CHAPTER V

* * * * * * ANALYSIS AND INTERPRETATION OF DATA

5.0.0 Introduction

The data obtained, as a result of conducting the experiment described in the preceeding chapter, was taken for analysis and interpretation in view of the objectives of the present investigation. Referring back to the objectives as presented in Chapter I, it may be noted that the purpose behind the present investigation has been explicited in terms of three objectives. These objectives were concerning development of integration stratagey, establishing the effectiveness, and to find out the effect of independent variables, namely, skill comprehension, attitude towards teaching, attitude towards micro-teaching, qualification, academic merit, free availability of study time, and teaching experience on the effectiveness of stratagey. This chapter seeks to analyse and interpret the data for realising these objectives one by one. However, of these three objectives, the first objective 'to develop integration stratagey for integrating the seven teaching skills practiced through microteaching training for teacher training course' has already been achieved as discussed in chapter IV. Thus, without repetition of presentation on the first objective, the present chapter consists only two main parts, one each on the analyses and interpretation of data, for realising the second and third objectives. Since the analyses are of a statistical nature, they have an underlying process of hypothesis testing.

SECTION - I

ESTABLISHING EFFECTIVENESS OF THE INTEGRATION STRATAGEY

Under this objective, which incidently is the second among the three objectives of the study, it is desired to establish the effectiveness of the stratagey on an independent basis. The objective is specified as follows :

Objective :

To establish the effectiveness of the integration stratagey in terms of :

(1) Content Validity

(2) Teacher Trainees performance in classroom teaching for integration

(3) Teacher trainees reactions towards integration stratagey

Guided by the above three criteria the effectiveness of the integration stratagey was established, the details of which has been provided in the following paragraphs.

5.1.1 Content Validity :

Content validity of the integration stratagey have been established in terms of ensuring comprehensiveness of content and technique used, judgement by experts on accuracy as well as presentation, and laboratory tryout of certain components of the stratagey. Details regarding this has been presented in Chapter IV.

Validity in terms of Teacher Trainee's Performance and Their Reactions :

For the validation of integration in terms of teacher trainees performance and their reactions towards integration, following hypotheses are framed to facilitate the analysis and testing.

Hypotheses :

1. There will be no significant difference between the pre test and post test scores on ability for integrating the teaching skills of teacher trainees measured in terms of :
   (a) Skill interaction by 'skill interaction analysis category system';
   (b) General teaching competence;
   (c) Comprehension teaching effectiveness.
2. There will be no favourable reactions of the student teachers on various components of integration stratagey in terms of their presentation, and usefulness.

The proceeding pages are presented with the analysis of data for hypothesis 1 and then for hypothesis 2.

5.1.2 Performance in Classroom Teaching for Integration of Teaching Skills :

The data is of two types namely, in the form of skill categories ocurring at pre and post tests in term of sequence and amount, and rating on two scales general teaching competence and comprehensive teaching effectiveness.

The data collected during pre test and post test teaching performance is from three observation tools. They are, skill interaction analysis category system, Baroda General Teaching Competence Scale and Comprehensive Teaching Effectiveness Scale. The analyses of the data is presented one by one, tool wise and interpretations are collectively formed to establish effectiveness of integration stratagey.

Analysis for Interaction Category Data :

Changes in amount of time from pre test to post test for different categories is presented in Table 5.1. All these categories are tested for the significant change from pre test to post test with 'Willcoxin Matched Pair Sign Test'. Similarly the Table 5.2 presents, changes in amount of time from pre test to post test for 'skill categories to rest' and from 'different skill categories to specific skill category'. This data is also tested for the significance of difference. The detailed procedure followed for analysis and testing the significance are presented in the Section V of Chapter IV.

Observations :

The detailed study of Table 5.1 and 5.2 presents following major observations for interpretations :

1. There are only 12 categories six from each table out of 37, showing significant changes at 0.05 level of significance.

Table :5.1: Change in Amount of Time from Pre Test to Post Test for Different Skill Components

(N = 13)

Categories	Test		Percentage from Pre test	Significance level
	Pre	Post		
Blackboard work	4.98	6.74	+ 35.34	0.05
Questioning sustained	3.84	1.72	- 55.21	0.01
Questioning to Student Response	9.66	7.27	- 24.74	0.05
Questioning to Repetition	1.1	0.44	- 60.0	0.05
Explanation to Student Response	1.23	0.3	- 75.61	0.05
Student Response to Explanation	3.57	4.1	- 25.41	0.05
Questioning to Explanation	1.1	1.85	68.18	
Questioning to Blackboard work	1.79	2.56	43.02	
Explanation to Questioning	4.69	6.09	29.85	
Explanation ⁄ sustained	17.69	18.16	+ 2.66	
Explanation to Blackboard work	7.35	6.77	- 7.89	
Student response to Questioning	4.1	3.57	- 12.93	
Student response sustained	4.23	3.04	- 28.13	
Student response Repetition	2.71	2.02	- 25.46	
Blackboard work to Questioning	2.66	3.13	- 15.02	
Blackboard work to Explanation	7.23	7.42	2.63	
Blackboard work to Student Response	1.17	1.39	18.80	
Repetition to Questioning	1.39	0.98	- 29.49	
Repetition to Blackboard work	0.76	0.69	- 9.2	
Managerial Work	2.25	5.21	131.56	
Dictation	0.71	0.41	- 42.25	

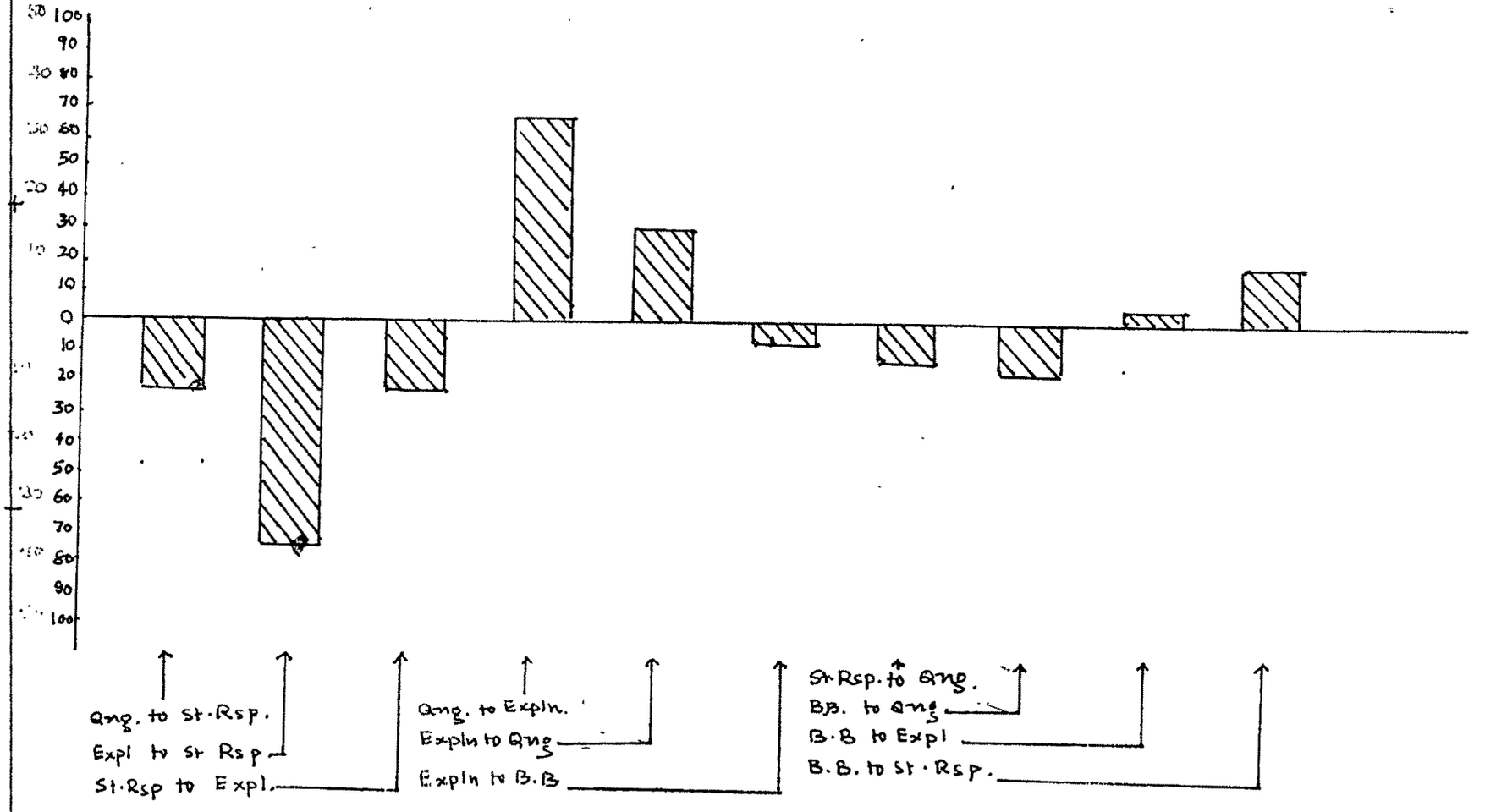
+ = Positive - = Negative

Table :5.2: Change in Amount of Time from Pre Test to Post Test for Specific Skill Components Categories to Rest of Skill Components and Reciprocal. (N=13)

Categories	Test		% Change from Pre Test	Significance level
	Pre	Post		
Questioning to Rest	17.87	14.22	- 20.43	0.01
Explanation to Rest	32.28	35.54	10.07	-
Student Response to Rest	17.98	14.32	- 20.36	-
Blackboard Work to Rest	17.61	18.99	7.84	-
Repetition to Rest	5.93	4.06	- 31.54	0.05
Dictation to Rest	1.66	1.10	- 33.74	-
Managerial work to Rest	3.94	7.40	87.82	-
Movements to Rest	2.37	4.47	88.61	0.05
Rest to Questioning	18.47	16.00	- 13.37	-
Rest to Explanation	32.37	34.21	5.68	-
Rest to Student Response	17.84	13.05	- 26.85	0.05
Rest to Blackboard	17.53	18.91	7.87	-
Rest to Repetition	6.24	3.90	- 37.5	0.05
Rest to Dictation	1.93	1.16	- 39.9	-
Rest to Managerial Work	3.21	7.64	138.00	-
Rest to Movement	2.06	5.23	153.88	0.05

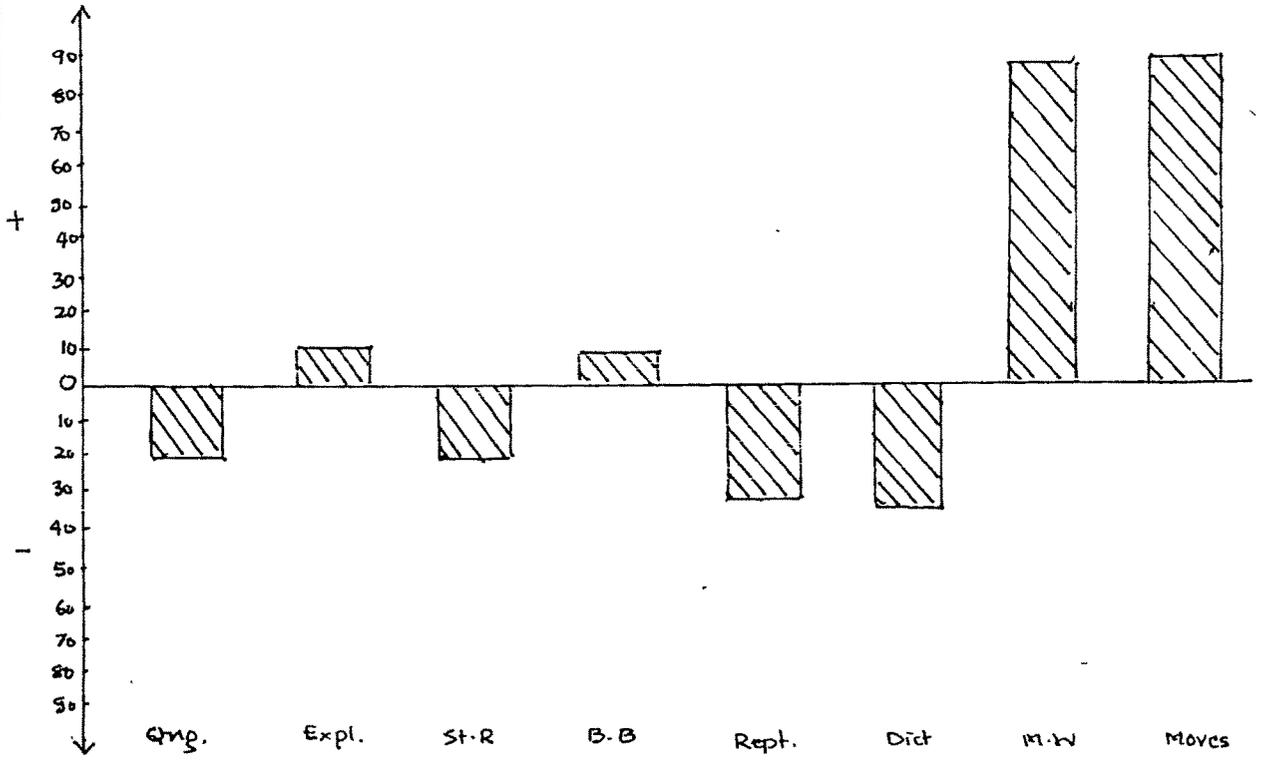
Tested with Wilcoxin Matched Pair Test

FIG 5.1 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION BETWEEN DIFFERENT SKILL CATEGORY PERCENTAGE FREQUENCEY FROM PRE TEST TO POST TEST



DATA TABLE: 5.1

FIG 5.2 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCEY



DATA TABLE: 5.2

FIG 5.3 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCEY

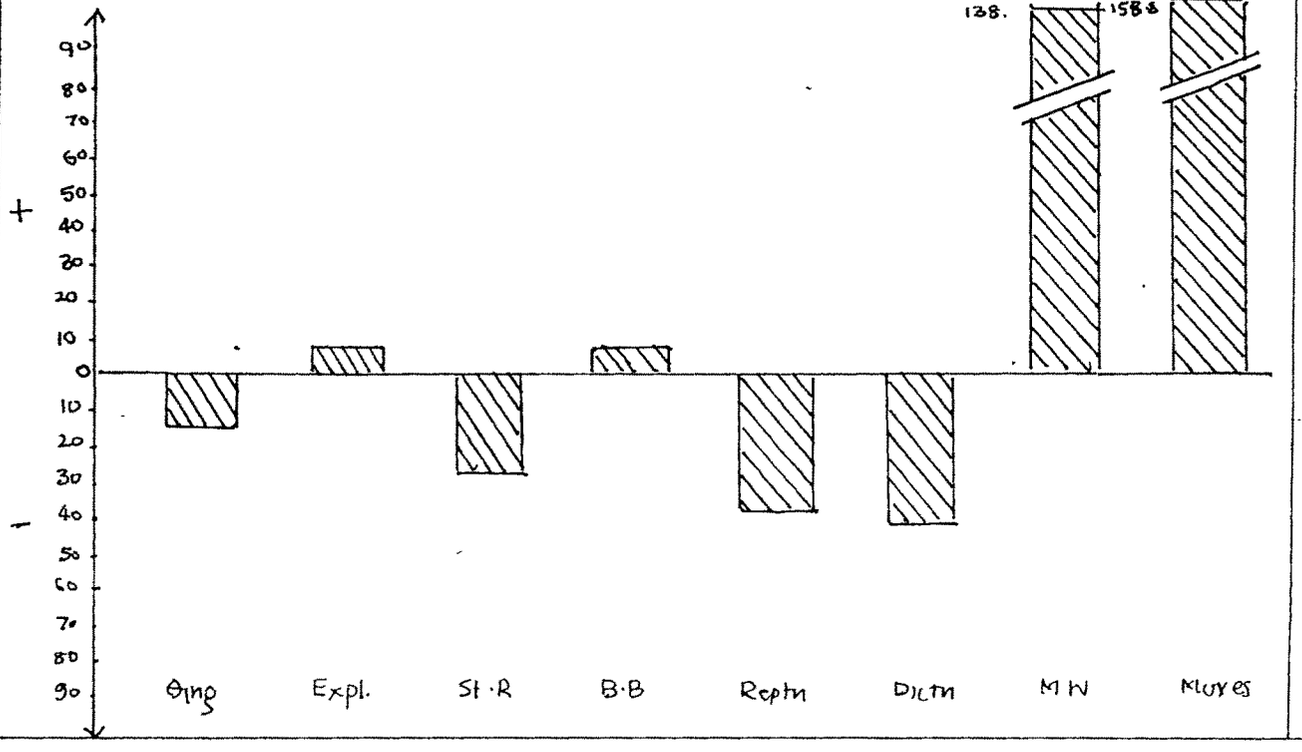
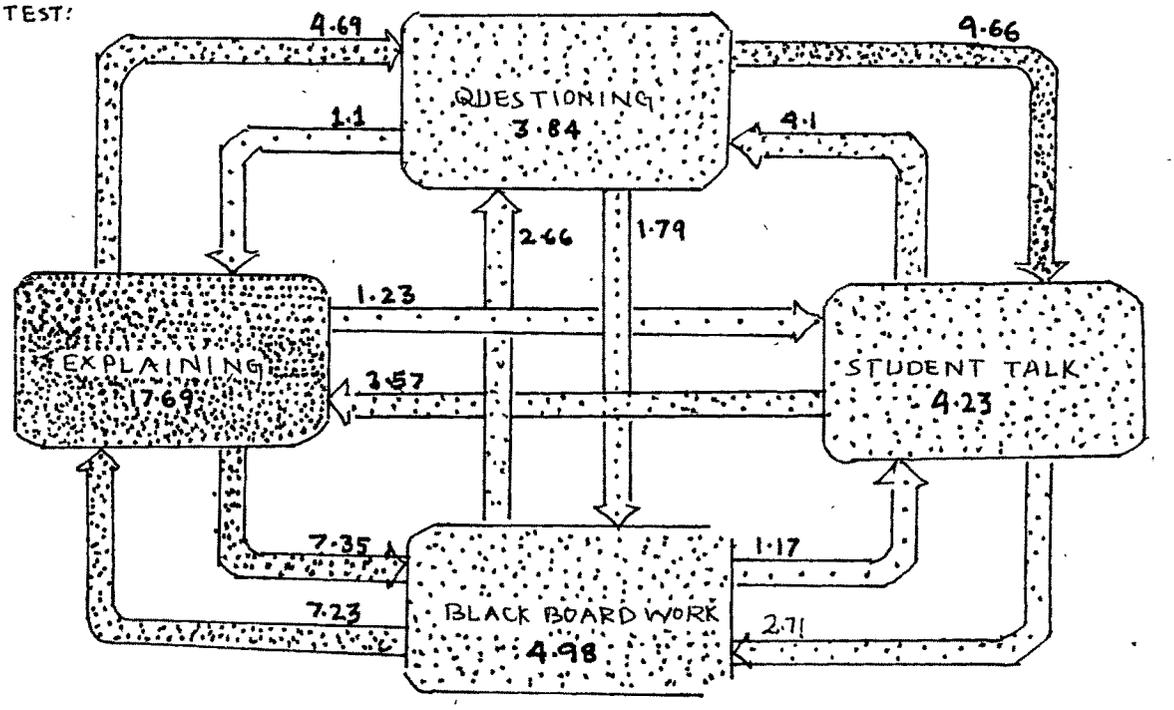


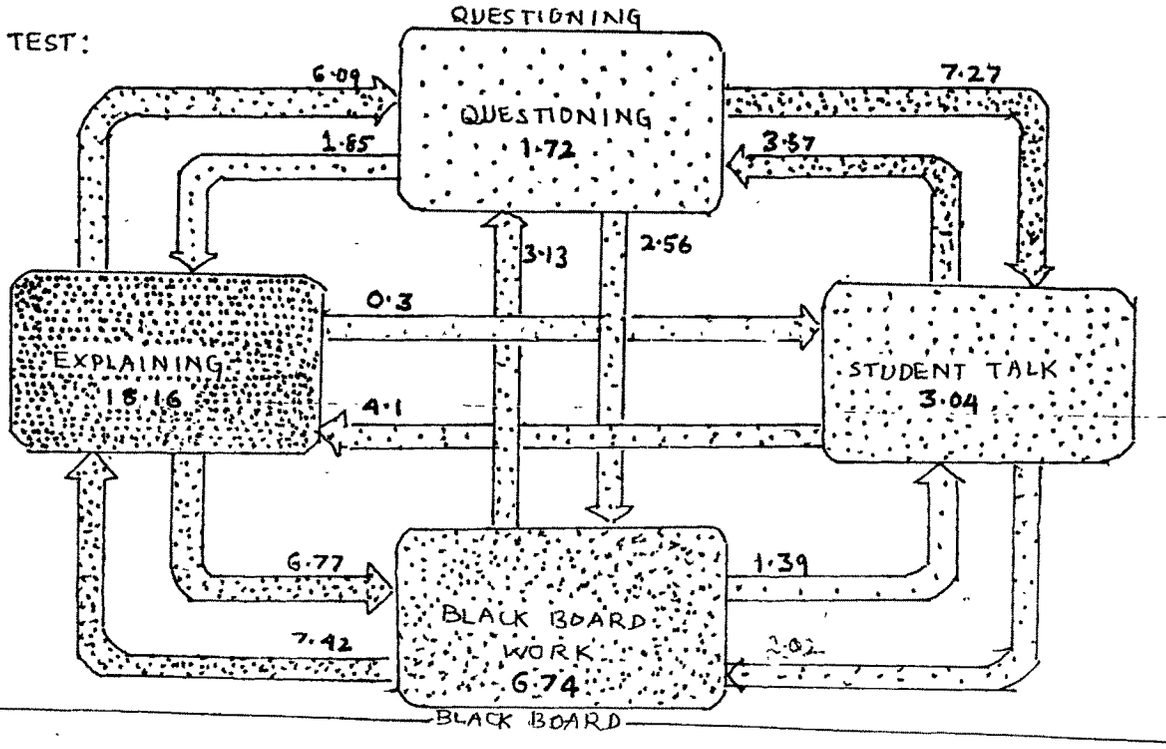
FIG 5.4 A DIAGRAMATIC REPRESENTATION OF THE MAIN INTERACTION PATTERN OF SKILLS AT PRE AND POST TEST FOR THE WHOLE GROUP

(Density of dots represents proportionate quantum)

PRE TEST:



POST TEST:



2. Out of 37 categories, show decrease from pre test to post test and 16 show increase.
3. All categories involving questioning except two show decrease from pre test to post test.
4. All categories involving explanation show increase from pre test to post test except in two cases, when explanation is sequenced with student response and in one item of explanation to blackboard work.
5. Sustained blackboard work has increased, whereas the 'blackboard to explanation' and 'explanation to blackboard' have slightly decreased. The 'blackboard to rest' and 'rest to blackboard' categories show increase from pre test to post test.
6. All categories involving student response category show decrease from pre test to post test except in one case 'blackboard to student response'.
7. Categories involving 'Repetition have decreased from pre test to post test.
8. Categories involving dictation have decreased from pre test to post test.
9. Categories involving managerial work have significantly increased from pre test to post test.
10. Teacher movements in classroom show significant increase from pre test to post test.

