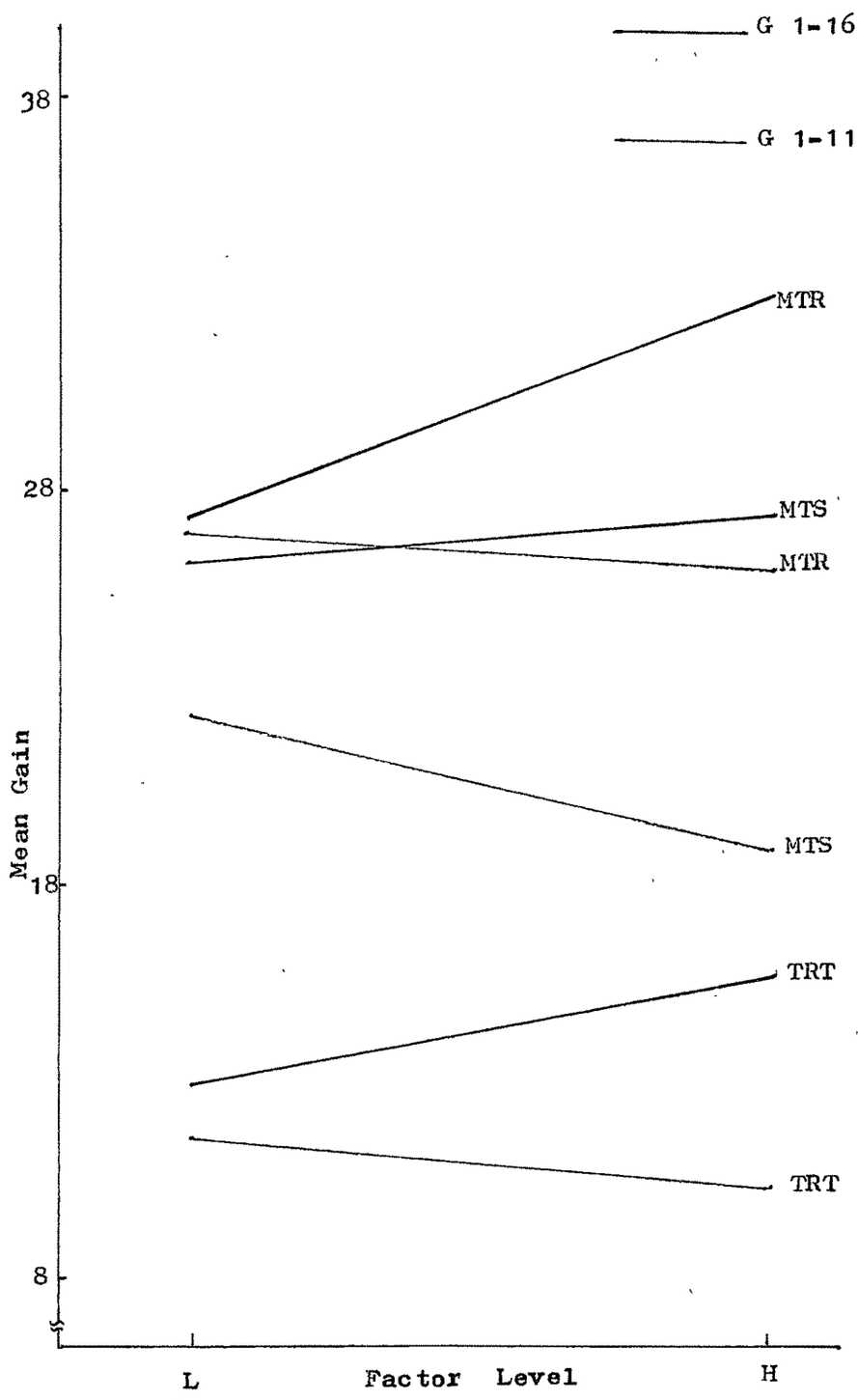

Fig. 25 Personality factor Q_4 and gain in GTC

teaching competence during the initial phase of the training through the three training approaches can be readily explained by the fact that success in teaching is significantly related to a lower personality factor Q_4 (Gupta, 1977). As against this, the above observation from Figure 25 that the higher factor level group of trainees benefitted more from the latter phase of the training can be explained by a probable reason that their tense nature was more effective during the initial training phase and hence they showed lesser acquisition but gradually they got set in the pattern of training process and thus could achieve a higher gain in general teaching competence during the latter phase of the training.