Analysis for integration indicators for the group is presented in Table 5.3. The detailed procedure of analysis has been presented in Section IV of Chapter IV.

Observations :

The critical study of Table 5.3 presents following major observations :

Table :5.3: Analysis for Integration Indicators for the Group from Pre Test to PostTest

Integration Indicators	Directional Difference	Rate in Percentage Change
I Skill Association		
(a) Between Questioning and Student Response	+0.67	60.45
(b) Explaining and Blackboard Work	+ 0.27	11.45
(c) Blackboard Work and Explaining	+ 0.32	46.94
II Skill shifts		
(a) Explaining to Questioning	.097	15.96
(b) Explaining to Blackboard work	+ 0.58	8.567
(c) Student Response to Questioning	- 0.53	14.85
(d) Questioning to Student Response	- 2.39	32.87
III Skill dispersion		
(a) Student talk to Rest of the skills	- 2.47	21.90
(b) Blackboard to Rest of the skills	+ 2.78	16.0
(c) Explanation to Rest of the skills	+ 1.53	10.91
(d)		

1. Indicators for skill association between Questioning, Explaining, Blackboard work along with student response show positive shift from pre test to post test.
2. Skill shift from 'questioning to student response' and 'student response to questioning' are negative, but are very marginal.
3. Shifts from 'blackboard to explanation' and 'explanation to blackboard' are positive from pre test to post test.
4. Skill dispersion indicators for explanation and questioning are positive from pre test to post test.
5. Skill dispersion for blackboard work has decreased from pre test to post test. Similar is the case for category student response.

5.1.3 Analysis for General Teaching Competency Data :

To find out the total effectiveness of the integration stratagey the general teaching competency scores available on each student on pre test and post test were used. The obtained scores were converted to group scores for the pre test and post test. Further mean and standard deviations were computed. The detailed procedure followed is presented in the Section IV of Chapter IV. The obtained mean and standard deviations were used to compute 't' to find the significance of difference between the pre test and post test group means. The results are presented in the Table 5.4.

It is found that the 't' computed is 3.37 indicating the significance of difference between the tests at 0.01 level of significance. Further observing the two means, post test scores

has higher gains from pre test to post test for the group.

Table :5.4: Effectiveness of the Stratagey Measured through General Teaching Competence

	Mean	S.D.	t	
Pre test	53.16	10.64		
			3.37 **	Sig. at 0.01 L.O.S.
Post test	79.49	6.75		
Difference	26.33			

5.1.4 Analysis for Comprehensive Teaching Effectiveness Data :

To find out the total effectiveness of the integration, the comprehensive teaching effectiveness scores available on each student on pre test and post test were used. The group scores for the pre test and post test were formed. Further, mean and standard deviations were computed. The detailed procedure followed is presented in Section IV of Chapter IV. The obtained mean and standard deviations were used to compute 't', to find the significance of difference between the pre test and post test group means. The results are presented in the Table 5.5.

Table :5.5: Effectiveness of the Stratagey measured through Comprehensive Teaching Effectiveness

	Mean	S.D.	t	
Pre test	12.77	3.30	3.04	Significant at 0.01 L.O.S.
Post test	18.59	2.34		
Difference	5.82			

It is found that the 't' computed is 3.04 indicating the significance of difference between the group at 0.01 level of significance. Further observing the two means, post test has higher gain from pre test to post test for the group.

5.1.5 Analysis for Student Teacher's Reactions

At the end of the experimentation phase the investigator met 10 student teachers out of 13, one by one and interviewed with the structured set of questions. The questions were directed to note their reactions towards inputs viz. integration, instructional material, demonstrations, exercises for integration and on feedback sessions. The summarised description of the reactions are given below.

The student teachers were provided instructional material which contained the type of exercises that will be practised during the practice session examples on exercises and other descriptions of the exercises. All the student teachers (100%) agree that instructional material helps to develop confidence and to be prepared for the exercises before the practice sessions. All student teachers feel that exercises are clearly mentioned and they help to practice step by step to understand skill interactions in class room. Eight out of ten student teachers feel that the unit one covers adequately majority of situation that usually occur in class room. Seven student teachers feel that examples provided in material are sufficient and understandable. Four student teachers feel that language part of material can be further improved. All student teachers feel that unit on use

of blackboard and use of audio-visual material is very good and highly useful. Five out of ten student teachers feel that unit on scientific method and enquiry approach should have more simple class room examples. Five student teachers feel that instructional material on variables affecting class room teaching will not help much.

The demonstration followed with discussion given during the use of skill explaining and questioning were felt adeuqately by all the students. Eight out of ten student teachers feel that for scientific method and enquiry approach at least 3 lessons with different types of content should be demonstrated. All of them were satisfied with the demonstration for use of audio-visual materials and demonstrations in class room. All the students agree that there is no need of demonstration for the variables affecting class room teaching session.

Every student's practice was followed by the feedback sessions. All the students agree that enough time is given for the feed back during all the stages of integration phase. The time for feedback varied from exercise to exercise. In Unit I teaching sessions were as small as 2 to 3 minutes. For lessons ranging from 5 to 11 minutes teach session the feed back was 15 minutes. All the students express that the group should be made small of about eight students so that all can cover the teach sessions within 2 to 3 hours, otherwise it strains the group, lowering the effectivity. Four teachers out of ten

express that supervisor may provide feedback for first 2 to 3 lessons and then the group can exercise teach and feedback on its own without supervisor. However all the four teachers doubted the extent of sincerity in absence of supervisor.

All student teachers agree that they had enough guidance for planning. The seven out of ten student teachers feel that the first lesson of all the new exercises may be checked before teach and later the guidance for planning can be done by oral discussions.

Commenting on the teach session eight out of ten teachers agree that 10 minutes teach time given is sufficient. However two teachers are of the opinion that it should be relaxed till 15 minutes if necessary. Six teachers feel that the number of student teachers available to act as student (usually eight) are sufficient for teach session. All student teachers feel it gets affected if students are below five. All the students feel the group, if reduced from thirteen to 10 students, it would have been more effective.

Eight student teachers out of ten interviewed to express that they did practice all exercises in Unit I without any difficulty. Five of them feel it develops the ability to change interaction style and prepares for resourceful in extempor teaching. Nine teachers felt the exercises on 'Blackboard use and A.V. use during integration phase were useful and challenging. They commented that the skill of blackboard work in microteaching

should be changed with the later exercises avoiding wastage of time. All the ten students feel that unit on 'Enquiry approach' as an exercise was difficult. They experienced that more number of exercises would have helped to improve. All the teachers agree that skill of reinforcement integrates without any special exercises. All the student teachers feel that practice of variable controlled class room teaching are very useful and they increased teaching effectiveness. The group expressed that they learnt much out of these exercises. Seven teachers, out of ten express that teach for inquiry approach will be more effective with real students than peers.

The student teachers who diagnosed as poorly performed during school practice, were intermitantly asked to reteach with peers which acted as diagnostic remedial exercises. Those students undergone this exercise, felt that it was useful but it requires more time for practice.

All the student teachers felt that exercises prepared them to be at ease to practise during real class room. However, they felt that they were not provided with adequate competence to face the problem of class room management.

5.1.6 Interpretations

The effect of integration stratagey on the group is marked by number of changes from pre test to post test. All the skills show higher ratings on both the scales namely general teaching competence and comprehensive teaching effectiveness. Following is

detailed interpretation of the data drawn from the analysis presented before. The interpretation is presented skill wise.

Skill of Blackboard Work : Blackboard work shows significant increase as sustained categories, the skill dispersion for the blackboard shows a positive change indicating effective dispersion of skill. Skill association with explaining and skill shift from explaining to blackboard, show positive change, indicating effectiveness in terms of their association and shift with explaining. From the reactions it is evident that all the student teachers felt the unit on blackboard and audio-visuals were very useful. Nine of the thirteen felt the exercise on blackboard and A.V. integration challenging and useful. The above mentioned observation conclude that the skill of blackboard work is effectively integrated through the integration stratagey for the group.

Skill of Questioning : The ratings on questioning components in both general teaching competency and comprehensive teaching effectiveness show increase from pre test to post test. The sustained block for questioning show decrease from pre test to post test. The transistional categories for questioning to student response also decrease from pre test to post test. The skill dispersion shows positive change indicating effectiveness. Skill shift from questioning to student response show decrease indicating decrease in consistant response by student responses to questions. The skill associations between questioning and student response show positive increase. Reacting on the stratagey,

eight out of ten student teachers feel that interaction situations provided as exercise covers adequately variety of class room experiences on to give integration ability. The demonstrations followed with discussion on skill integration of explaining and questioning were felt adequate by all students. Eight teachers out of ten interviewed expressed as they did practice all exercises on unit explaining and questioning without any difficulty. Five of them feel that the exercises develop the ability to change interaction style and prepare for resourceful extempore teaching.

The above refered observations lead to the interpretation that. skill of questioning and explaining have been integrated during the practice, however, their decrease in post test demands explanations unavailable from the data. Though the questioning has decreased during the post test, the skill association with student response shows a positive change. This may be due to the proportionate decrease in both the components namely questioning as well as student response. One favourable indication of this observation is that eventhough the questioning has decreased their effectiveness to bring about student response has not marked_ly decreased. In other words the student-response is maintained without any decrease during integration stage. During microteaching programme and initial stage of pre test there was a tendency to use more questions due to the emphasis laid down on inquiry teaching of science. The emphasis was given more to questioning just to impress upon the student teachers the role

of questioning in class room teaching. This might have led to the high percentage of questioning which during later stage got stabalised . However, it should be noted that the ratings on questioning skill and presentation show ihcrease from pre test to post test. Taking the two observations namely decrease in questioning and increase in rating, one of the interpretations is that, the questioning though quantitatively decreased, has increased qualitatively, thereby maintaining proportionate student responses. This can further be supported by the increase in the categories of explaining to questioning and decrease in student response to explanation, wherein the teachers have made efforts to shift from explanation to questioning more and have increased to question after student responses, than to explain further. The skill dispersion for questioning is positive, indicating that the questions are not clustered at a particular stage of classroom teaching but have distributed throughout the development of content in class room teaching.

Skill of Explaining : The ratings on explaining components on the general teaching competence show increase, the explanation component related to teacher communication and presentation shows increase in rating in comprehensive teaching effectiveness competence. The sustained explanation component has slightly decreased, meaning almost unchanged. Student response of explanation and explanation to student response, show decrease. Explanation to questioning and blackboard work to explanation show increase. These observations indicate that amount of weightage

given to explanation has remained unchanged. The decrease of explanation transition category with student response may indicate the decrease [illegible] the unusual student responses. Usually students ask doubts interrupting the explanation or soon after question the teacher may further explain followed by student response. Such a type of phenomenon has decreased. Decrease in category of student response to explanation may be due to increase in discussion oriented class room interaction instead of prolonged lecturing with interrupted questions. The explanation to rest and rest to explanation show an increase in integration of skill of explaining. This indicate that the student teachers had increased to shift from any skill to explanation and move to any skill from explanation. The association indicators between explaining to blackboard and between blackboard to explaining show positive change concluding that use of blackboard along with explaining and vice versa has increased with greater association. These two skills have no more remained isolated in class room teaching. The skill shift from explaining to questioning though has decreased is very negligible (1.59%) and explaining to blackboard has increased, indicating the student teachers had no problem in changing from explaining to questioning or blackboard, and they have increased it after undergoing integration stratagey. Skill dispersion for the explaining skill show a positive change (10.91%) indicating that the classes after integration practice have changed towards more discussion oriented than lecture oriented. Reacting on the stratagey eight out of ten students felt that exercises pertaining to explaining provided were adequate and covered majority of interactions, that usually

occur during the class room teaching. The demonstrations followed with discussion given during the use of skill of explaining were found adequate. All the student teachers agreed that they were able to practice exercises on explaination without any difficulty

The above referred discussion concludes that the skill of explaining has been effectively integrated through the stratagey and observations on skill interactions, integration, indicators and skill ratings support that, student teachers after undergoing the integration stratagey were able to integrate skill of explaining effectively.

Skill of Reinforcement and Skill of Stimulus Variation : The skill of reinforcement and stimulus variations show higher rating on general teaching competence at post test stage compared to the pre test stage. However there were no specific interaction components to measure the change in these skills. This was due to the nature of the skill itself which are difficult to record during class room teaching as interaction category. The skill of reinforcement was found by all the students as not requiring any deliberate effort to integrate. They experienced it to integrate without any deliberate exercise. However, the stratagey has specific components on input for the skill. This is to conclude that, skill of reinforcement has been effectively integrated by all student teachers during integration phase. The stimulus variation was practised during the unit on A.V. material use in class room. All comments upon these exercises reveal as good and

useful. They also commented that they were challenging. One of the components that can indirectly speak of stimulus variation is recording of movements in class room. The 'rest to movement' and 'movement to rest' has increased tremendously (88.61 and 153.88%) which shows that student teachers were able to freely move in the class rooms during use of different skills. Movements of teachers is taken to be one of the components of stimulus variation. This is to conclude that the skill of stimulus variation though has no direct measures, the supportive observation indicate that the skill has been integrated.

The skill of illustrating with examples : This has no interaction components to represent on the tool. However, the general teaching competence scale shows that the skill of illustrating related components have higher ratings. Similarly, the comprehensive teaching effectiveness ratings of related components namely presentation with appropriate examples show higher ratings. This skill being content oriented was having inputs during practice namely, inquiry approach, controlled class room teaching and diagnostic remedial teaching sessions. The reactions on these input indicate that, five out of ten students felt that material on inquiry approach should be still simpler. Seven teachers out of ten express that teach for enquiry will be more effective with real students than peers. All the student teachers agree that practice of variable controlled classroom teaching are very useful and they helped for integration.

The above observations indirectly support to conclude that skill of illustrating with examples, do not show any negative observation about not getting integrated in the stratagey.

The Skill of Writing Objectives : This skill do not appear during class room teaching. However, the items on general teaching competence which directly test, student teachers ability to 'write objectives appropriately and adequately, gains higher rating at post test stage. Also the item in comprehensive teaching effectiveness scale referring that, 'student teacher is able to achieve his objectives' rate higher at post test stage. This is to conclude that the skill of writing objectives is appropriately related to the teaching in class room.

The 't' test carried upon for the group indicates significant difference on both the measures namely general teaching competence and comprehensive teaching effectiveness. These results along with the above referred detailed skill-wise interpretation conclude that, the evolved integration stratagey as a system was able to integrate the teaching skills, marking significant difference in the integration ability of student teachers from pre test to post test.

5.1.7 Findings

1. The skill based interaction analysis and the reactions of student teachers show that the skills practised during microteaching have been integrated during practice through integration stratagey.

2. The skill based interaction analysis and the reactions of student teachers show that the stratagey components and soft-ware are effective in developing integration of the teaching skills practiced during microteaching.
3. The developed integration stratagey produced significant difference between the pre test and post test performance in terms of teaching patterns and integration indicators.
4. The developed integration stratagey produced significant difference between the pre test and post test group means on general teaching competence and comprehensive teaching effectiveness.

SECTION - II

5.2.0 RELATIVE EFFECTIVENESS OF THE INTEGRATION STRATAGEY AGAINST INDEPENDENT VARIABLES

This section of the chapter on analysis and interpretation of data, presents the analyses with respect to the last among the three objectives of this study. The analyses pertaining to the second objective, in section - I dealt with establishing the effectiveness of developed instructional stratagey, the analyses pertaining to the third objectives, discussed hereunder, deals with establishing the effectiveness of integration stratagey against the independent variables namely [illegible] qualification, academic achievement, skill achievement, free availability of study time, teaching experience and attitude towards teaching and microteaching. Underlying this analyses is with an intention to study the extent of intervention of the above mentioned

independent variables on the integration stratagey effectiveness. The objective for which the analyses is done is described in the foregoing pages reads as follows.

Objectives :

To study the relative effectiveness of integration stratagey for integrating the teaching skills on variables, qualification, academic merit, skill achievement, free availability of study time, teaching experience, attitude towards teaching', and 'attitude towards microteaching' independently in terms of teacher trainees performance in class room teaching for integration measured by (a) Skill interaction analysis category system (b) General teaching competency scale (c) Teaching effectiveness comprehensive scale.

The data pertaining to variables were obtained through tools namely, (1) General Information Proforma, (2) Academic Achievement Test, (3) Ahluwalia's Attitude Towards Teaching Inventory, and (4) Attitude towards Microteaching Rating Scale. The formation of groups on the basis of above tools are presented in detail in Chapter IV - Section IV. The data obtained on integration measure were further analysed variablewise. The detailed procedure of analysis for sub-groups is also presented in the Section IV in Chapter IV. On seven variable seven sets of analysis were carried on independently. The seven independent hypotheses were framed and the analysed data along

Table :5.6: Sample for the Sub-groups on the Variables

No.	Variable / Sub-group	Student Teachers' Numbers													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	
1.	Attitude towards teaching :														
	A : Below average					5		7	8	9		11	12	13	7
	B : Above average	1	2	3			6								4
2.	Attitude towards microteaching :														
	A : Below average				4	5		7		9	10	11	12		7
	B : Above average	1	2	3			6		8					13	6
3.	Teaching experience :														
	A : Experienced	1	2	3		5		7					12	13	7
	B : No experience				4		6		8	9	10	11			6
4.	Skill achievement :														
	A : High achievement				4		6	7			10			13	5
	B : Low Achievement								8	9		11	12		4
5.	Academic achievement :														
	A : High achievement	1	2				6		8		10	11	12		7
	B : Low achievement			3	4	5		7		9					5
6.	Qualifications :														
	A : Graduate	1		3	4		6	7		9		11			7
	B : Post-graduate ability		2			5			8		10		12	13	6
7.	Free avail of study time :														
	A : Free avail						6			9	10	11		13	5
	B : No avail		2	3	4	5		7	8				12		7

with interpretation are presented in the following pages.

5.2.1 Relative Effectiveness of the Integration Stratagey against the Variable Attitude Towards Teaching :

The Two sub-groups were formed having below average attitude scores compared with reference to the group mean and other as above average on attitude scale.

Hypothesis :

The Two sub-groups will not differ in integration of teaching skills during their post-integration teaching performance, when measured in terms of (a) Skill interaction analysis category system; (b) General teaching competence, and (c) Teaching effectiveness comprehensive rating scale.

For testing the hypotheses, these three measures were independently analysed and observations were made. These observations were further interpreted collectively to test the hypotheses.

Analysis for Interaction Category Data :

Change in amount of time from pre test to post test for different categories for the two sub-groups is presented in Table 5.7. Similarly Table 5.8 presents change in amount of time from pre test to post test for skill categories to rest and from different skills categories to specific skill category, for the two sub-groups. The detailed procedure followed to analyse the data has been presented in the

Section IV of Chapter IV.

Observations :

The detailed study of the Tables 5.7 and 5.8 presents following major observations for interpretations.

1. The sustained questioning has decreased in above average group compared to the below average group.
2. Questioning to student response, questioning to repetition, and questioning to rest also decreased in above average group compared to the below average group.
3. Questioning to explanation, questioning to blackboard, explaining to questioning, student response to questioning, repetition to questioning and rest to questioning compared between the two sub-groups shows that, above average group has increased on its counter group.
4. The sustained explanation has decreased considerable in above average group compared to its counter group.
5. Explanation to student response, student response to explanation and questioning to explanation show increase in above average group compared to the below average group. Whereas explanation to blackboard, explanation to rest and rest to explanation show comparative low change from the above average group to the below average group.
6. The sustained blackboard work has increased in the above average group compared to the below average group.
7. Questioning to blackboard, explanation to blackboard and blackboard to questioning have decreased.
8. Questioning to blackboard, explanation to blackboard, blackboard to questioning, blackboard to rest and rest to blackboard show comparative decrease whereas only blackboard to student response show increase in above average group.

Table :5.7: Change in Amount of Time from Pre Test to Post Test for Different Skill Components for the Two Groups Above Average on ATT and Below Average on ATT of the Sample

Categories	Group I Above Ave. ATT			Group I Below Ave. ATT			Change in Group I in Relation to II
	Pre	Post	Change	Pre	Post	Change	
Blackboard Work	5.28	5.82	+ 0.60	4.51	6.79	+ 2.28	Negative
Questioning Sustained	4.74	1.20	- 3.54	3.83	1.81	- 2.02	Negative
Questioning to Student Response	10.77	6.73	- 9.04	4.66	7.86	- 1.80	Negative
Questioning to Repetition	13.74	0.20	-13.54	1.68	2.46	- 0.47	Positive
Explaining to Student Response	1.37	1.13	- 0.24	1.11	0.26	- 0.85	Positive
Student Response to Explanation	4.60	4.64	+ 0.04	3.22	2.12	- 1.10	Positive
Questioning to Explanation	1.39	1.25	- 0.14	1.04	0.60	- 0.44	Positive
Questioning to Blackboard	2.05	2.63	+ 0.58	1.68	2.46	+ 0.78	Negative
Explaining to Questioning	6.24	8.42	+ 2.18	4.23	5.55	+ 1.32	Positive
Explaining Sustained	13.59	1.49	-12.11	18.19	18.97	+0.78	Negative
Explanation to Blackboard	6.26	2.82	- 3.44	7.22	8.59	+ 1.37	Negative
Student Response to Questioning	5.26	5.52	+ 0.26	3.79	2.86	- 0.88	Positive
Student Response Sustained	4.76	3.02	- 1.74	4.20	2.82	- 1.38	Negative
Student Response to Repetition	2.51	2.60	+ 0.09	2.91	1.78	- 1.13	Positive
Blackboard to Questioning	3.32	2.63	- 0.69	3.39	2.93	- 0.46	Negative
Blackboard work to Student Response	1.05	1.62	+ 0.57	1.33	1.20	- 0.13	Positive
Repetition to Questioning	1.61	1.28	- 0.33	1.42	0.74	- 0.68	Positive
Repetition to Blackboard Work	0.57	0.74	+ 0.17	0.83	0.70	- 0.22	Positive
Managerial Work	3.07	10.31	+ 7.24	1.96	2.89	+ 0.93	Positive
Dictation	0.37	0.00	- 0.37	0.90	0.67	- 0.23	Negative

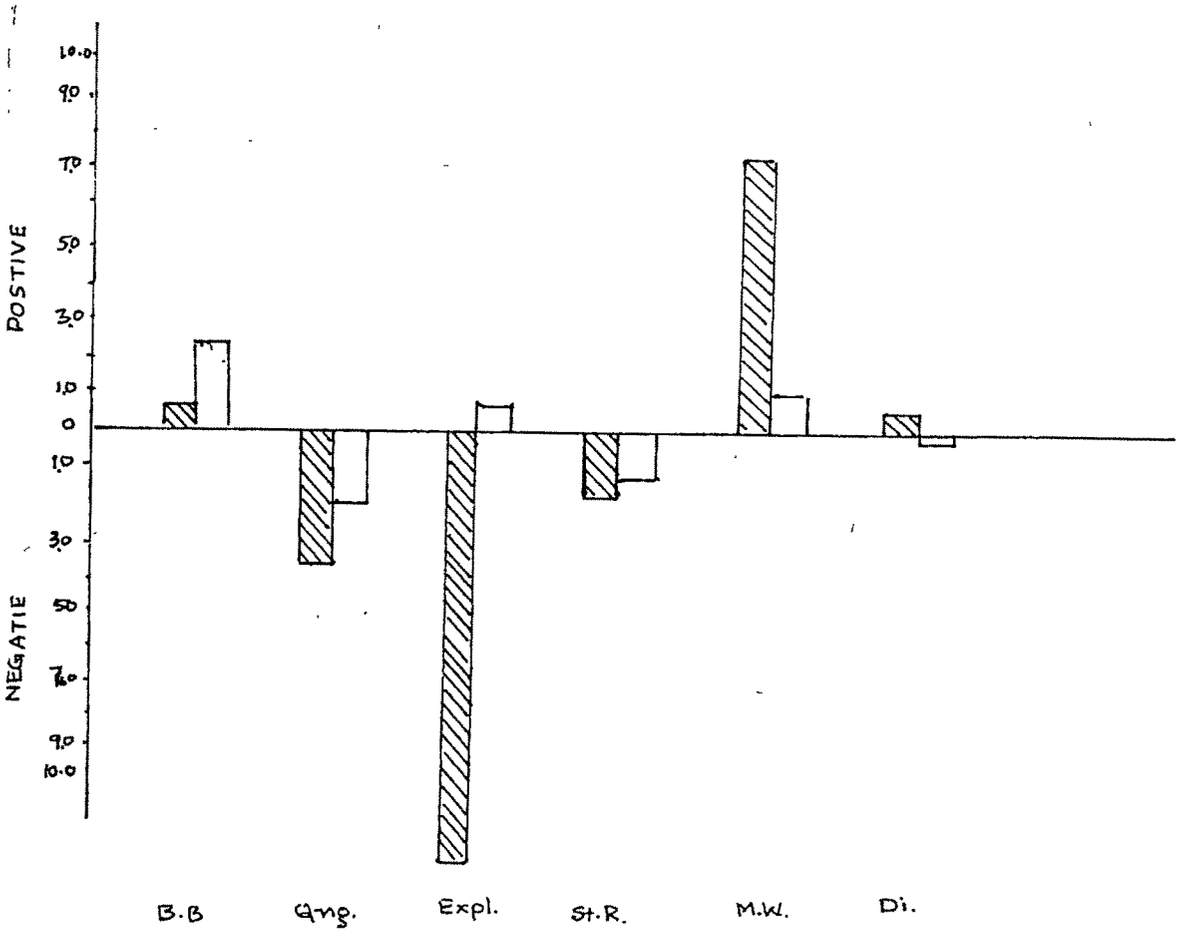
+ = Positive Shift - = Negative Shift

Table :5.8: Change in Amount of Time from Pre test to Post test for Different Specific Skill Components to Rest of Skill Components and Vis-a-Vis for the Two Groups Below Average on ATT and Above Average on ATT of the Sample

Categories	Gr.I : Above Average on ATT			Gr.II:Below Avg. on ATT			Change in Gr.I in relation to Gr.II
	Pre Test	Post Test	Change	Pre Test	Post Test	Change	
Questioning to Rest	20.89	13.30	- 7.59	17.59	13.72	- 3.87	Negative
Explanation to Rest	29.36	30.95	+ 1.59	32.46	37.81	+ 5.35	Negative
Student Response to Rest	19.12	17.62	- 1.50	18.25	12.98	- 5.27	Positive
Blackboard work to Rest	16.34	14.26	- 2.08	17.92	21.44	+ 3.52	Negative
Repetition to Rest	7.51	4.15	- 3.36	5.42	3.72	- 1.76	Negative
Dictation to Rest	1.52	0.83	- 0.69	2.30	1.82	- 0.48	Negative
Managerial work to Rest	4.17	13.46	+ 9.29	3.91	4.43	+10.52	Positive
Movement to Rest	1.39	5.40	+ 4.01	2.10	3.98	+ 1.88	Positive
Rest to Questioning	21.48	20.64	- 0.184	17.94	14.76	- 3.08	Positive
Rest to Explanation	28.51	26.95	+ 1.56	32.56	35.59	+ 3.03	Negative
Rest to Student Response	19.96	14.24	- 5.72	17.71	12.81	- 4.9	Negative
Rest to Blackboard work	15.31	12.84	- 2.84	17.74	21.28	+ 3.54	Negative
Rest to Repetition	7.03	4.25	- 2.78	6.11	3.62	- 2.48	Negative
Rest to Dictation	2.00	1.40	- 0.60	2.07	1.84	- 0.23	Negative
Rest to Managerial Work	9.41	15.37	+ 5.96	3.62	4.33	+ 0.71	Positive
Rest to Movement	1.28	4.32	+ 3.04	2.25	5.61	+ 3.35	Negative

\+ Positive Shift - Negative Shift

FIG 5.5 RELATIVE CHANGES IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATEGORIES IN PERCENTAGE FREQUENCIES FROM PRE TEST TO POST TEST

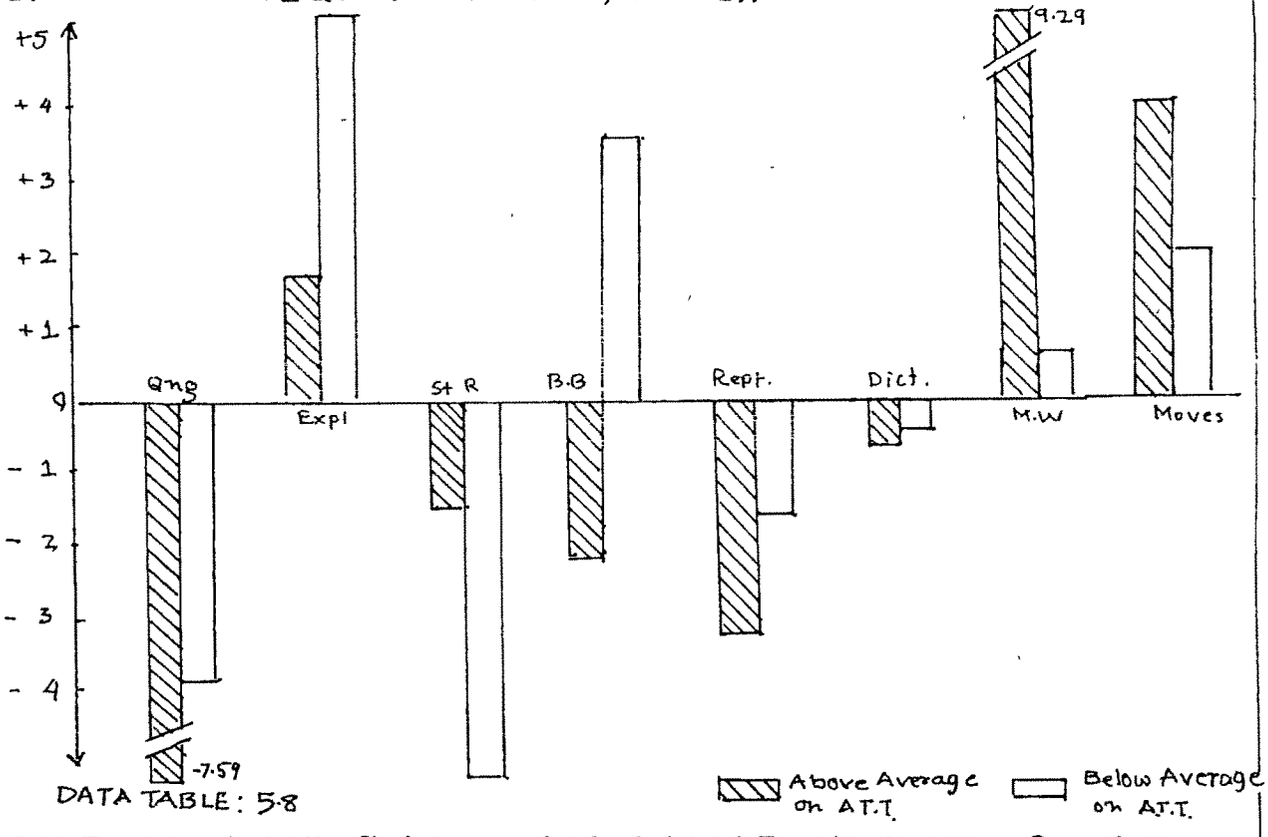


DATA TABLE: 5.7

Above Average ATT

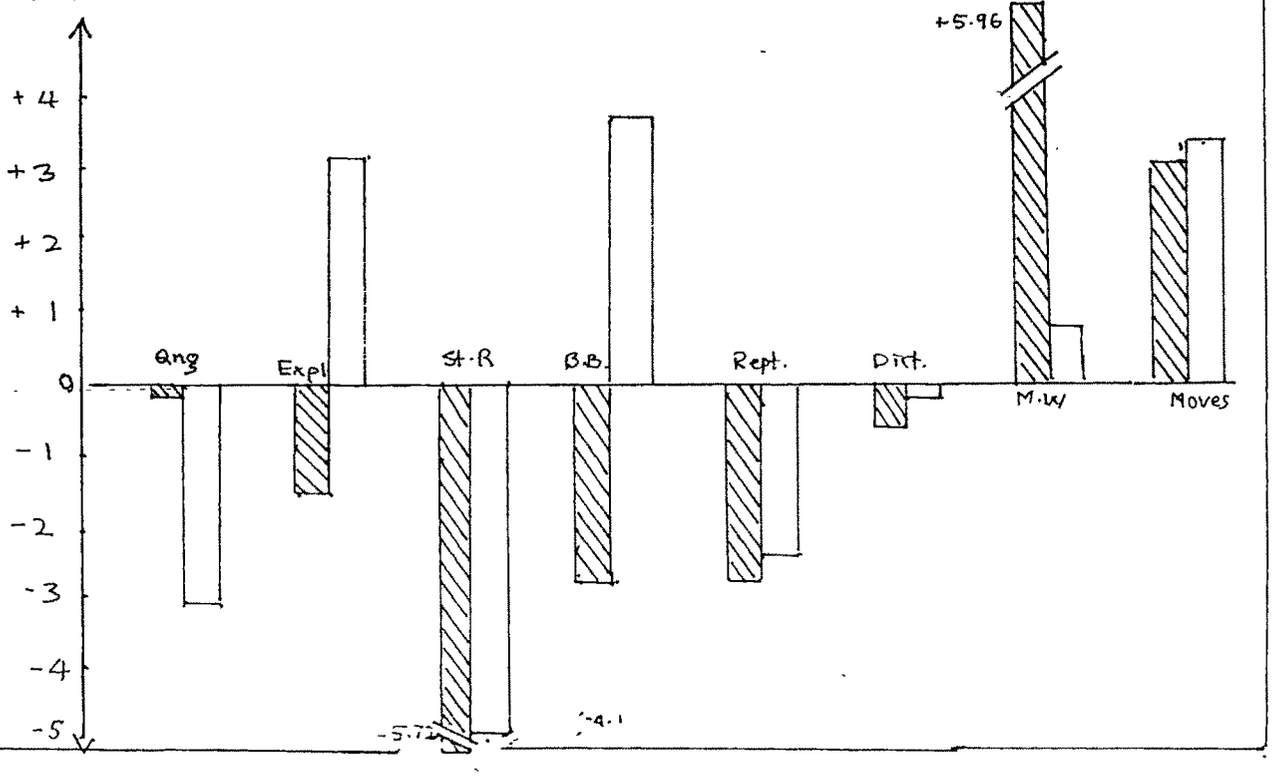
Below Average ATT

FIG 5.6 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST, IN PERCENTAGE FREQUENCIES



DATA TABLE: 5.8

FIG 5.7 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCIES



9. Student response show comparative decrease in above average group then in below average group.
10. Student response to explanation, student response to questioning, student response to repetition, blackboard to student response, and student response to rest, show increase in above average group compared to below average group.
11. None of the transitional blocks involving student response show decrease from the above average group compared to the below average group.
12. Dictation has decreased comparatively more in above average group than the below average group.
13. Managerial work has comparatively increased in above average group compared to the counter sub-groups.

Analysis for integration indicators for the sub-groups is presented in Table 5.9. The observations on this table is presented below.

Observations :

1. Skill association between questioning and student response, between blackboard and explanation show relatively more in the above average group compared to that of below average group whereas association between explaining and blackboard is relatively more in below average group compared to above average group.
2. Skill shift for explaining to questioning, explaining to blackboard, and questioning to student response show relatively more in below average group compared to the above average group whereas skill shift for student response to questioning show decrease.

Table :5.9: Integration Indicators for the Two Sub-groups formed on Variable Attitude Towards Teaching

Integration Indicators	Group:Above Average in Ach.		Group:Below Average in Ach.	
	Direction	Rate in % Change	Direction	Rate in % Change
I Skill Association				
(a) Between Questioning and Student Response	+ 1.51	60.00	+ 0.46	29.52
(b) Between Explaining and Blackboard work	- 0.88	-	+50.98	19.40
(c) Between Blackboard and Explanation	+ 0.53	55.09	+ 0.17	20.98
II Skill shift				
(a) Explaining to Questioning	+ 0.63	85.00	+44.07	-
(b) Explaining to Blackboard	- 6.06	102.0	+ 3.50	38.88
(c) Student Response to Questioning	+ 0.26	14.35	- 0.98	-
(d) Questioning to Student Response	- 4.00	59.43	- 1.8	22.90
III Skill Dispersion				
(a) Student Talk	- 1.5	8.51	- 5.27	40.60
(b) Blackboard	+ 2.08	14.59	+ 3.52	16.42
(c) Explanation	+ 1.56	5.10	+ 5.36	14.15
(d) Questioning	+ 7.59	57.06	+ 3.87	28.20

3. Skill dispersion for questioning and student response show relatively more in above average group compared to below average group, whereas skills blackboard and explanation show relatively less in above average group compared to the below average group.

Analysis of Teaching Effectiveness Comprehensive Data :

The individual score of student teachers on pre test and post test were grouped on the basis of variable under the analysis. The data available was from unmatched pair groups pre-test post-test design. The pre-test data for the groups on the variable were unequal. To test the significance of difference between the two groups, it was required to statistically equate on the basis of pre test scores and adjust the post test scores. For this purpose Analysis of Covariance was applied. The Table 5.10 represent ANCOVA for the group variable. Attitude towards teaching.

The analysis of covariance shows that mean square within the group is slightly less than between the groups. The F value is 1.22 showing no significant difference at 0.05 level of significance. The results show that the two groups having attitude scores towards teaching, above average and below average do not differ significantly. However, it may be noted that the scores for below average is slightly higher to the above average group.

Analysis of General Teaching Competence Data :

The data compiled had scores for individual student teachers on pre test and post test. The sub-groups were formed on the basis

Table :5.10: Analysis for Teaching Gains in Difference for the 'Teaching Effectiveness Comprehensive Scores for the Variable Attitude Towards Teaching.'

I Mean and S.D.

Group	Pre Test		Post Test	
	Mean	S.D.	Mean	S.D.
Above average	14.56	1.88	20.25	1.09
Below average	12.66	3.38	18.19	2.40

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	6.21	6.21	1.22
Within	8	40.82	5.10	
Total	9	47.03	5.23	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Above average	4	14.56	20.25	18.96
Below average	7	12.66	18.19	19.48

of the variable under study. The data available was from unmatched pair groups pre test post test design. The pre test data for the two groups on the variable were unequal. To test the significance of difference between the two groups, it required to statistically equate on the basis of pre test scores and adjust the post test scores. For this purpose analysis of covariance was applied. The Table 5.11 represent ANCOVA for the group variable attitude towards teaching.

Table :5.11: Analysis for Testing Gain Difference for the General Teaching Competence Scores for the Variable 'Attitude Towards Teaching'

I Mean and S.D.

Group	Pre Test		Post Test	
	Mean	S.D.	Mean	S.D.
Above average	58.18	2.83	82.63	3.09
Below Average	51.69	13.22	77.77	8.01

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F value
Between	1	4.87	4.87	0.27
Within	8	145.32	18.17	
Total	9	150.19	9.40	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Above average	4	58.18	82.63	76.77
Below average	7	51.69	77.77	83.74

The analysis of covariance shows that means square within the group is more than between the groups. The F value is 0.27 showing no significant difference at 0.05 level of significance.

The results show that the two groups having attitude scores toward teaching above average and below average do not differ significantly. However, it may be noted that the scores for below average is slightly higher to the above average group.

Interpretations :

Comparative increase of questioning and questioning to student response and decrease of questioning to explanation 'questioning to blackboard', shows that the below average group has performed better on skill of questioning, whereas association between questioning and student response show increase in above average group indicating possibility of its better performance. Decrease of questioning to rest, increase of rest to questioning by above average group favours better performance of above average group.

Decrease in explanation, association of skill explanation with blackboard show comparative positive change with above average group indicating better performance of above average group on explanation whereas skill dispersion is better with below average group.