To conclude the discussion of the above sections about the effect of personality factors of the development of general teaching competence through the three training approaches, it can be said that out of 15 factors that were considered above, 13 factors were found to be affecting the development of general teaching competence in one way or the other. Factors A, C, E, F, H, I, L, N, O and Q_4 affected the development of general teaching competence only when the trainees were trained through microteaching approach either under simulated condition or in real situation. Factors G and Q_1 affected the development of general teaching competence through the two microteaching approachs, but their effect was limited to the initial phase of training only i.e. only the microteaching training. In the case

of Factor M, it was found that it affected the development of general teaching competence through the traditional training coupled with autoinstructional material only and not the micro-teaching training. The only two factors that has no significant effect on the development of general teaching competence through the three training approaches were the Factors Q_2 and Q_3. Thus, it can be summed up as a whole that personality factors were effective in the development of general teaching competence and thus hypothesis No. 11 is rejected with the exception of personality factors Q_2 and Q_3.

9.10 Conclusion

The development of general teaching competence through the three training approaches viz. (i) traditional training coupled with autoinstructional material, (ii) microteaching training under simulated condition and (iii) microteaching training in real situation, and the effects of covariates like sex, SES, intelligence, anxiety, teacher attitude, nAch and personality factors on this development of general teaching competence through the three training approaches, has been discussed in the foregone sections.

So far as the development of general teaching competence through the three training approaches was concerned, during the first phase of the training i.e. from pre-training to the 11th practice teaching lesson level, when G_{1-11} for the three groups were compared, the results have shown that all the three groups

differed significantly from one another and that the highest gain was in the MTR group and the least for the TRT group. Thus, the development of general teaching competence during this phase of the training was significantly maximum for the MTR group. When traditional practice teaching followed the microteaching training and when development of general teaching competence from pre-training to the 16th practice teaching lesson level i.e. G_{1-16} for the three groups were compared, it was found that the TRT group differed significantly from the other two groups but the two microteaching groups i.e. the MTS and the MTR groups did not differ significantly. Thus, the results showed that for micro-teaching training only, training in real situation was more effective but when microteaching training was followed by traditional practice teaching, both the microteaching approaches had similar effect on the development of general teaching competence.

The foregone sections have also discussed in detail the effect of various covariates on the development of general teaching competence and the levels of covariates that would prove more helpful for the three training approaches. The results have shown that the personality Factor Q_2 (group - dependent, Q_2 - ; self-sufficient, Q_2+) and Q_3 (Casual, Q_3 - ; controlled, Q_3+) were not effective as covariates in the development of general teaching competence through all the three training approaches. It was also observed that the personality factor M (practical, M-; imaginative, M+) was effective as a covariate for

traditional training only and not for microteaching training. The group of practical (M+) trainees gained significantly more in general teaching competence than the group of imaginative (M-) trainees. All the other covariates were found to have significant effect on the development of general teaching competence through the two microteaching approaches. Different covariates had different effects on this development and as a result higher and lower levels of the covariates produced various equalities and inequalities when their effect on the development through the two microteaching approaches was considered. The following two tables give in brief the picture of this effect at G_{1-11} level. Table 92 shows how each covariate affected the development of general teaching competence to give rise to various equal affects as well as differences among the higher and the lower groups in the MTS and the MTR groups. Table 93 shows various pairs of groups where the development of general teaching competence was equal and gives the covariates related to the various equalities.