Skill dispersion of blackboard and skill shift from explaining to blackboard are better with below average group. Whereas skill association of blackboard with explanation presents equivocal results. The sustained blackboard work show more with below average group. The result do not show any consistency for conclusions.

Low emphasis for dictation by above average group, increase in all transistional blocks of student response in above average group and decrease in sustained student response in above average group with positive association between questioning and student response concludes that the above average group has changed from long response type questions to short answer type and distributed through the class room time. Also with low sustained explanation by above average group indicates discussion orientedness from pre integration teaching to post integration teaching. These results conclude the better performance of above average group in dealing with student response and its related components.

The analysis of covariance results for both the measures namely general teaching competency and teaching effectiveness comprehension show insignificant results. Concluding the variable do not make any significant difference in developing integration ability, this statement is further supported by the mixed conclusions on basic skill components of integration as mentioned in above paragraphs.

The interpretation, therefore, will be thus, the variable attitude of student teachers towards teaching do not affect significantly in developing the ability of integration of teaching skills, though the two groups differ in teaching pattern formation for class room teaching.

Findings :

1. The two groups formed on the basis of attitude scores on attitude towards teaching inventory show that the two groups having above average scores on inventory and below average scores have produced two distinct type of interaction patterns.
2. The interaction patterns formed by the two sub-groups did not show any relative efficiency of one or other group on interaction pattern.
3. The integration indicators for the two sub-groups did not show any comparative efficiency of one over the other.
4. The ANCOVA results for the two groups do not show any significant difference between the adjusted means of two sub-groups on general teaching competence and teaching effectiveness comprehension scores.

5.2.1 Relative Effectiveness of the Integration Stratagey against the Variable Free Availability of Study Time

The two sub-groups were formed, as one having free availability of study time constituting those student teachers who are not having any other duties other than B.Ed. in the sense those who have opted studying as their full time work. The other sub-group having no free availability of study time, constituting student teachers who have married, teaching in schools or any other work which keeps them occupied during their non-college timings.

Hypothesis :

The two sub-groups do not differ in integration of teaching skills during their post teaching performance, when measured

in terms of (a) skill interaction analysis category system; (b) Baroda General Teaching Competence, and (c) Teaching Effectiveness Comprehensive Rating

For testing the hypothesis the three measures were independently analysed and observations were made. These observations were further interpreted collectively to test the hypothesis.

Analysis for Interaction Category Data :

Change in amount of time from pre test to post test for different categories for the two sub-groups is presented in Table 5.12. Similarly Table 5.13 presents changes in amount of time from pre test to post test for skill categories to rest and from different skill categories to specific skill categories for the two sub-groups. The detailed procedure followed to analyse the data has been presented in the Section IV of Chapter IV.

Observations :

1. The sustained categories, blackboard work and questioning have increased, whereas sustained categories for explaining and student response have decreased for the group having no free availability of study time compared to the sub-group having free availability of study time.
2. The transistional categories, questioning to student response, questioning to repetition, questioning to blackboard, explaining to questioning, blackboard to questioning, repetition to questioning, questioning to rest and rest to questioning show increase in

Table :5.12: Change in Amount of Time from Pre test to Post test for Different Skill Components for the Two Groups , No free Availability of Study Time and Free Availability of Study Time of the Sample

Categories	Gr.I:Non-free Group			Gr.II : Free Group			Change in Gr.I in Relation to Gr.II
	Pre	Post	Change	Pre	Post	Change	
Blackboard Work	4.47	7.08	+2.61	5.67	6.12	+ 0.45	Positive
Questioning Sustained	3.27	2.25	- 1.02	4.6	0.70	- 3.09	Positive
Questioning to Student Response	9.33	7.52	- 1.81	10.01	6.81	- 3.2	Positive
Questioning to Repetition	0.96	0.48	- 0.48	12.50	0.35	-12.15	Positive
Explaining to Student Response	1.37	0.70	- 0.67	5.13	4.54	- 0.61	Negative
Student Response to Explanation	3.05	1.98	+1.10	4.09	4.17	- 1.12	Positive
Questioning to Explanation	0.79	0.89	-1.07	1.51	0.39	- 0.22	Negative
Questioning to Blackboard	1.53	2.83	+1.3	2.14	2.84	+ 0.7	Positive
Explaining to Questioning	4.34	6.85	+2.51	5.13	4.54	- 0.59	Positive
Explaining Sustained	20.93	18.13	-2.80	12.95	18.35	+ 5.40	Negative
Explanation to Blackboard	8.50	7.07	-0.91	5.64	6.20	+ 1.84	Positive
Student Response to Questioning	4.31	3.66	-0.65	3.75	3.40	- 0.35	Negative
Student Response Sustained	4.30	2.93	-1.37	4.09	3.29	- 0.80	Negative
Student Response to Repetition	2.54	2.11	-1.43	2.91	1.84	- 1.07	Positive
Blackboard to Questioning	3.01	2.76	-0.25	3.22	2.80	- 0.42	Positive
Blackboard to Student Response	0.94	1.41	+0.47	1.58	1.33	- 0.25	Positive
Repetition to Questioning	1.26	1.04	-0.22	1.58	0.84	- 0.74	Positive
Repetition to Blackboard Work	0.63	0.79	+0.16	0.93	0.49	- 0.44	Negative
Managerial Work	1.81	3.76	+1.95	2.85	8.18	+ 5.33	Negative
Dictation	0.84	0.38	-0.46	0.50	0.68	+ 0.18	Negative

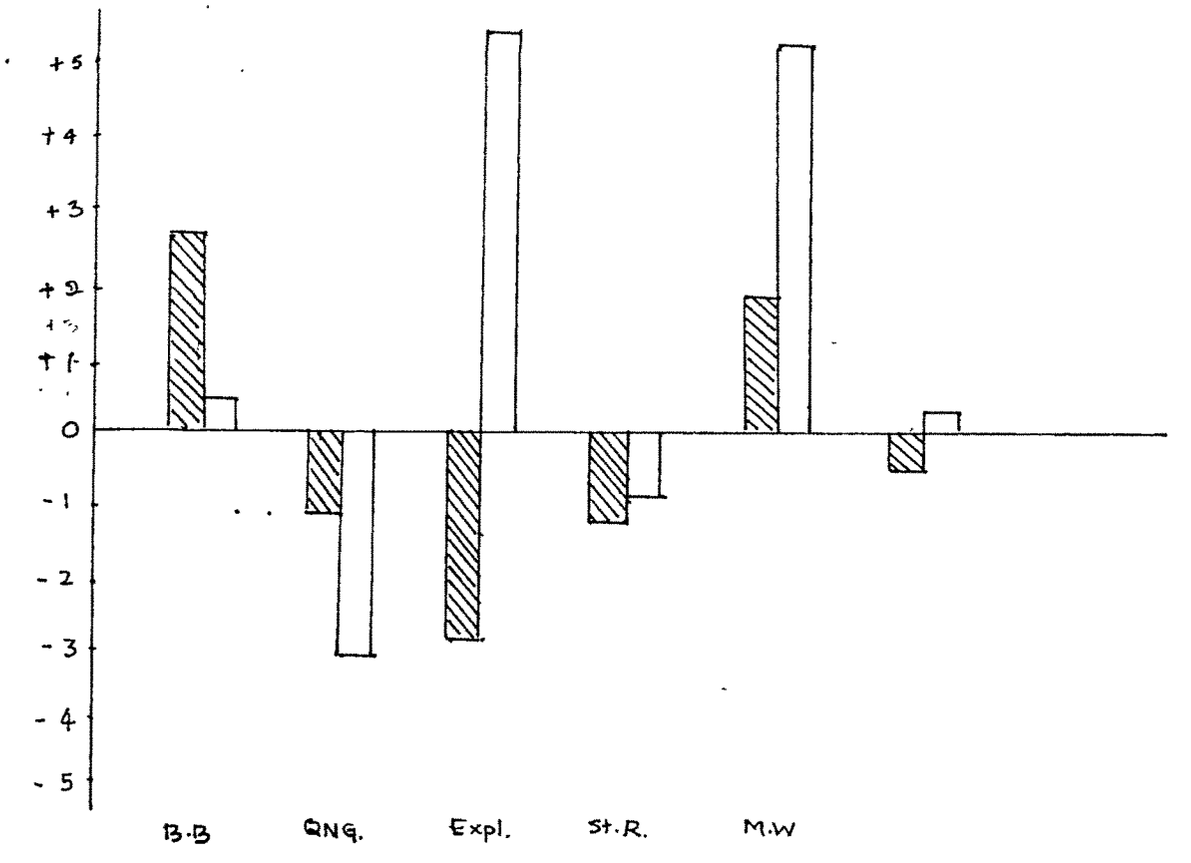
+ Positive Shift - Negative Shift

Table :5.13: Change in Amount of Time from Pre test to Post Test for Different Specific Skill Components to Rest of Skill Components and Vis-a-Vis for the Two Groups having No Free Availability of Study Time and Free Availability of Study Time of the Sample

Categories	Group I Free Time			Group II Non-free T			Change in Gr.I in Relation to Gr.II
	Pre Test	Post Test	% Change	Pre Test	Post Test	% Change	
Questioning to Rest	16.25	18.16	+1.91	20.00	11.33	-8.67	Positive
Explanation to Rest	36.78	36.34	-0.44	27.09	35.07	+7.98	Negative
Student Response to Rest	17.37	13.49	-3.88	13.62	16.28	- 2.34	Negative
Blackboard work to Rest	17.87	19.87	+ 2.00	17.05	18.25	+ 1.2	Positive
Repetition to Rest	5.46	4.46	- 1.00	6.53	3.25	- 3.28	Positive
Dictation to Rest	1.69	1.35	- 0.34	1.81	1.02	- 0.79	Positive
Managerial work to Rest	3.18	5.89	+ 2.71	6.41	10.09	+ 4.28	Negative
Movement to Rest	1.41	4.63	+ 3.22	2.49	3.93	+ 1.44	Positive
Rest to questioning	16.81	17.74	+ 0.93	19.6	12.83	- 6.77	Positive
Rest to Explanation	35.22	32.72	- 2.5	28.04	34.08	+ 6.04	Negative
Rest to Student Response	17.26	13.40	- 3.86	19.8	13.46	- 6.34	Positive
Rest to Blackboard	17.44	20.15	+ 2.71	17.43	17.53	+ 0.10	Positive
Rest to Repetition	6.11	4.09	- 2.02	6.31	3.32	- 2.79	Negative
Rest to Dictation	1.83	1.54	- 0.29	2.14	1.15	- 0.99	Negative
Rest to Managerial Work	3.09	5.62	+ 2.13	4.93	11.17	+ 6.24	Negative
Rest to Movement	2.23	4.75	+ 2.52	1.76	6.26	+ 4.5	Negative

+ Positive Shift - Negative Shift

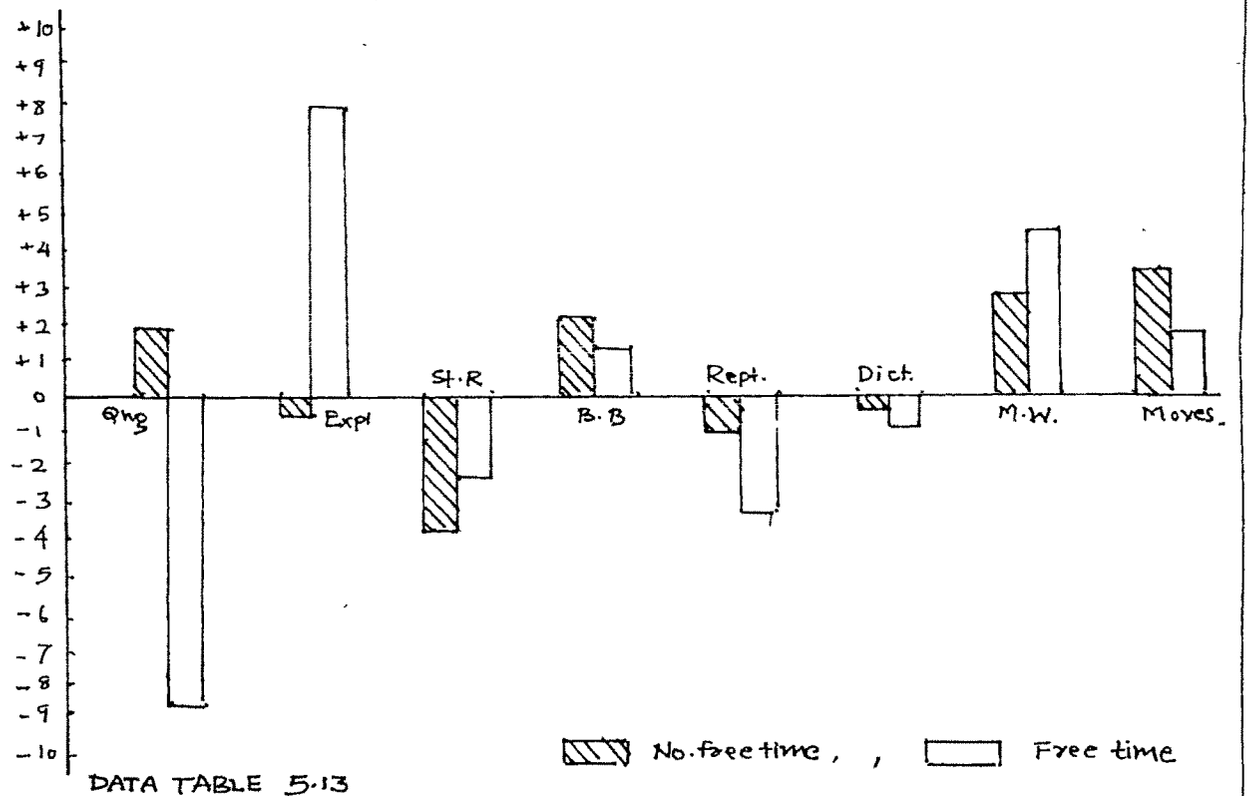
FIG 5.8 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATGORIES PERCENTAGE FREQUENCY FROM PRE TEST TO POST TEST



DATA TABLE 5.12

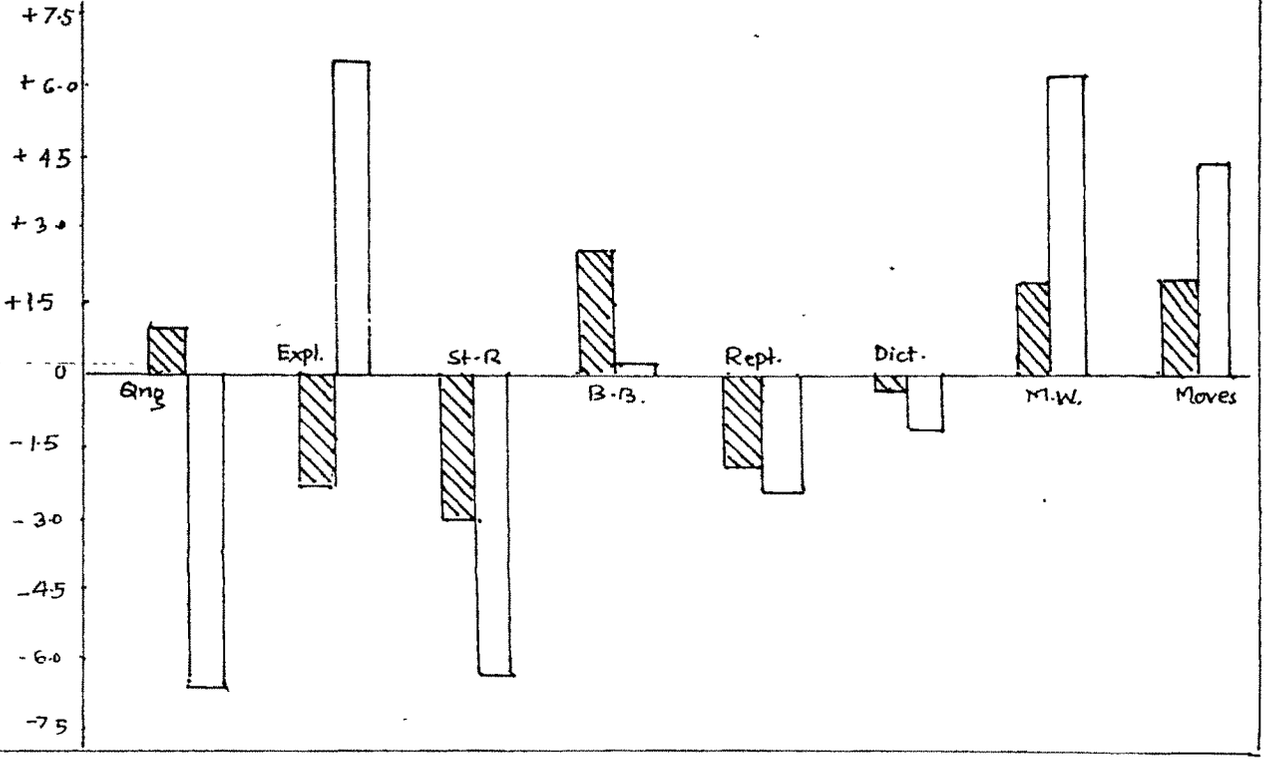
▨ : NO FREE TIME ▭ : FREE TIME

FIG 5·9 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCIES



DATA TABLE 5·13

FIG 5·10 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCIES



the sub-group having no availability of free study time compared to the sub-group having availability of free study time.

3. Questioning to explanation and student response to questioning show decrease by the sub-group having no free availability of time for study compared to the sub-group having free availability of study time.

4. The explanation skill related transitional categories namely, student response to explanation, explanation to questioning, explanation to blackboard, show comparatively increase in the sub-group having no free availability of time to that of sub-group having free availability of time.

5. Explanation skill related transitional categories, namely, explaining to student response, questioning to explanation, explanation to rest and rest to explanation show comparatively decrease in sub-group having no free availability of study time to that of group having free availability of study time.

6. The transitional categories related to skill blackboard namely, questioning to blackboard, blackboard to questioning blackboard to student response, blackboard to rest of categories and from different categories to blackboard show comparatively increase in sub-group having no free availability of time compared to that of group having free availability of time.

7. The transitional categories related to blackboard work, repetition to blackboard is the only category which has decreased comparatively in sub-group having no free availability of study time to that of sub-group having free availability of study time.

8. The transistional categories related to student response component namely, questioning to student response, student response to explanation, student response to repetition, blackboard to student response, and different categories to student response for the sub-group having no free availability of study time show increase compared to the sub-group having free availability of study time.
9. The 'student response' related categories namely, explaining to student response, student response to questioning, and student response to different skills in general, show decrease in the sub-group having no free availability of study time compared to the sub-group having free availability of study time.
10. Categories managerial work, dictation as sustained categories show decrease in sub-group having no free availability of time compared to the group having free availability of time.

Further, analysis for integration indicators was done. The analysed indicators are presented in Table 5.14. The observations derived from the table are presented below.

Observations :

1. Skill association indicators involving questioning and student response, explanation and blackboard, and between blackboard and explanation show relatively more in group having free availability of study time compared to the group having no free availability of study time.
2. All the three skill shift namely explaining to questioning, explaining to blackboard, student response to questioning, and questioning to student response show relatively more with group having free availability of study time compared to the group having no free availability of study time.

Table :5.14: Integration Indicators for the Two Sub-groups formed on Variable Avail / Non-avail of Study time

Integration Indicators	Group : Non-avail of Study Time		Group : Avail of Study Time	
	Duration and Magnitude	Rate of Change in Percentage	Duration and Magnitude	Rate of Change in Percentage
I Skill Association :				
(a) Between Questioning and Student Response	- .012	High	+ 3.81	High
(b) Between Explanation and Blackboard Work	00.00	00.00	+ 0.66	22.42
(c) Between Blackboard and Explanation	+ .22	45.59	- .01	1.85
II Skill Shift :				
Explaining to Questioning	+2.20	28.62	+ 8.24	70.08
Explaining to Blackboard work	-2,34	16.04	+ 0.56	9.03
Student Response to Questioning	-0.65	17.75	- 0.35	-10.29
Questioning to Student Response	-1.81	24.07	- 3.2	46.99
III Skill Dispersion :				
Student talks to Rest of Skill	-3.88	-28.80	- 2.34	14.39
Blackboard to Rest of Skill	+2.00	+10.06	+ 1.2	6.58
Explanation to Rest of Skill	-0.44	1.21	+ 7.98	22.75
Questioning to Rest of Skill	-1.91	11.75	+ 8.67	43.35

3. The skill dispersion for component student response, skill explanation, and skill questioning show relatively more with group having free availability of study time compared to the other group having no availability of study time. Whereas the skill blackboard show relatively more with group having no free availability of study time compared to the group having free availability of study time.

Analysis of General Teaching Competence Data :

The individual scores of student teachers were processed in the Table 5.15 using procedure as followed for the previous variable study. The observations are as given below.

Table :5.15: Analysis for Testing Gain Difference for the General Teaching Competence Scores for the Variable Study Time Availability/Non-availability

I Mean and S.D.

Group	Pre Test		Post Test	
	Mean	S.D.	Mean	S.D.
Above average	50.77	11.73	77.80	
Below average	56.99	7.09	82.19	

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	3.90	3.90	0.230
Within	10	172.06	17.21	
Total	11	175.96	16.00	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Above average	8	50.77	77.80	81.10
Below average	5	56.99	82.19	78.30

The analysis of covariance shows that mean squares within the group are more than between the groups. The F value is 0.23 showing no significant difference between 0.05 level of significance. The results show that the two groups having free availability of study time and no free availability of study time do not differ significantly. However, it may be noted that the scores for study time available have scores slightly higher than the other group having no free availability of study time.

Analysis of Teaching Effectiveness Comprehensive Data :

The individual scores of student teacher were processed in the Table 5.16 following the procedure as followed for the first variable study. The observations are as given below.

Table :5.16: Analysis for Testing Gains in Difference for the Teaching Effectiveness Comprehensive Scores for the Variable Availability of Study Time

I Mean and S.D.

Group	Pre Test		Post Test	
	Mean	S.D.	Mean	S.D.
Above average	11.86	2.77	18.29	2.42
Below average	14.22	2.94	19.07	1.83

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	0.02	0.02	0.0047
Within	10	49.14	4.91	
Total	11	49.15	4.67	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Avail of Study time	8	11.86	18.29	20.08
Non avail of study time	5	14.22	19.06	17.83

The analysis of covariance shows that the means squares within the group is more than between the group squares. This shows that between the group interaction is very low. The F value is 0.0047, which is very insignificant. However, it may be noted that on adjustments of scores, the group having free availability of study time show slightly higher scores compared to the group having no free availability of study time.

Interpretations :

The sustained increase in questioning skill, transistional categories related questioning namely, questioning student response, questioning to repetition, explaining to questioning, questioning to blackboard, blackboard to questioning, repetition to questioning, questioning to rest and rest to questioning in sub-group having no free availability of study time indicates strongly that, the group having no free availability of study time has concentrated on questioning significantly during the post-integration stage compared to the other groups whereas the skill association between questioning and student response skill shift to questioning, skill dispersion for questioning and student response show comparatively better with the group having the free availability of study time. This is to indicate that the group having free availability of study time has stabilised with integration of skill in associating with student response, skill shift and skill dispersion. The group having no free availability of time show significant increase in questioning with less student response.

The sustained component for skill of explanation, as well as transistional categories namely, explaining to student response, questioning to explanation, explanation to rest and rest to explanation show comparative decrease in group having no free availability of time indicating decrease in use of explanation skill. At the same time, explanation to blackboard and blackboard to explanation show increase with group having no free availability of study time, indicating increase in explaining. This observation indicates that the group having free availability of study time has explanation of longer session whereas the group having no free availability of study time has gone for smaller bits of explanation with more questioning but less student response. The group having free availability of study time though has limited questioning has proportionately better student response. Their observation conclude that group having free availability of study time has comparative superiority over the group having no free availability of time. This is also supported by the positive skill association indicators namely explanation and blackboard, skill shift from explaining to questioning, skill dispersion for explanation for indicators of the group having free availability of study time.

The skill of blackboard in all respect as sustained category as well as transistional category shows comparative increase with group having no free availability of study time. The skill

dispersion for blackboard is in favour of group having no free availability of study time. Whereas skill association and skill shift are in favour of group having free availability of study time. These observations indicate that blackboard work has been significantly used throughout the class by the group having no free availability of study time, whereas they were not able to integrate effectively with explanation and questioning skills.

The sustained category of student response show decrease and other transistional categories related to student response show increase by the group having no free availability of study time indicating that the group has decrease long responses from students and student talk in the class appears after explanations and blackboard as well. These indicate comparatively poor pattern formation of skills in teaching by group having no free availability of study time compared to the group having free availability of study time.

The ANCOVA results for both measures namely general teaching competency and teaching effectiveness comprehensive scores show no significant difference between the two groups, indicating the variable do not affect in integration.

However considering the 'interaction analysis interpretations as qualitative, and ANCOVA as weak test for the nature of data under the study it can be concluded that, the free study time availability does affect the integration achievement. The group having free availability of time have done moderately better than

the group having no free availability of time.

Findings :

1. The two sub-groups formed on the basis of free availability of time for study shows that the two sub-groups having free availability of study time and having no free availability of study time have produced two distinct type of interaction patterns.
2. The interaction pattern formed by the sub-group having free availability of study time comparatively shows superiority over the group having no free availability of study time.
3. The integration indicators for the sub-group having free availability of study time comparatively shows superiority over the group having no free availability of study time.
4. The ANCOVA results for the two groups do not show any significant difference between the adjusted means of two sub-groups on general teaching competence and teaching effectiveness comprehensive scores.

5.2.3 Relative Effectiveness of the Integration Stratagey Against the Variable Qualifications :

The two sub-groups were formed as one constituting those who have only graduation as their qualification and the other having post-graduation as their qualification.

Hypothesis

The two sub-groups do not differ in integration of teaching skills during their post-integration test on teaching performance, when measured in terms of (a) skill interaction analysis system, (b) Baroda general teaching competence, and (c) Teaching Effectiveness Comprehensive Rating.

For testing the hypothesis the three measures were independently analysed and observations were made. These observations were further interpreted collectively to test the hypothesis.

Analysis for Interaction Category Data :

Change in amount of time from pre test to post test for different categories for two sub-groups is presented in the Table 5.17. Similarly Table 5.18 presents changes in amount of time from pre test to post test, for skill categories to rest and from different skill categories to specific skill categories for the two sub-groups. The detailed procedure followed to analyse the data has been presented in Section IV of Chapter IV.

Observations :

1. Sustained questioning show relative decrease in the post-graduate group to that of graduate group.
2. Questioning related transistional categories namely, questioning to student response, questioning to repetition, questioning to blackboard and blackboard to questioning show relative increase in post-graduate group to that of graduate group.
3. Questioning related transistional categories namely, explaining to questioning, student response to questioning, repetition to questioning, questioning to rest and rest to questioning show decrease in post-graduate group relatively to that of graduate group.
4. Sustained explanation show relative increase with post-graduate group compared to the graduate group.

Table :5.17: Change in Amount of Time from Pre Test to Post Test for Different Skill Components for the Two Groups having Qualifications Post-graduation and Graduation of the Sample

Categories	GroI : Post-graduation			Group II:Non-Postgraduation			Change in Gr.I in Relation to Gr.II.
	Pre	Post	Change	Pre	Post	Change	
Blackboard Work	4.71	7.70	+2.99	5.16	5.62	+0.46	Positive
Questioning Sustained	4.22	2.15	-2.07	3.54	1.20	-2.34	Negative
Questioning to Student Response	9.34	8.20	-1.34	9.91	6.16	3.75	Positive
Questioning to Repetition	1.16	0.66	-0.05	1.04	0.19	-0.85	Positive
Explaining to Student Response	1.51	0.72	-0.79	1.91	0.46	-0.55	Negative
Student Response to Explanation	3.27	2.11	-0.27	3.86	3.35	-0.42	Positive
Questioning to Explanation	1.07	0.78	-1.16	1.10	0.68	-0.51	Negative
Questioning to Blackboard	1.88	2.94	+1.06	1.70	1.99	+0.29	Positive
Explaining to Questioning	4.18	5.38	+1.2	5.04	6.85	+1.81	Negative
Explaining Sustained	16.81	19.47	+2.66	18.25	16.56	-1.69	Positive
Explanation to Blackboard Work	7.49	7.50	-0.13	7.20	5.89	+0.3	Negative
Student Response to Questioning	4.23	3.65	-0.58	3.96	3.46	-0.5	Negative
Student Response Sustained	4.39	2.75	-1.64	4.08	3.35	-0.73	Negative
Student Response to Repetition	2.67	2.24	-0.43	2.71	1.75	-0.96	Positive
Blackboard work to Questioning	3.26	3.24	-0.02	2.97	2.21	-0.76	Positive
Blackboard Work to Student Respon	1.31	1.60	+0.21	1.05	1.12	+0.07	Negative
Repetition to Questioning	1.87	1.20	-0.67	1.03	0.77	-0.26	Negative
Repetition to Blackboard Work	0.85	0.90	+0.05	0.68	0.45	-0.23	Positive
Managerial Work	2.74	1.04	-1.7	1.85	9.85	+8.00	Negative
Ditation	0.23	0.81	+0.50	1.11	0.46	-0.65	Positive

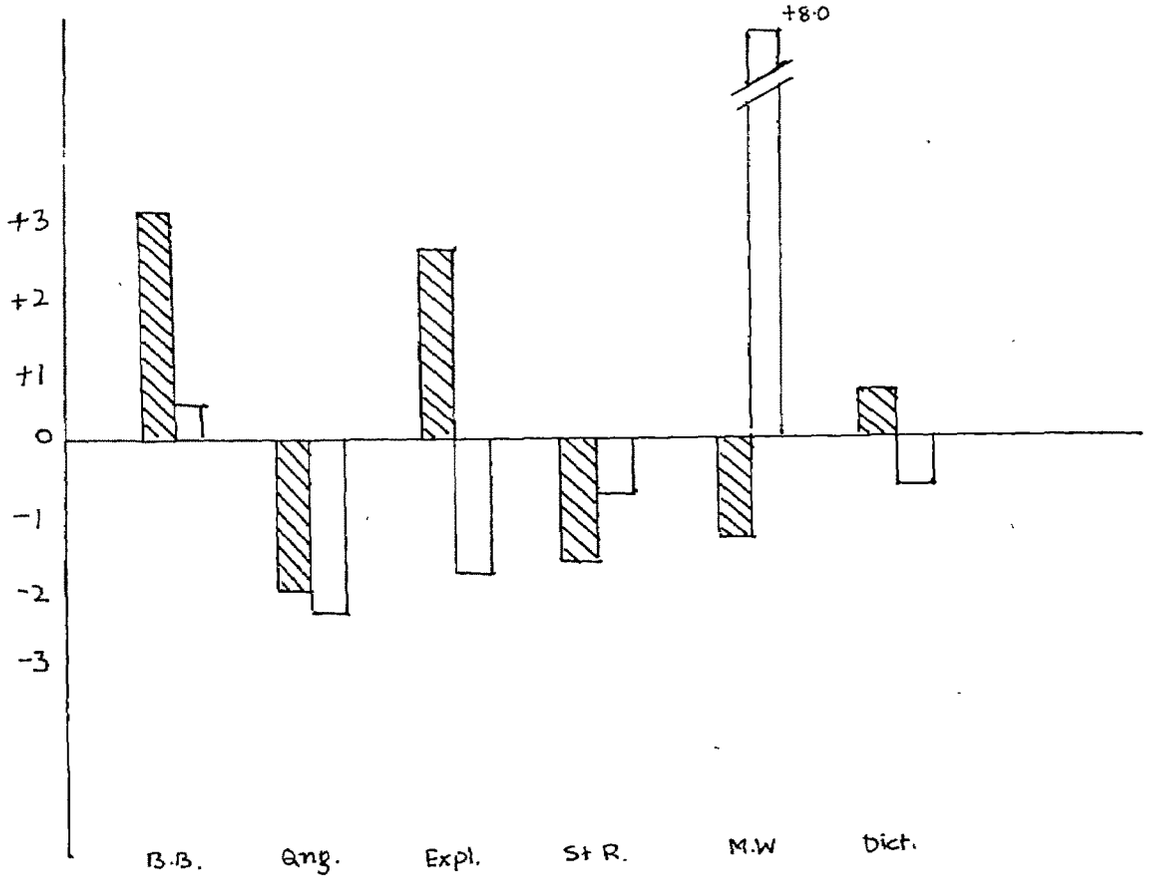
+ Positive Shift - Negative Shift

Table :5.18: Change in Amount of Time from Pre test to Post test for Different Specific Skill Components to Rest of Skills Components and Vis-a-Vis for the Two Groups having Qualification Post-graduation and Graduation of the Sample

Categories	Gr.I : Post-graduation			Gr.II: Graduation			Change in Gr.I in relation to Gr.II
	Pre test	Post test	Change	Pre test	Post test	Change	
Questioning to Rest	17.95	14.96	- 2.99	17.70	10.78	- 6.98	Positive
Explanation to Rest	31.38	37.16	+ 5.78	33.83	34.12	+ 0.29	Positive
Student Response to Rest	18.08	13.32	- 4.76	17.74	15.33	- 2.41	Negative
Blackboard to Rest	18.55	21.46	+ 2.91	16.74	16.68	- 0.06	Positive
Repetition to Rest	6.69	4.37	- 2.32	5.33	3.70	- 1.63	Negative
Dictation to Rest	1.17	1.83	+ 0.66	2.90	2.01	- 0.89	Positive
Managerial work to Rest	4.41	0.39	- 4.02	3.61	12.45	+ 8.84	Negative
Movement to Rest	1.77	4.07	+ 2.30	2.15	4.93	+ 2.78	Negative
Rest to Questioning	18.38	16.26	-2.12	18.05	16.45	- 1.60	Negative
Rest to Explanation	31.36	34.53	+ 3.17	32.92	31.29	- 1.63	Positive
Rest to Student Response	13.20	14.08	- 4.12	15.77	12.41	- 3.36	Negative
Rest to Blackboard Work	17.76	21.83	+ 4.07	17.24	15.60	- 1.64	Positive
Rest to Repetition	6.86	4.25	- 2.61	5.90	3.47	- 2.43	Negative
Rest to Dictation	1.05	1.80	+ 0.75	2.61	1.34	- 1.27	Positive
Rest to Managerial work	4.40	2.57	- 1.83	3.62	13.47	+ 9.85	Negative
Rest to Movement	1.99	4.67	+ 2.68	2.12	5.22	+ 3.1	Negative

+ Positive Shift - Negative Shift

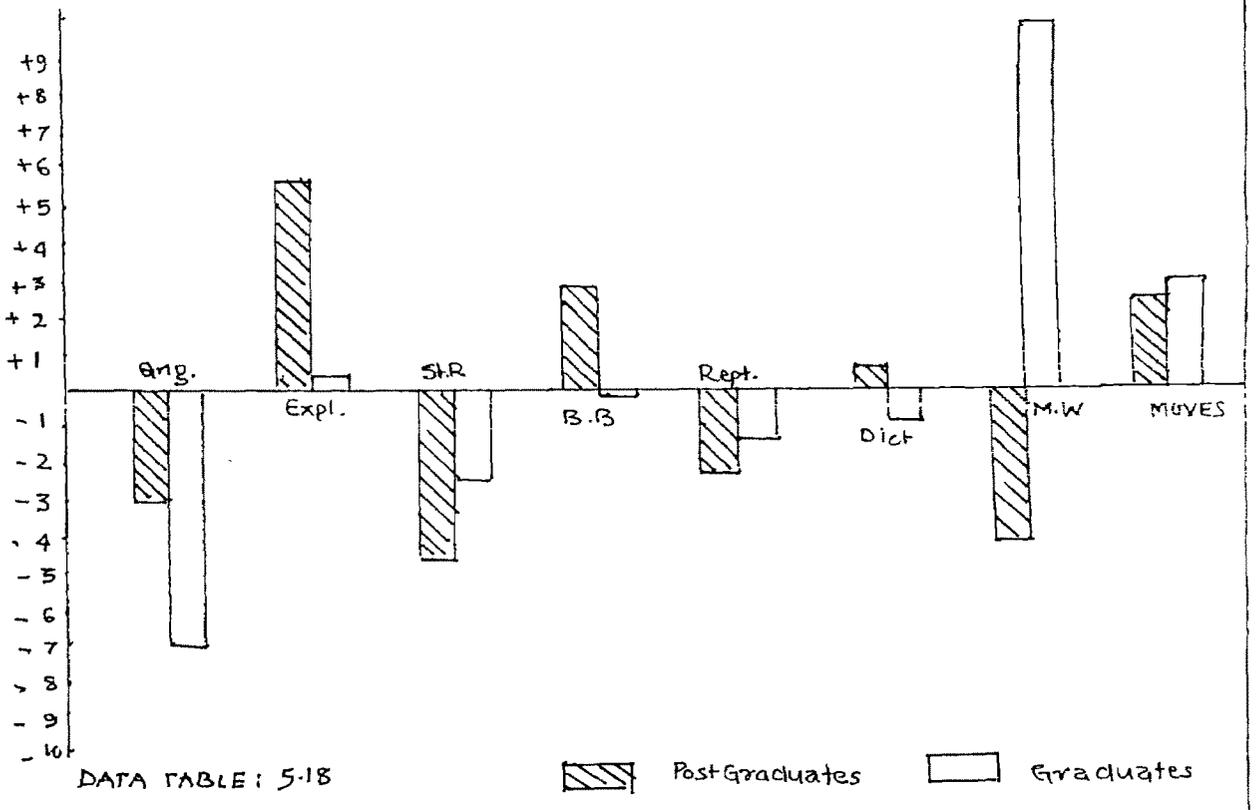
FIG·5·11 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATEGORIES PERCENTAGE FREQUENCIES FROM PRE TEST TO POST TEST



DATA TABLE 5·17

POST GRADUATES GRADUATES

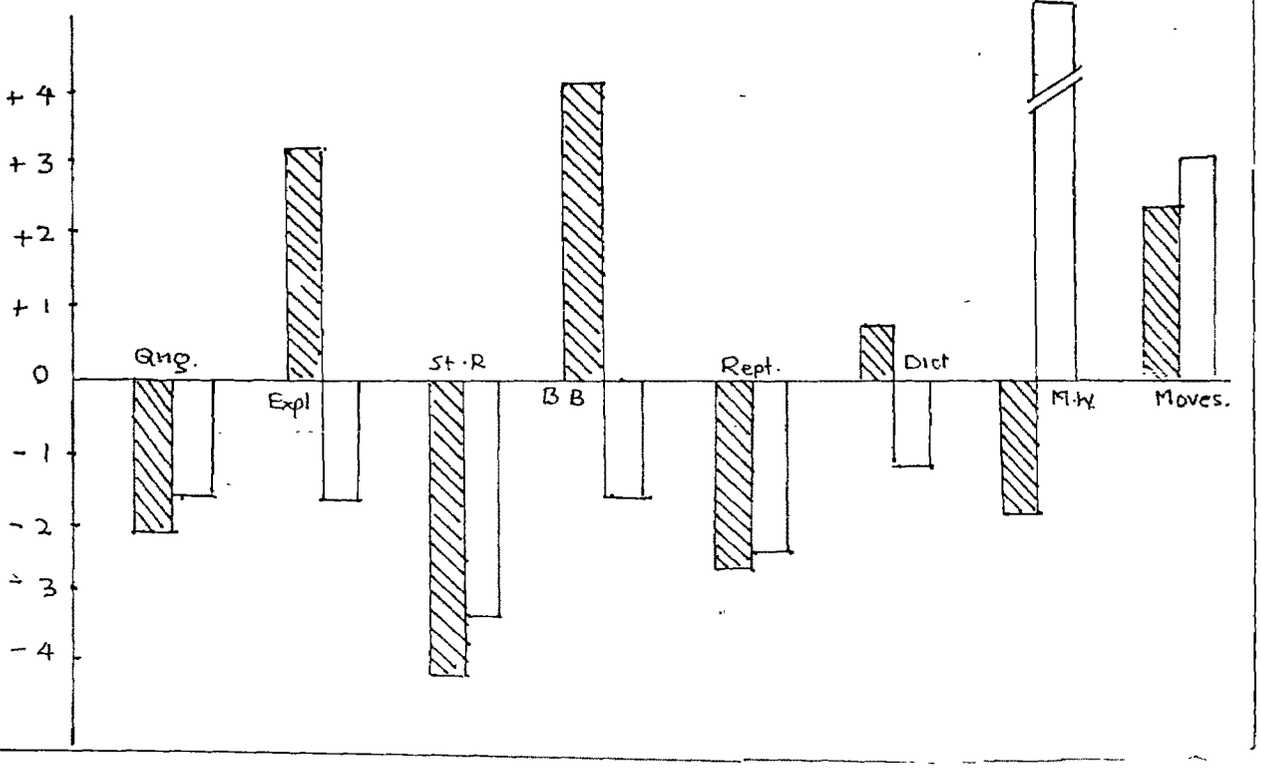
FIG 5.12 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCIES



DATA TABLE: 5.18

Post Graduates Graduates

FIG 5.13 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCIES



5. The transistional categories related to explanation namely, student response to explanation, explanation to rest and rest to explanation show relative increase in the post-graduate group to that of graduate group.

6½ The transistional categories namely, explaining to student response, questioning to explanation, and explanation to blackboard, show decrease relatively in post-graduate group to that of graduate group.

7. The sustained block for blackboard work show relative increase in the post-graduate group to that of graduate group.

8. The transistional blocks related to blackboard work namely, questioning to blafkboard, blackboard to questioning, repetition to blackboard, blackboard to rest and rest to the blackboard show relative increase in the post-graduate group compared to that of graduate group.

9. The transistional blocks related to blackboard namely, explanation to blackboard and blackboard work to student response show relative decrease for post-graduate group to that of graduate group.

10. Sustained block for student responses show relative decrease for post-graduate to that of graduates.

11. The transistional blocks related to student response namely, questioning to student response, student response to explanation, and student response to repetition, show relative increase in the post-graduates to that of graduates½

12. The transistional blocks related to student responses namely, explaining to student response, student response to questioning, blackboard to student response, student response to rest and rest to student response show relative decrease in post-graduate group compared to that of graduate group.