The following salient effects of the covariates on the development of general teaching competence in microteaching groups is apparent from the ~~above~~ two tables (Table 92 and Table 93).

Table 92 : Brief Picture of the Effect of Covariate on the Development of GTC Through Microteaching

Covariate	Differences in Groups
1. Sex	MTS.F = MTR.F MTS.M < MTR.M
2. SES	MTS.L = MTR.H MTS.H < MTR.L
3. IQ	(MTS = MTR.H) < MTR.L
4. Anxiety	MTS.H = MTR.H MTS.L < MTR.L
5. Teacher Attitude	(MTS = MTR.H) < MTR.L
6. nAch	(MTS = MTR.L) < MTR.H
7. P.F. A	MTS.L = MTR.H MTS.H < MTR.L
8. P.F. C	MTS.H = MTR.H MTS.L < MTR.L
9. P.F. E	MTS.L = MTR.H MTS.H < MTR.L
10. P.F. F	MTS.H < (MTS.L = MTR)
11. P.F. G	MTS.H = MTR.L MTS.L < MTR.H
12. P.F. H	MTS.H = MTR.H MTS.L < MTR.L
13. P.F. I	MTS.H = MTR.H MTS.L < MTR.L
14. P.F. L	MTS.L < (MTS.H = MTR.L) < MTR.H
15. P.F. H	Effective only for the TRT group. TRT.H < TRT.L
16. P.F. N	MTS.H = MTR.H MTS.L < MTR.L
17. P.F. O	MTS.L = MTR.L MTS.H < MTR.H
18. P.F. Q_1	MTS.L = MTR.H MTS.H < MTR.L
19. P.F. Q_2	Not effective
20. P.F. Q_3	Not effective
21. P.F. Q_4	MTS.L = MTR.H MTS.H < MTR.L

Table 93 : Equality in Acquisition of GTC and Related Covariates

No.	Relation	Covariates
1.	MTS.F = MTR.F	Sex
2.	MTS = MTR.L	nAch.
3.	MTS = MTR.H	I.Q., Teacher Attitude
4.	MTR = MTS.L	Factor F
5.	MTS.L = MTR.L	Factor O
6.	MTS.H = MTR.H	Anxiety, Factors C, H, I, N.
7.	MTS.H = MTR.L	Factors G, L.
8.	MTS.L = MTR.H	SES, Factors A, E, Q_1 , Q_4

1. Male trainees showed significantly less development of general teaching competence when trained through microteaching under simulated condition but this was not true for the female trainees.
2. Microteaching training in real situation for low nAch group of trainees was equally effective as microteaching training under simulated condition.
3. Microteaching training in real situation for high IQ and high teacher attitude group of trainees was equally effective as microteaching training under simulated condition.
4. For trainees who were sober and serious (F-), microteaching training under simulated condition was equally effective as microteaching training in real situation.
5. For the trainees who were placid, confident and self-assured (O-), microteaching training under simulated condition and microteaching training in real situation were equally effective.

6. For the trainees who had higher anxiety level and were emotionally stable (C+), uninhibited (H+), tender-minded (I+) and shrewd (M+), both the microteaching approaches were equally effective.

7. Microteaching training under simulated condition for the trainees who were conscientious (G+) and self-opiniated (L+) was equally effective as microteaching training in real situation for the trainees who were expidient (G-) and adaptable (L-).

8. Microteaching training under simulated condition for the trainees who were having SES and were reserved (A-), obedient (E-), Conservative (Q_1-) and relaxed (Q_4-) was equally effective as microteaching training in real situation for the trainees who were having high SES and were out-going (A+), assertive (E+), experimentally (Q_1+) and tense (Q_4+).

In the present chapter, the researcher has discussed in detail the development of general teaching competence through the three training approaches and the effect of various covariates on this development. The chapter that follows briefly reviews the work done in the present investigation, gives major findings of the study and suggests further research contingent upon the findings of the study.