13. All major categories related to managerial aspects show decrease in post-graduate group relatively to that of graduate group.

14. All major categories related to dictation show increase in post-graduate group relatively to that of graduate group.

Further, the interaction analysis was carried for computing integration indicator. The indicators are presented in the Table 5.19. The observations on the table are presented below.

Observations :

1. The skill association between questioning and student response show relatively more with graduates group compared to post-graduates. Association between explanation and blackboard show relatively more with graduates group compared to post-graduates.

2. Skill shift namely, explaining to questioning, explaining to blackboard and student response to questioning show relatively more with graduates compared with post-graduates, whereas the shift for questioning to student response show relatively more with post-graduates compared to graduates.

3. Skill dispersion for questioning and student talk show relatively more with graduate teachers whereas for skills, blackboard and explanation shift show relatively more with post-graduates compared to the graduates groups.

Analysis of General Teaching Competence Data :

The individual scores of student teachers were processed in Table 5.20, using the procedure as mentioned for the first variable study.

Table :5.19: Analysis for Integration Indicators for the Two Sub-groups formed as Post-graduate Teachers and Graduate Teachers

	Integration Indicators	Gr.Post-Graduate Teachers		Gr.: Graduate Teachers	
		Direction & Magnitude	Rate of Change	Direction & Magnitude	Rate of Change
I	Skill association				
	(a) Between questioning and student Response	+ 0.24	+ 18.66	+ 1.54	+ 55.03
	(b) Between Explaination and Blackboard	+ 0.18	+ 13.89	+ 0.23	+ 18.89
	(c) Between Blackboard and Explanation	+ 0.20	+ 39.31	+ 0.003	+ 0.957
II	Skill shift				
	(a) Explaining to questioning	+ 3.05	+ 44.20	+ 5.49	+ 54.52
	(b) Explaining to Blackboard	- 0.12	- 0.79	+ 1.01	+ 07.3
	(c) Student Response to Questioning	- 0.58	- 15.89	- 0.5	- 14.45
	(d) Questioning to Student Response	- 1.14	- 13.90	- 3.75	- 37.84
III	Skill Dispersion				
	(a) Student talks to Rest of Skills	- 4.76	- 35.73	- 2.41	- 15.72
	(b) Blackboard work to Rest of Skills	+ 2.91	+ 13.56	- 0.06	- 0.30
	(c) Explanation to Rest of Skills	+ 5.78	+ 15.55	+ 2.09	+ 6.13
	(d) Questioning to Rest of Skills	+ 2.99	+ 16.65	+ 6.98	+ 39.41

Table :5.20: Analysis for Testing Gain Difference for the General Teaching Competence Scores for the Variable Teacher with Post-graduate and Only Graduate Qualification

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Post-graduate Teachers	55.58	5.74	81.44	6.26
Graduate Teachers	51.17	13.09	77.82	6.70

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	3.05	3.05	0.27
Within	10	114.70	11.47	
Total	11	117.75	10.71	Table F Value: 4.96

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Post-graduate Teachers	6	55.58	81.44	78.22
Graduate Teachers	7	51.17	77.82	81.06

The analysis of covariance shows that the mean square between the group is less than mean square within group, indicating low interaction between the two groups. Further the F value 0.27 is less than one, showing insignificant results. The table indicates that the two groups namely group having post-graduate student and graduate do not differ significantly when compared on general teaching competency. However, graduates show slightly higher scores compared to post-graduate on adjusted means.

Analysis of Teaching Effectiveness Comprehensive Data :

The individual scores of student teachers were processed in Table 5.21 using the procedure as mentioned for the first variable analysis.

Table :5.21: Analysis for Testing Gains in Differences for the Teaching Effectiveness Comprehension Scores for the Variable 'Teacher With Post-graduate and only Graduate Qualifications

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
P.G. teachers	12.86	2.30	19.11	1.14
Graduate teachers	12.66	3.76	18.14	12.80

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	2.51	2.51	0.54
Within	10	46.62	4.62	
Total	11	49.13	4.47	Table F value: 4.96

III Adjustment of Means

Group	N	Pre test	Post test	Post test adjusted
P.G. Teacher	6	12.86	19.11	18.95
Graduate Teachers	7	12.66	18.14	18.29

The analysis of covariance shows that the mean square within group, indicating no interaction between the two groups. Further the 'F' value 0.54 is less than one, showing insignificant results. The table indicates that the two groups namely group having post-graduates students and graduate students do not differ significantly when compared on comprehensive teaching effectiveness group mean scores.

Interpretations :

The post-graduate students group show decrease in questioning, associated with decrease in student response however the shift from questioning to student response has increased. The skill dispersion for both student talk and questioning has decreased. This concludes that the post-graduate group has comparatively less involved in questioning and its use throughout the class. Whatever the questions they asked have been responded well by students. The graduates were comparatively more dependent on questioning pattern, their questioning appears throughout the classroom teaching and the chain formation of questioning - response has increased.

The post-graduates as an compensation to questioning have increased their explanation as sustained activity and appears throughout the class which is observable by high skill dispersion. The graduates show high intermitant short use of explanation comparatively to that of post-graduates.

The post-graduates have used blackboard work much more than the graduates and are able to use all most throughout the class except during sustained explanation whereas the graduates have used explanation more with the blackboard work.

The above observations conclude that the graduates have more discussion oriented classes and post-graduate explanation oriented classes and the two groups differ in their teaching style formation .

The ANCOVA results on General teaching competence and comprehensive teaching effectiveness show that, in both the cases the interaction between the group is less than the interaction within the group, having the F value 0.27 and 0.54 respectively. These results show that the two groups do not differ significantly in their teaching effectiveness. However, it may be noted that the graduate teachers have performed with higher scores compared to post-graduates in both the measures.

Taking into consideration all the above indications, the conclusion will be that, the two groups though do not differ significantly in performance, the graduates have done better both in their teaching pattern formation and performance compared to the post-graduates.

Findings :

1. The two sub-groups formed on the basis of qualifications, show that, the two groups having graduates and post-graduates have produced two distinct type interaction patterns.

2. The interaction pattern formed by the sub-group having graduate student teachers relatively show superiority over the group having post-graduate student teachers.
3. The integration indicators for the sub-group having graduate student teachers relatively show superiority over the group having post-graduate student teachers.
4. The ANCOVA results for the two groups do not show any significant difference between the adjusted means of two sub-groups on general teaching competence and Teaching effectiveness comprehension scores.

5.2.4 Relative Effectiveness of the Integration Stratagey against the Variable Academic Achievement :

The two sub-groups were formed as one having high merit during their previous academic achievement. This sub-group constitutes those student teachers who have consistantly high academic merit in their secondary and university education. The other sub-group constitute those student teachers, who do not have consistant academic merit during their secondary education onwards.

Hypothesis :

'The two sub-groups do not differ in integration of teaching skills during their post test on teaching performance when measured in terms of (a) Skill interaction analysis category system (b) Baroda General Teaching Competence, and (c) Teaching Effectiveness Comprehensive Ratings.'

For testing the hypothesis the three measures were independently analysed and observations were made. These observations were further integrated collectively to test the hypothesis.

Analysis for Interaction Category Data :

Change in amount of time from pre test to post test for different categories for the two sub-groups is presented in the Table 5.22. Similarly Table 5.23 presents change in amount of time from pre test to post test for skill categories to rest and from different skill categories to specific skill categories for the two sub-groups. The observations on these two tables are presented below.

Observations :

1. The sustained questioning categories has relatively decreased in the group having high achievement compared to that of low achievement group.
2. The transistional categories related to questioning namely, questioning to student response, questioning to repetition, questioning to explanation, explanation to questioning, questioning to rest and rest to questioning show relative decrease with high achievers compared to that of low achievers.
3. The transistional categories related to questioning namely, questioning to blackboard, and blackboard to questioning show relative increase with high achievers compared to the low achievers.
4. The sustained category for explanation skill show relative increase with high achievers group compared to the low achievers.

Table :5.22: Change in Amount of Time from Pre Test to Post Test for Different Skill Components for the Two Groups - High Academic Achievers and Low Academic Achievers of the Sample

Categories	Gr.I : High Aca.Achievers			Gr.II:Low Aca.Achievers			Change in Gr.I in Relation to Gr.II
	Pre	Post	Change	Pre	Post	Change	
Blackboard Work	5.07	6.85	+1.78	0.91	1.06	+1.75	Neutral
Questioning Sustained	5.06	1.81	-3.25	1.76	1.5	-0.20	Negative
Questioning to Student Response	10.08	7.56	-2.52	8.24	6.34	-1.90	Negative
Questioning to Repetition	1.31	0.53	-0.78	0.69	0.25	-0.44	Negative
Explaining to Student Response	1.33	0.54	-0.79	0.99	0.68	-0.77	Negative
Student Response to Explanation	4.85	4.08	-0.57	3.4	2.03	-1.37	Positive
Questioning to Explanation	1.46	0.76	-0.7	0.47	0.65	+0.18	Negative
Questioning to Blackboard Work	2.19	3.19	+1.0	1.04	1.53	+0.49	Positige
Explaining to Questioning	5.37	5.66	+0.27	3.27	6.56	+3.29	Negative
Explaining Sustained	14.37	18.00	+3.63	21.11	17.5	-3.61	Positive
Explanation to Blackboard Works	6.03	7.71	+1.98	8.09	5.6	-2.49	Positive
Student Response to Questioning	4.85	4.08	-0.77	2.66	2.46	-0.20	Negative
Student Response Sustained	4.1	2.78	-1.32	4.17	3.35	-0.72	Negative
Student Response to Repetition	3.08	2.42	-0.66	1.92	0.82	-1.1	Negative
Blackboard Work to Questioning	3.32	3.41	+0.09	2.54	1.46	-1.08	Positive
Blackboard Work to Student Response	1.34	1.51	+0.17	0.91	1.06	+0.71	Positive
Repetition to Questioning	1.80	1.32	-0.48	0.69	0.36	-0.33	Negative
Repetition to Blackboard Work	0.83	0.80	-0.03	0.60	0.46	-0.14	Neutral
Managerial Work	2.02	3.78	+1.76	2.39	7.88	+5.19	Negative
Dictation	0.28	0.13	-0.15	1.07	0.41	-0.66	Negative

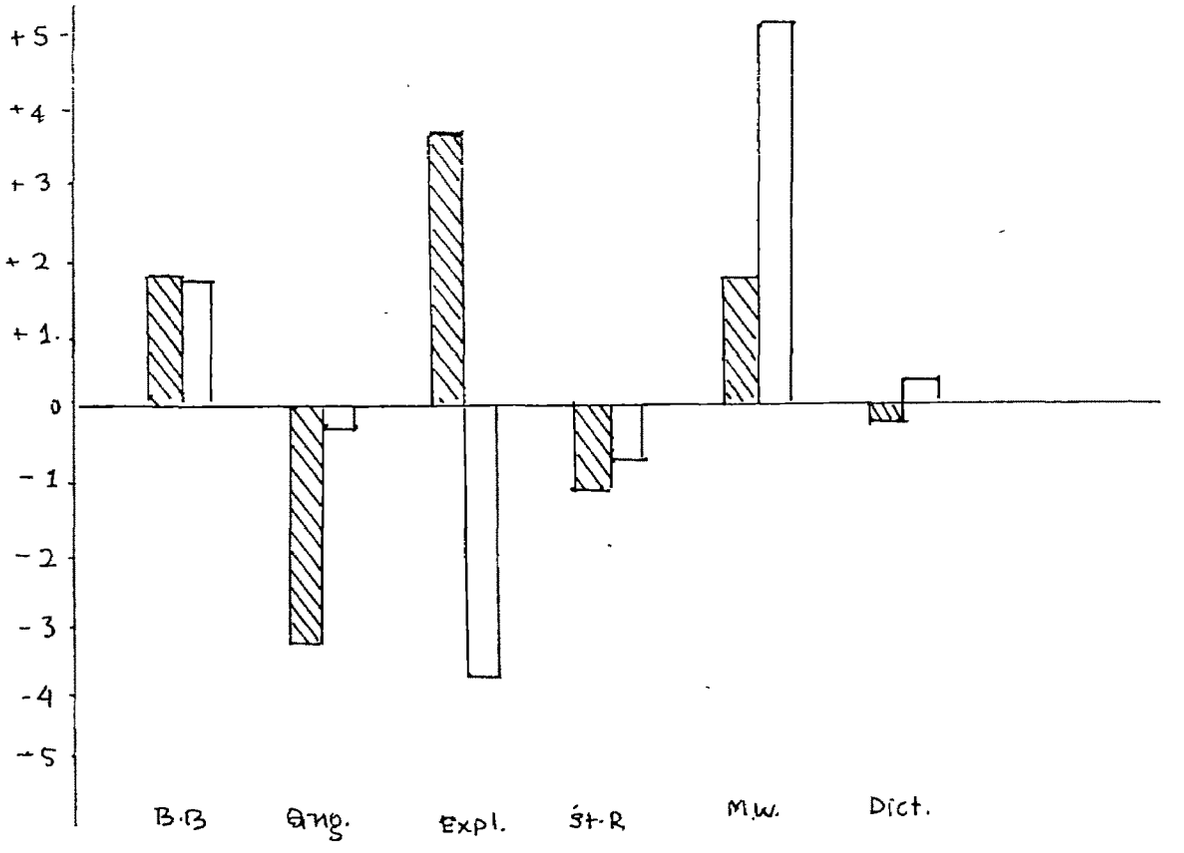
+ Positive Shift - Negative Shift

Table :5.23: Change in Amount of Time from Pre test to Post test for Different Specific Skill Components to Rest of the Skill Components and Vis-a-Vis for the Two Groups High Academic Achievers and Low Academic Achievers of the Sample

Categories	Gr.I:High Academic achievers			Gr.II:Low Academic achievers			Change in Gr.I in relation to Gr.II
	Pre Test	Post Test	Change	Pre Test	Post Test	Change	
Questioning to Rest	20.54	14.14	- 6.4	12.66	11.58	- 1.88	Negative
Explanation to Rest	28.60	35.23	+ 6.63	44.61	39.47	- 5.14	Positive
Student Response to Rest	18.99	15.22	- 3.22	14.97	11.58	- 3.39	Negative
Blackboard work to Rest	16.97	20.95	+ 3.98	16.87	15.68	- 1.19	Positive
Repetition to Rest	7.20	4.30	- 2.90	3.57	3.42	- 0.15	Negative
Dictation to Rest	1.72	1.67	- 0.05	2.20	1.92	- 0.28	Positive
Managerial work to Rest	3.98	5.23	+ 1.25	3.54	10.72	+ 7.18	Negative
Movement to Rest	1.97	3.75	+ 1.78	1.54	5.61	+ 4.07	Negative
Rest to Questioning	21.92	17.68	- 4.24	11.45	13.06	+ 1.61	Negative
Rest to Explanation	28.52	32.90	+ 4.38	35.35	31.72	- 3.63	Positive
Rest to Student Response	18.64	13.35	- 5.29	15.11	12.68	- 2.43	Negative
Rest to Blackboard work	16.57	20.87	+ 4.30	17.44	14.78	- 2.66	Positive
Rest to Repetition	7.22	4.20	- 3.02	12.39	7.18	- 5.21	Positive
Rest to Dictation	1.41	1.20	- 0.21	2.31	2.03	- 0.28	Positive
Rest to Managerial work	3.62	5.83	+ 2.21	4.07	10.67	+ 6.6	Negative
Rest to Movement	2.10	4.06	+ 1.96	1.88	7.84	+ 5.96	Negative

\+ Positive shift - Negative shift

FIG 5.14 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATEGORY PERCENTAGE FREQUENCIES FROM PRE TEST TO POST TEST

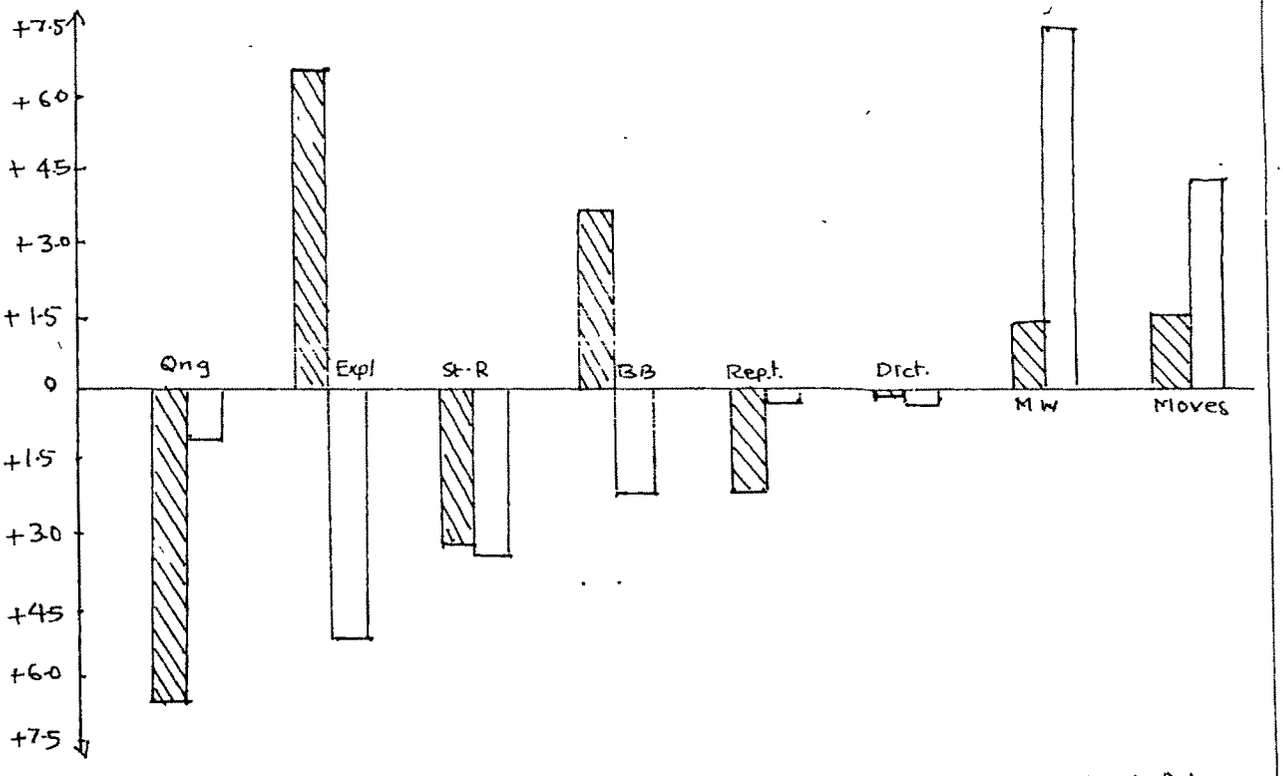


DATA TABLE 5.22

High Academic Achievers

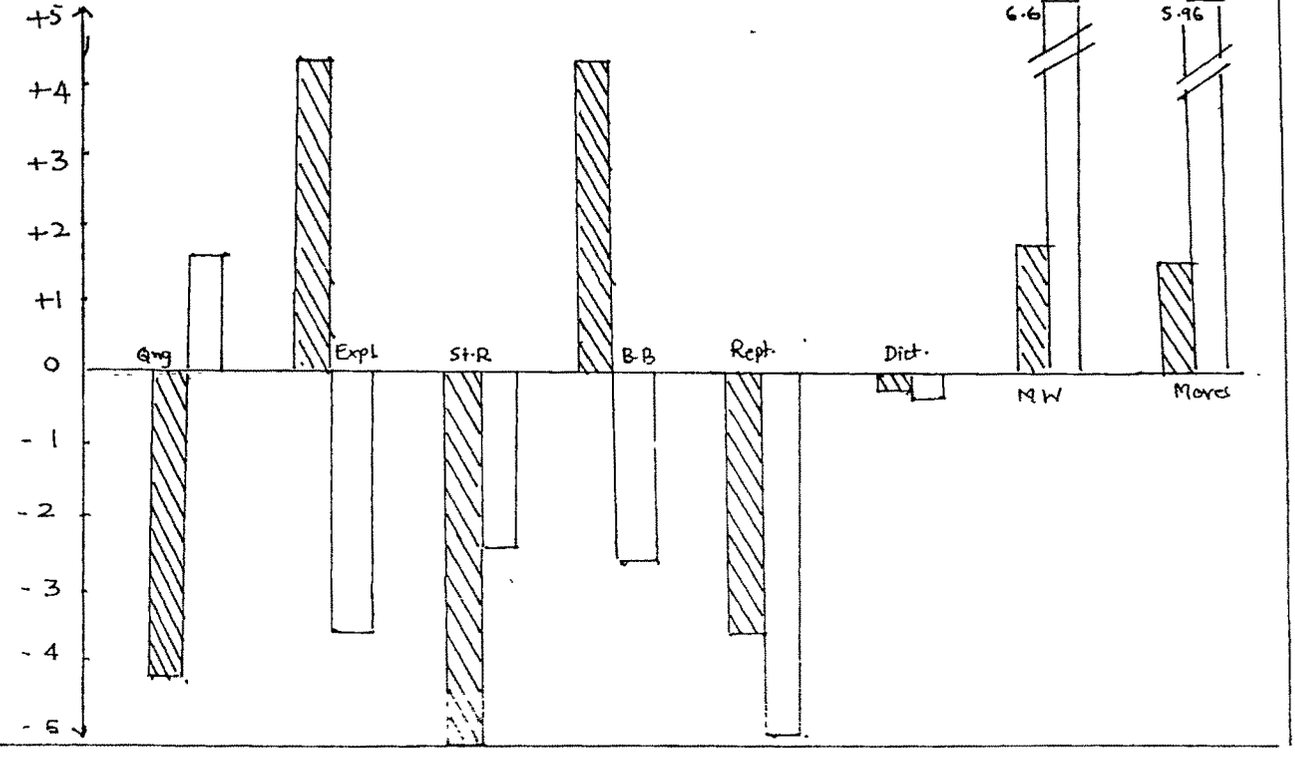
Low Academic Achievers

FIG 5·15 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCEY



DATA TABLE: 5·23 ☐ Low Academic Ach ▨ High Academic Ach.

FIG 5·16 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCEY



5. The transistional categories for explanation namely student response to explanation, explanation to blackboard, explanation to rest and rest to explanation show relative increase with high achievers group compared to the low achievers group. The category explaining to student response do not show any relative difference between the two sub-groups.

6. The transistional blocks related to explaining namely, questioning to explanation and explaining to questioning show relative decrease with high achievers group compared to that of low achievers.

7. The sustained block for blackboard show relative increase in the sub-group having high achievement compared to that of the low achievement group.

8. The transistional category related to blackboard namely, explanation to blackboard, blackboard to questioning, blackboard to student response, repetition to blackboard, blackboard to rest and rest to blackboard show relative increase with group having high achievers compared to that of low achievers.
   There is no major transistional category related to blackboard which show relative decrease in group having high achievers to that of low achievers.

9. The sustained category for student response show relative decrease with high achievers compared to that of low achievers.

10. The transistional category related to student response namely, student response to explanation, and blackboard work to student response, show relative increase with high achievers compared to that of low achievers. Whereas the, category explaining to student response and student response to rest do not show relative change between the two groups.

11. The transistional category for student response namely,

questioning to student response, student response to questioning, student response to repetition and rest to student response show relative decrease with high achievers compared to the low achievers group.

12. All categories related to managerial work show relative decrease with group having high achievers compared to the low achievers.
13. Sustained category for dictation, rest to dictation show relative decrease and dictation to rest show relative increase for the high achievers group compared to the low achievers group,

Further, the integration indicators computed are presented in the Table 5.24. The observations on table are presented below.

1. The skill association between questioning and student response show relatively increase for high achievers compared to the low achievers whereas explanation and blackboard work show more for low achievers compared to the high achievers.
2. Skill shift for explaining to questioning and explaining to blackboard show relatively more with high achievers compared to the low achievers group, whereas student response to questioning and questioning to student response show relatively more with group having low achievement compared to the group having high achievement.
3. All the skill dispersion namely, questioning, explaining, blackboard and student response show relatively more with high achiever group compared to the group having low achievement.

Table :5.24: Analysis for Integration Indicators for the Two Sub-groups formed on Variable Academic Achievement

Integration Indicators	Group : Merited		Group : Non-merited	
	Direction and Magnitude	Rate of Change	Direction and Magnitude	Rate of Change
I Skill Association				
(a) Questioning and Blackboard	+ 00.72	47.25	+ 0.60	20.61
(b) Explanation and Blackboard	+ 0.4	3.73	+ 0.44	25.91
(c) Blackboard and Explanation	+ 0.16	3.88	+ 0.048	47.27
II Skill Shift				
(a) Explaining to Questioning	+ 3.76	50.42	+ 3.13	31.06
(b) Explaining to Blackboard	+ 3.66	22.99	- 6.47	62.81
(c) Student response to Questioning	- 0.77	18.87	- 0.20	8.13
(d) Questioning to Student Response	- 2.52	33.35	- 1.90	29.97
III Skill Dispersion				
(a) Student talk to rest of skills	- 3.22	21.15	- 3.39	29.27
(b) Blackboard to rest of Skills	+ 3.98	19.00	- 1.19	7.59
(c) Explanation to rest of skills	+ 6.63	18.82	- 5.14	13.02
(d) Questioning to Rest of Skills	+ 6.40	31.16	- 1.08	9.33

Analysis of General Teaching Competence Data :

The individual scores of student teachers were processed in Table 5.25 using the procedure as mentioned for the first variable study.

The analysis of covariance shows that the mean square between the group is more than the mean square ø within the group, indicating high interaction between the two groups. However, the F value 1.309 shows insignificance of results at 0.05 level of significance. The F value provides results as, the two groups namely high academic achievers and low academic achievers do not differ significantly on general teaching competence. However the adjusted means show that the low academic achievers have higher mean score compared to high academic achievers on general teaching competency group means.

Analysis of Teaching Effectiveness Comprehensive Data :

The individual scores of student teachers were processed in Table 5.26 using the procedure as mentioned for the first variable study.

The analysis of covariance shows that the mean squares between the group is less than the mean square within the group, indicating low interaction between the two groups. The F value 0.16 being less than one, indicates that, the two groups namely low academic achievers and high academic achievers do not differ significantly on their integration of skills when

Table :5.25: Analysis for Testing Gain Differences for the General Teaching Competence Scores for the Variable 'Academic Achievement in Previous Courses

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Merited	58.76	5.71	83.20	4.69
Non-merited	44.22	10.58	73.55	5.09

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	20.37	20.37	1.309
Within	10	155.59	15.56	
Total	11	175.96	16.00	Tabled F Value: 4.96

III Adjustment of Means

Group	n	Pre test	Post test	Post Test adjusted
Merited	8	58.76	83.20	72.98
Non-merited	4	44.22	73.55	85.17

Table :5.26: Analysis for Testing Gain Difference for the Teaching Effectiveness Comprehensive scores for The Variable 'Academic Achievement in Previous Courses'.

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Merited	14.46	2.49	19.27	1.62
Non-Merited	9.52	2.01	17.13	2.84

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	0.77	0.77	0.16
Within	9	47.75	5.31	
Total	10	48.52	4½85	Tabled F value at 0.05

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Merited	8	14.46	19.25	15.99
Non-merited	4	9.52	17.13	21.62

measured through teaching effectiveness comprehensive scores.

Interpretation :

The sustained questioning category show comparatively low with high achievers to the low achievers. Similarly all transistional categories related to questioning namely, student response, repetition, explanation, questioning to rest and rest to questions, except those related to blackboard. Along with this

the sustained student response and questioning to student response show decrease with high achievers. This is to conclude that relatively high achievers have decreased the use of questioning skill and proportionately decreased in student participation.

The sustained explanation is more with high achievers. Similarly questioning related transistional categories namely, student response to explanation, explanation to blackboard, explanation to rest and rest to explanation show increase with high achievers. Only questioning to explanation and explanation to questioning show decrease obviously due to low questioning skill use. This is to conclude that the high achievers comparatively have more use of explanation skill and their transistional categories. These two conclusions are supported by the skill shift indicators which show that, high achievers show relatively more with explaining to blackboard and explaining to questioning whereas low with questioning to student response and student response to questioning.

The sustained categories with blackboard show increase with high achievers. Similarly all blackboard related transistional categories show relatively more with high achievers. This is to conclude that relatively high achievers have more use of blackboard skill and its related transistional categories.

Student response is relatively less with high achievers. The managerial work and dictation is also less with the high achievers. All dispersion indicators show that high achievers are more positive than low achievers.

All the above observations conclude that the two patterns formed by the two groups show clear distinction. The high achievers are relatively more user of explanation and blackboard but are able to acquire more skill shift with explaining to questioning, explaining to blackboard, more skill association between questioning and blackboard, and more dispersion with questioning, blackboard, explanation and student response. Whereas the other group having, low achievement on academic carrier show relatively more use of questioning, and their transistional categories and less of explanation, black board and their, relavant transistional categories. They have relatively more time consumption in managerial work and dictation. All these relatively show that high achievers though are not relatively using more questioning show better performance on skill integration indicators hence showing superiority.

On observing ANCOVA results for the measures on general teaching competence, the interaction mean square between the group is greater than within square means concluding the variable does influence. However, the F being 1.309 do not provide significant difference between the two means. Similarly results on measure teaching effectiveness comprehensive the interaction

of mean square between group being low compared to within signifies no difference between the two groups.

It can be concluded with the interaction analysis and ANCOVA of general teaching competence results, that the two groups differ significantly in formation of teaching patterns and high achievers have better advantage with integration ability over the low achievers. This is to conclude further that the variable does influence the integration ability development through integration stratagey.

Findings

1. The two groups formed on the basis of academic achievement during their earlier career show that the two groups having high consistant academic career and low academic career have produced two distinct type of interaction patterns.
2. The interaction pattern formed by the sub-group having high academic career relatively shows superiority over the group having low academic career.
3. The integration indicators for the sub-group having high academic career relatively shows superiority over the group having low academic career.
4. The ANCOVA results for the two groups do not show any significant difference on general teaching competence and teaching effectiveness comprehensive

5.2.5 Relative Effectiveness of the Integration Stratagey against the Variable Skill Comprehension Test :

The two sub-groups were formed as one having below average on skill comprehension constituting student teachers scoring less

than the group mean scores and above average on skill comprehension constituting student teachers scoring more than the group mean scores, on the skill comprehension test.

Hypothesis :

The two sub-groups do not differ in integration of teaching skills during their post-test on teaching performance when measured in terms of (a) Skill interaction analysis category system (b) Baroda General Teaching Competence, and (c) Teaching Effectiveness Comprehensive Ratings.

For testing the hypothesis, the three measures were independently analysed and observations were made. These observations were further interpreted collectively to test the hypothesis.

Analysis for Interaction Catagory Data :

Change in amount of time from pre test to post test for different categories for the two sub-groups is presented in the Table 5.27. Similarly Table 5.28 presents changes in the amount of time from pre test to post test for skill categories to rest and from different skill categories to specific skill categories for the two sub-groups. The detailed procedure followed to analyse the data has been presented in the Section IV of Chapter IV.

Observations :

1. The sustained block for questioning shows no difference for the group having higher achievement compared to that of group having lower achievement in skill comprehension test.

Table :5.27: Change in Amount of Time from Pre-test to Post Test for Different Skill Components for the Two Groups having High Achievement in Skill Comprehension Test and Low Achievement in Skill Comprehension Test of the Sample

Categories	Gr.I : High Achievement			Gr.II : Low Achievement			Change in Gr.I in Ach. to Gr.II
	Pre	Post	Change	Pre	Post	Change	
Blackboard Work	5.17	6.57	+1.4	4.88	8.13	+3.25	Negative
Questioning Sustained	3.78	1.76	-2.02	4.00	1.96	-2.06	Neutral
Questioning to Student Response	9.61	8.11	-1.5	10.32	6.65	-3.67	Positive
Questioning to Repetition	1.13	0.56	-0.57	1.09	0.27	-0.82	Positive
Explaining to Student Response	1.35	0.71	-0.64	1.06	0.47	-0.59	Negative
Student Response to Explanation	3.81	3.25	-0.56	3.44	1.91	-1.45	Positive
Questioning to Explanation	0.98	0.90	-0.08	1.36	0.56	-0.80	Positive
Questioning to Blackboard Work	1.78	2.96	+1.18	1.89	2.14	+0.25	Positive
Explaining to Questioning	4.73	8.04	+3.31	4.86	3.05	-1.81	Positive
Explaining Sustained	19.37	17.94	-1.43	15.25	21.39	+6.14	Positive
Explanation to Blackboard Work	7.00	5.07	-1.14	8.44	11.26	+4.16	Negative
Student Response to Questioning	4.36	0.85	-3.51	3.91	2.35	-1.56	Negative
Student Response Sustained	4.68	3.24	-1.14	3.53	3.09	-0.44	Negative
Student Response to Repetition	2.57	2.19	-0.31	3.13	1.96	-1.17	Positive
Blackboard Work to Questioning	2.95	2.69	-0.26	7.91	12.07	-0.19	Negative
Blackboard Work to Student Respo.	1.09	1.73	+0.64	1.52	0.89	-0.63	Neutral
Repetition to Questioning	1.35	1.06	-0.29	1.58	0.82	-0.76	Positive
Repetition to Blackboard Work	0.68	0.73	+0.05	0.97	0.72	-0.25	Positive
Managerial Work	0.00	0.0	0.0	0.78	0.66	-0.12	Positive
Dictation	0.96	0.38	-0.58	0.22	0.64	+0.42	Negative

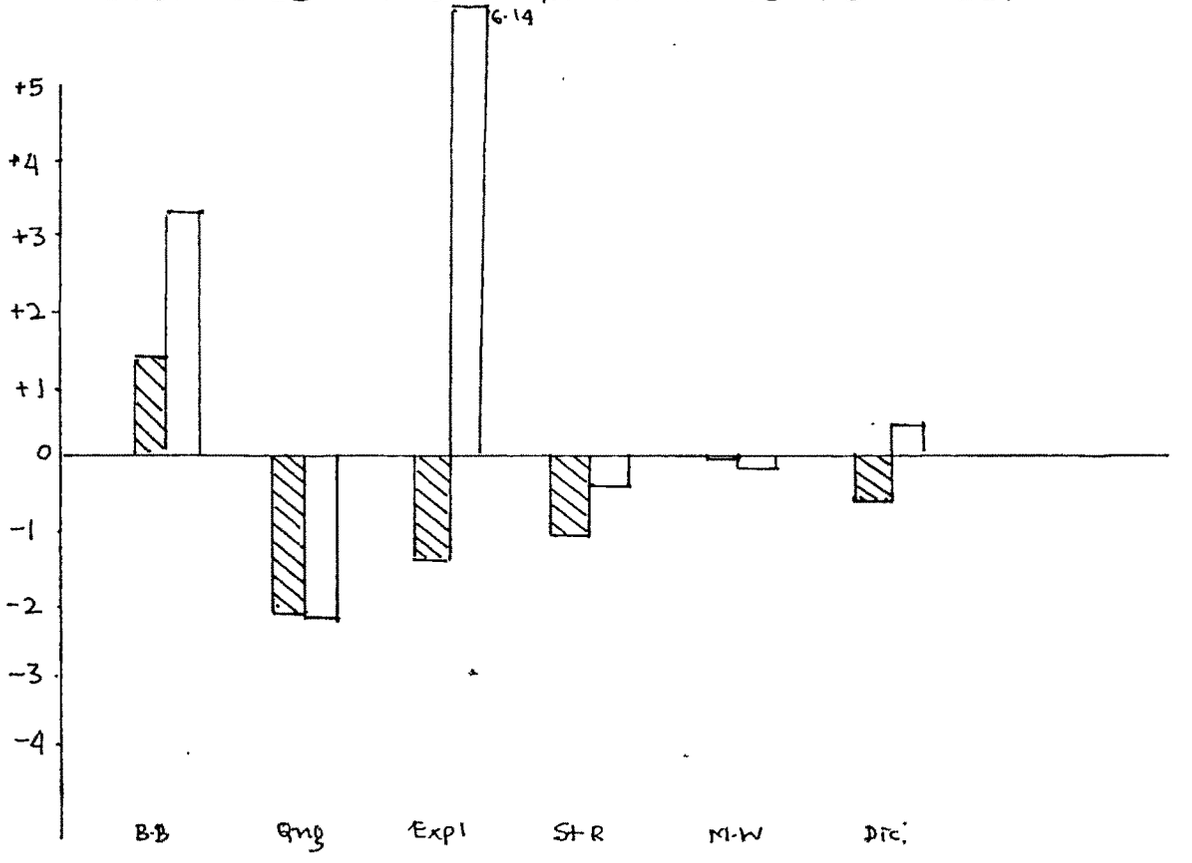
\+ Positive Shift - Negative Shift

Table :5.28: Change in Amount of Time from Pre test to Post test for Different Specific Skill Components to Rest of Skills Components and Vis-a-Vis for the Two Groups High Achievement in Skill Comprehension Test and Low Achievement in Skill Comprehension Test

Categories	Gr.I : High Achievement			Gr.II:Low Achievement			Change in Gr.I in relation to Gr.II
	Pre test	Post test	Change	Pre test	Post test	Change	
Questioning to Rest	17.71	14.73	- 2.98	18.97	11.67	- 7.3	Positive
Explanation to Rest	34.21	40.00	+ 5.79	32.17	41.12	+ 8.95	Negative
Student Response to Rest	19.51	13.67	- 5.84	17.5	12.40	- 5.10	Negative
Blackboard to Rest	17.33	17.42	+ 0.09	18.62	25.37	+13.25	Negative
Repetition to Rest	6.02	4.66	- 1.36	5.79	3.19	- 2.60	Positive
Dictation to Rest	2.18	1.34	- 0.84	1.20	0.87	- 0.33	Negative
Managerial work to Rest	1.83	2.79	+ 0.96	2.28	1.92	- 0.36	Positive
Movement to Rest	1.23	5.39	+ 4.16	3.47	3.29	- 0.18	Positive
Rest to Questioning	18.12	16.08	- 2.04	19.48	12.02	- 7.46	Positive
Rest to Explanation	33.66	32.59	- 1.07	31.53	39.26	+ 7.78	Negative
Rest to Student Response	18.37	15.18	- 3.19	17.69	11.61	- 6.08	Positive
Rest to Blackboard work	17.27	17.84	+ 0.57	19.00	24.00	+ 5.00	Negative
Rest to Repetition	6.44	4.45	- 1.99	6.15	3.34	- 2.81	Positive
Rest to Dictation	2.37	1.38	- 0.95	1.27	1.65	+ 0.38	Negative
Rest to Managerial work	1.84	7.54	+ 5.7	2.60	1.32	- 1.28	Positive
Rest to Movement	1.98	4.95	+ 2.97	2.3	6.61	+ 4.31	Negative

\+ Positive Shift - Negative Shift

FIG 5.17 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATEGORY PERCENTAGE FREQUENCIES FROM PRE TEST TO POST TEST

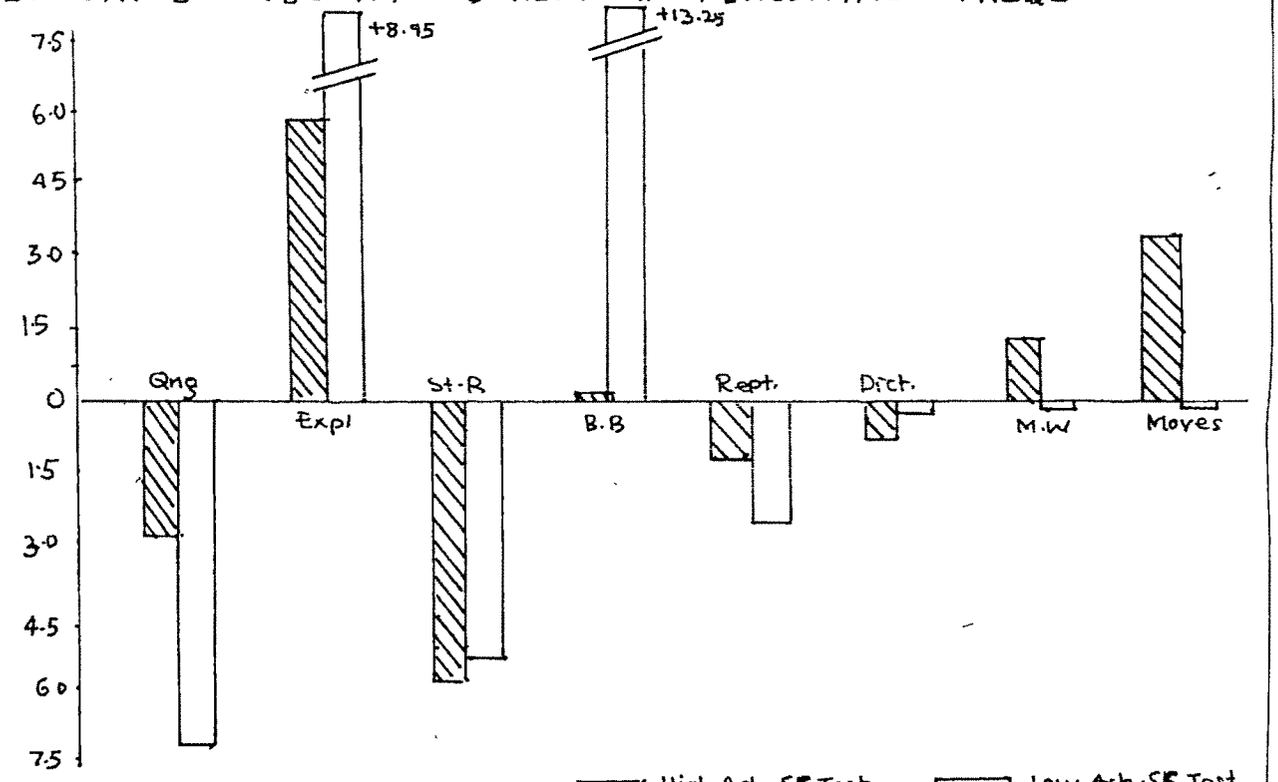


DATA TABLE 5.27

High Ach. on Skill C. Test

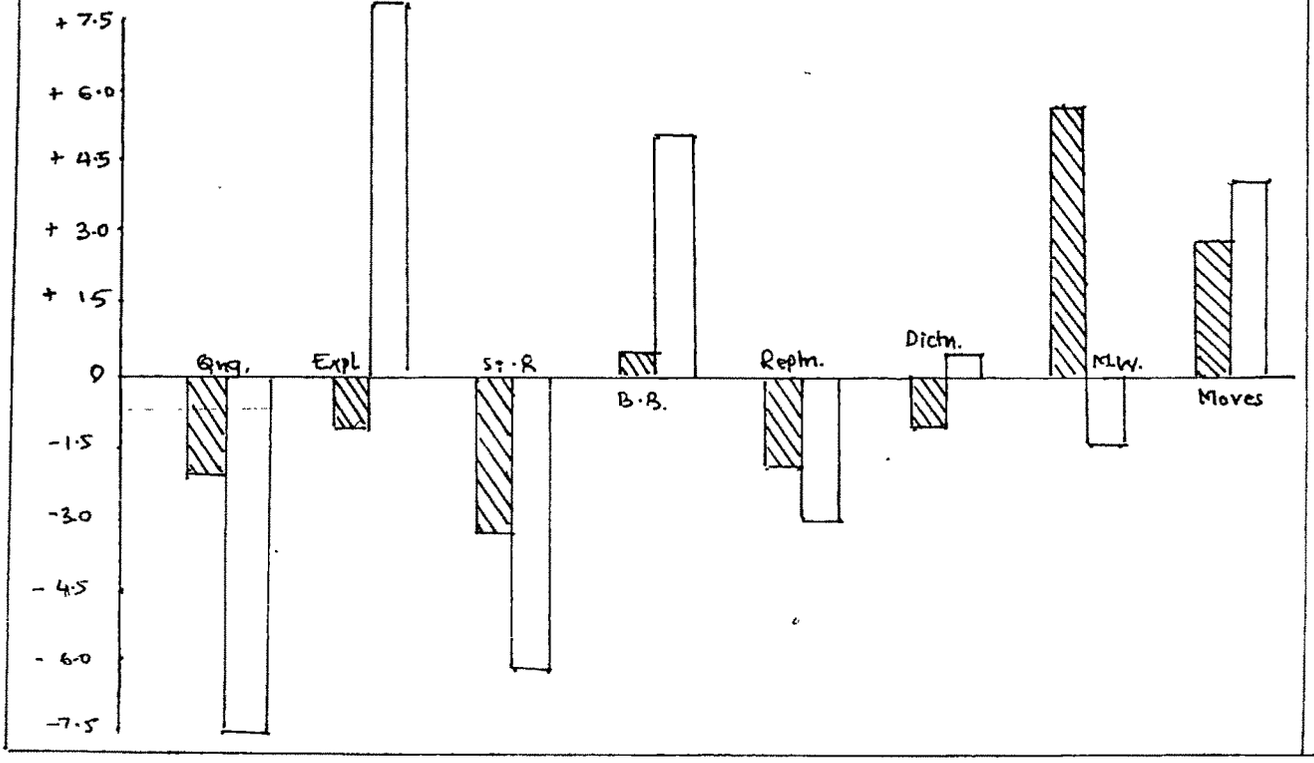
Low. Ach. on Skill C. Test

FIG 5.18 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCEY



DATA TABLE : 5.28

FIG 5.19 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCEY



2. The transistional blocks related to questioning namely, questioning to student response, questioning to repetition, questioning to explanation, questioning to blackboard, explaining to questioning, repetition to questioning, question to rest and rest to questioning, in the group show increase in the group having high scores on skill comprehension test compared to the group having low scores on skill compehension test.
3. The sustained block for explanation show decrease for the group having high scores on skill comprehension test compared to the group having low scores on the same test.
4. The transistional blocks related to explanation namely, explaining to student response, explanation to blackboard work, explanation to rest and rest to the explanation show decrease in the group having high scores on skill comprehension test when compared to the group having low scores on the same test.
5. The transistional block students response to explanation, questioning to explanation and explaining to questioning show increase with high achievers for the variable compared to the sub-group having low achievement on the variable test.
6. The sustained block for blackboard show comparative decrease with the high achievers group on the skill comprehension test to that of low achievers on the same test.
7. The transistional blocks related to blackboard work namely, questioning to blackboard, repetition to blackboard show increase with the group having high scores on skill comprehension test compared to the group of low scores on the test, whereas category blackboard to student response do not show difference in the two groups in terms of change.

8. The transistional blocks related to blackboard work namely, explanation to blackboard work, blackboard to questioning, rest to blackboard and blackboard to rest show decrease comparatively in the group having high scores on skill comprehension test compared to the group having low scores on the same test.
9. Sustained category related to student response show decrease in the group having high scores on the variable compared to the group having low scores.
10. The transistional categories related to student response namely, questioning to student response, student response to explanation, student response to repetition, and rest to student response show comparative increase in group having high scores on the variable to that of group having low scores. Whereas the two groups do not show significant difference with reference to category blackboard work to student response.
11. The transistional categories related to student response namely, explaining to student response, student response to rest show comparative decrease in the group having high scores on the variable test to that of low scoring group.
12. All categories related managerial work show comparatively increase in the group having high scores to that of low scoring group.
13. All categories related to dictation show comparative decrease in the sub-group having high scores to that of low scoring group.

Further analysis for the integration indicators has been presented in the Table 5.29. The observations on the analysis is presented below.

Table :5.29: Analysis for Integration Indicators for the Two Sub-groups formed on Variable with High Achievers and Low Achievers in Skill Comprehension Test on Skills

Integration Indicators	Group : High Achievers		Group : Low Achievers	
	Direction & Magnitude	Rate of Change	Direction & Magnitude	Rate of Change
I Skill Association				
(a) Between Questioning and Student Response	+ 0.24	+ 16.35	+ 0.56	- 35.51
(b) Between Explanation and Blackboard	+ 0.77	+ 21.80	- 0.09	- 4.88
(c) Between Blackboard and Explanation	+ 0.55	+ 43.00	+ 0.14	+ 19.92
II Skill Shift				
(a) Explaining to Questioning	+ 4.11	+ 45.97	+ 1.87	+ 34.38
(b) Explaining to Blackboard	- 3.07	- 60.55	+ 6.93	+ 61.55
(c) Student Response to Questioning	- 3.57	-(above 100%)	- 1.56	- 66.38
(d) Questioning to Student Response	- 1.5	- 18.5	- 3.67	- 55.19
III Skill Dispersion				
(a) Student talk to Rest of Skills	- 5.84	- 42.72	- 5.10	- 41.12
(b) Blackboard to Rest of Skills	+ 0.09	+ 5.17	+13.25	+ 52.22
(c) Explanation to Rest of Skills	+ 5.79	+ 14.48	+ 8.95	+ 21.76
(d) Questioning to Rest of Skills	+ 2.98	+ 16.83	+ 7.3	+ 38.48

1. The skill association namely, between explanation and blackboard show relatively more in high achievers group compared to the low achievers group on skill comprehension test. Whereas the association between questioning and blackboard show relatively less in high achievers group compared to the low achievers group on skill comprehension test.
2. The skill shift namely, for explaining to blackboard, student response to questioning, and questioning to student response show relatively more in low achievers group compared to the high achievers group, whereas explaining to questioning show relatively less in low achievers group compared to the high achievers group on skill comprehension test.
3. All skill dispersion namely, student talk, blackboard, explanation, and questioning show relatively more in group having low achievers compared to the group having high achievers on skill comprehension test.

Analysis on General Teaching Competence Data :

The individual scores of student teachers were processed into Table 5.30 using the procedure as mentioned for the first variable study.

The analysis of covariance shows that the mean square between the group is less than mean square within group, indicating low interaction between the two groups. Further the F value is 0.5987, which is less than one showing insignificant results. The table indicates that the two groups namely the group having high achievement on skill

Table :5.30: Analysis for Testing Gain Difference for the General Teaching Competence Scores for the Variable High Achievers and Low Achievers on 'Skill Comprehension Test'.

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
High achievers	46.85	12.54	76.64	6.94
Low achievers	55.25	7.17	78.61	2.00

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Squares	F Value
Between	1	6.19	6.19	0.5987
Within groups	6	62.04	10.34	
Total	7	68.22	9.75	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
High achievers	5	46.85	78.64	83.19
Low achievers	4	55.25	78.61	72.71

comprehension test do not differ significantly when compared to the low achievers on skill comprehension test.

Analysis of Teaching Effectiveness Comprehensive Data :

The individual scores of student teachers were processed in Table 5.31 using the procedure as mentioned for the first variable studied.

Table :5.31: Analysis for Testing Gains in Differences for the Teaching Effectiveness Comprehension Scores for the Variable 'Achievement on Skill Comprehension Test'.

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
High achievers	11.18	3.38	17.27	2.64
Low achievers	14.02	2.64	18.42	0.83

II Analysis of Covariance

Ana Sources of Variation	df	SS Residuals	Mean Squares	F Value
Between	1	0.03	0.03	.00728
Within group	6	24.70	4.12	
Total	7	27.73	3.53	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
High Achievers	5	11.18	17.27	19.36
Low Achievers	4	14.02	18.42	16.63

The analysis of covariance shows that the mean square between the group is less than mean square within the group, indicating low interaction between the two groups. Further the F value is 0.00728 which is less than one showing insignificant results. The table indicates that the two groups namely group having high achievement on skill comprehension test do not differ significantly when compared to the low achievers in skill comprehension test.

Table :5.32: Change in Amount of Time from Pre Test to Post Test for Different Skill Components for the Two Groups having Above Average Scores on AMT and Below Average Scores on AMT of the Sample

Categories	Gr.I :Above Avg.Scores on AMT			Gr.II:Below Avg.Scores on AMT			Change in Gr.I in relation to Gr.II.
	Pre Test	Post Test	Change	Pre Test	Post Test	Change	
Blackboard Work	4.99	5.88	+0.89	4.96	7.14	+2.18	Negative
Questioning Sustained	4.36	2.06	-2.30	3.73	1.43	-1.95	Negative
Questioning to Student Response	10.28	7.38	-2.90	9.12	6.93	-2.19	Negative
Questioning to Repetition	1.18	0.54	-0.64	1.02	0.35	-0.67	Positive
Explaining to Student Response	1.29	0.82	-0.47	1.19	0.42	-0.77	Positive
Student Response to Explanation	4.18	3.82	-0.36	3.16	1.79	-1.37	Positive
Questioning to Explanation	1.44	1.24	-0.20	0.81	0.36	-0.45	Positive
Questioning to Blackboard Work	1.86	3.17	+1.31	1.72	2.04	+0.32	Positive
Explaining to Questioning	5.43	6.47	1.04	4.05	5.60	+1.55	Negative
Explaining Sustained	15.43	11.75	-3.68	19.48	22.22	2.74	Negative
Explanation to Blackboard Work	7.72	7.11	-0.26	7.37	7.64	+0.27	Negative
Student Response to Questioning	4.70	4.94	-0.24	3.60	2.43	-1.17	Negative
Student Response Sustained	4.81	2.66	-2.15	3.75	3.21	-0.54	Negative
Student Response to Repetition	2.65	2.37	-0.28	2.74	1.68	-1.06	Positive
Blackboard Work to Questioning	2.91	3.20	+0.29	3.21	2.36	-0.85	Positive
Blackboard Work to Student Response	1.17	1.67	+0.5	1.23	1.12	-0.11	Positive
Repetition to Questioning	1.40	1.39	-0.01	1.40	0.68	-0.72	Positive
Repetition to Blackboard Work	0.57	0.85	+0.23	0.91	0.55	0.36	Positive
Managerial Work	2.67	6.97	+4.32	2.23	3.72	+1,49	Positive
Dictation	0.24	0.12	-0.12	1.07	0.70	-0.37	Positive

+ Positive Shift

- Negative Shift

Interpretation :

The sustained category of questioning do not show any relative change between the two groups. Whereas the majority of transistional categories related to questioning show increase with high achievers on skill comprehension test. The related category of student response indicates that transistional categories have increased with high achievers whereas sustained categories have decreased. This is to conclude that the high achievers have emphasized short questions and short answers more than long answers and sustained responses. However, it should be noted that skill dispersion for questioning, and student response have decreased for high achievers, also skill shift for questioning to student response show relatively less with high achievers indicating ineffective integration of the skills.

The sustained category for explanation as well as majority of explanation related transistional category show relative decrease in high achievers. These observations show that the explanation has decreased, however skill association between blackboard and explanation show relatively more with high achievers. This association though positive, it can be seen from both explanation and blackboard skills that, they have relatively decreased. The dispersion for explanation and blackboard have decreased. The transistional categories for blackboard also show remarkable decrease.

All the above indication show that the two groups have distinct type of pattern formation, namely high achievers having relatively good questioning but less explanation, less blackboard work and relative low achievers having relative good questioning, with relatively more explanation, more blackboard work and, sustained student response. In both the stratagey questioning and student response are equally better handled whereas the low achievers are able to deal better with blackboard and explanation as well. These are observable from integration indicators. The skill association indicates for skill of explaining and questioning, show more with the high achievers and for explaining to blackboard equally good. Skill shift for explaining to blackboard, student response to questioning and questioning to student response is in favour of low achievers. All skill dispersion are in favour of low achievers.

All the above observations, conclude that the two groups differ in their teaching pattern formation specifically with use of explanation and blackboard works and low achievers have performed better on integration ability of skills.

The ANCOVA tables of measures of general teaching competence and comprehensive teaching effectiveness comprehension show that, the interactions mean square between the group is less than that for within the group mean squares. Obviously the 'F' value being less than one concludes that the two groups do not differ significantly on teaching effectiveness.

Considering all the parameters, it can be concluded that the two groups differ in their interaction style especially in use of explaining and blackboard whereas the effectiveness remains significantly unaffected. The integration of skills is relatively performed better by low achievers.

Findings

1. The two groups formed on the basis of achievement scores on skill comprehension test show that the two groups having above average scores on skill comprehension test and below average scores have produced two distinct type of interaction patterns.
2. The interaction patterns formed by the two sub-groups did not show any relative efficiency of one pattern over the other group pattern.
3. The integration indicators for the sub-group having below average scores on comprehension skill test show comparative superiority over the group having above average scores.
4. The ANCOVA results for the two groups do not show any significant difference between the adjusted means of two sub-groups on general teaching competence and teaching effectiveness comprehension scores.

5.2.6 Relative Effectiveness of the Integration Stratagey Against the Variable Attitude Towards Microteaching Programme

The two sub-groups were formed having below average attitude scores and other as above average on attitude scale considering mean as central tendency measure.

Hypothesis :

The two sub-groups do not differ in integration of teaching skills during their post test teaching performance, when measured in terms of (a) Skill interaction analysis category system (b) Baroda general teaching competence, and (c) Teaching effectiveness comprehensive rating.

For testing the hypothesis, the three measures were independently analysed and observations were made, these observations were further interpreted collectively to test the hypothesis.

Analysis for Interaction Category Data :

Change in amount of time from pre test to post test for different categories for the two sub-groups is presented in the Table 5.32. Similarly Table 5.33 presents changes in amount of time from pre test to post test for 'Skill categories to rest' and from different skill categories to specific skill category for the two sub-groups. The detailed procedure followed to analyse, has been presented in the previous chapter.

Observations :

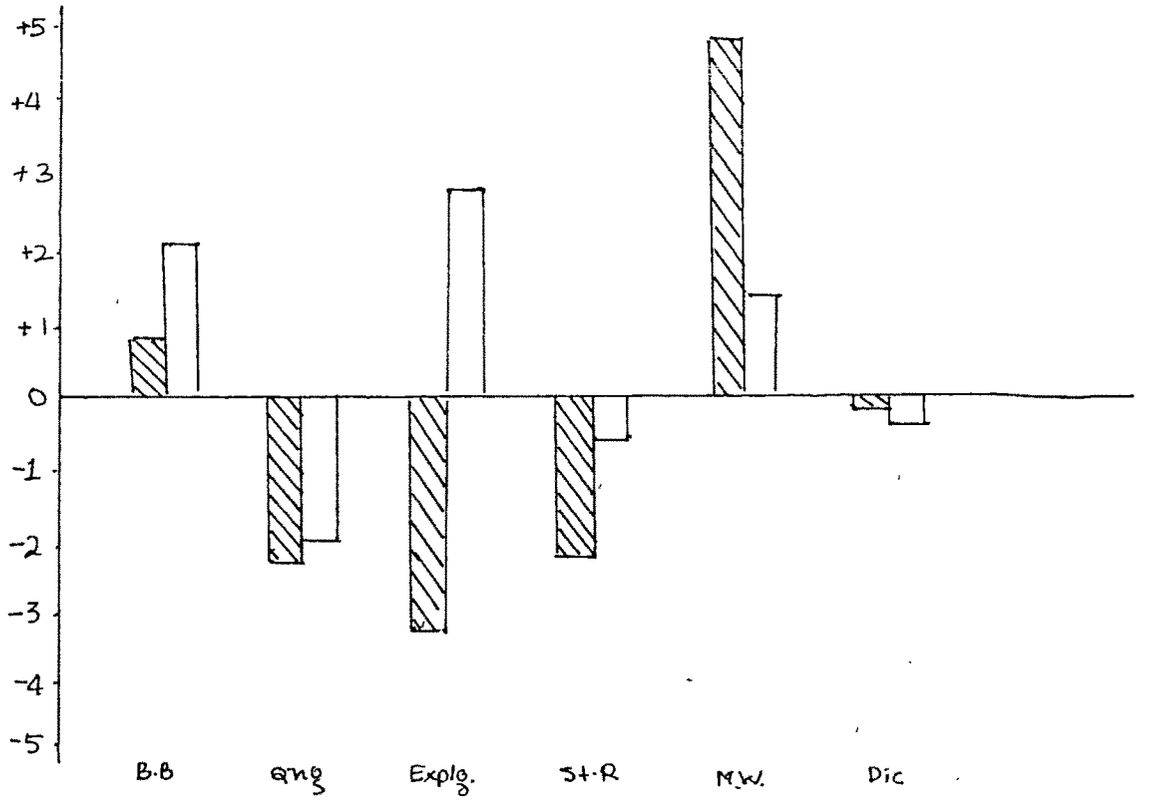
1. The questioning skill represented in the form of sustained blocks show that group having above average score in micro-teaching attitude has decreased relatively to below average scores on the variable scores.
2. The transistional categories related to questioning, namely, explaining to student response, questioning to explanation, questioning to blackboard, blackboard to questioning, repetition to questioning, questioning to

Table :5.33: Change in Amount of Time for Pre test to Post test for Different Specific Skill Components to Rest of Skill Components and Vis-a-Vis for the Two Groups having Above Average Scores on AMT and Below Average Scores on AMT of the Sample

Categories	Gr.I : Above Average Scores on AMT			Gr.II: Below Average Scores on AMT			Change in Gr.I in relation to Gr.II
	Pre test	Post test	Percentage Change	Pre test	Post test	Percentage Change	
Questioning to Rest	19.64	15.23	- 4.41	16.42	11.52	- 4.9	Positive
Explanation to Rest	31.54	29.94	- 1.60	33.93	38.90	+ 4.97	Negative
Student Response to Rest	19.54	16.31	- 3.27	16.66	12.34	- 4.32	Positive
Blackboard work to Rest	16.91	18.64	+ 1.73	18.12	22.36	+ 4.28	Negative
Repetition to Rest	6.72	4.43	- 2.29	5.27	3.66	- 1.61	Negative
Dictation to Rest	0.96	0.84	- 0.12	2.83	1.87	- 0.96	Positive
Managerial work to Rest	3.27	9.71	+ 6.44	4.46	5.43	+ 0.97	Positive
Movement to Rest	1.42	4.91	+ 3.49	2.32	3.90	+ 1.58	Positive
Rest to Questioning	19.21	19.58	+ 0.37	17.41	13.41	- 4.00	Positive
Rest to Explanation	30.87	27.61	- 3.26	33.52	35.48	+ 2.46	Negative
Rest to Student Response	19.28	13.69	- 5.59	16.58	12.60	- 3.98	Negative
Rest to Blackboard	17.61	18.89	+ 1.28	17.39	18.26	+ 0.87	Positive
Rest to Repetition	6.71	4.20	- 2.51	5.82	3.53	- 2.09	Negative
Rest to Dictation	1.38	1.36	- 0.02	2.51	5.08	+ 2.57	Negative
Rest to Managerial work	3.39	10.44	+ 7.05	4.29	5.42	+ 1.13	Positive
Rest to Movement	1.61	4.24	+ 2.63	2.47	5.73	+ 3.26	Negative

\+ Positive Shift - Negative Shift

FIG 5.20 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATEGORY PERCENTAGE FREQUENCIES FROM PRE TEST TO POST TEST

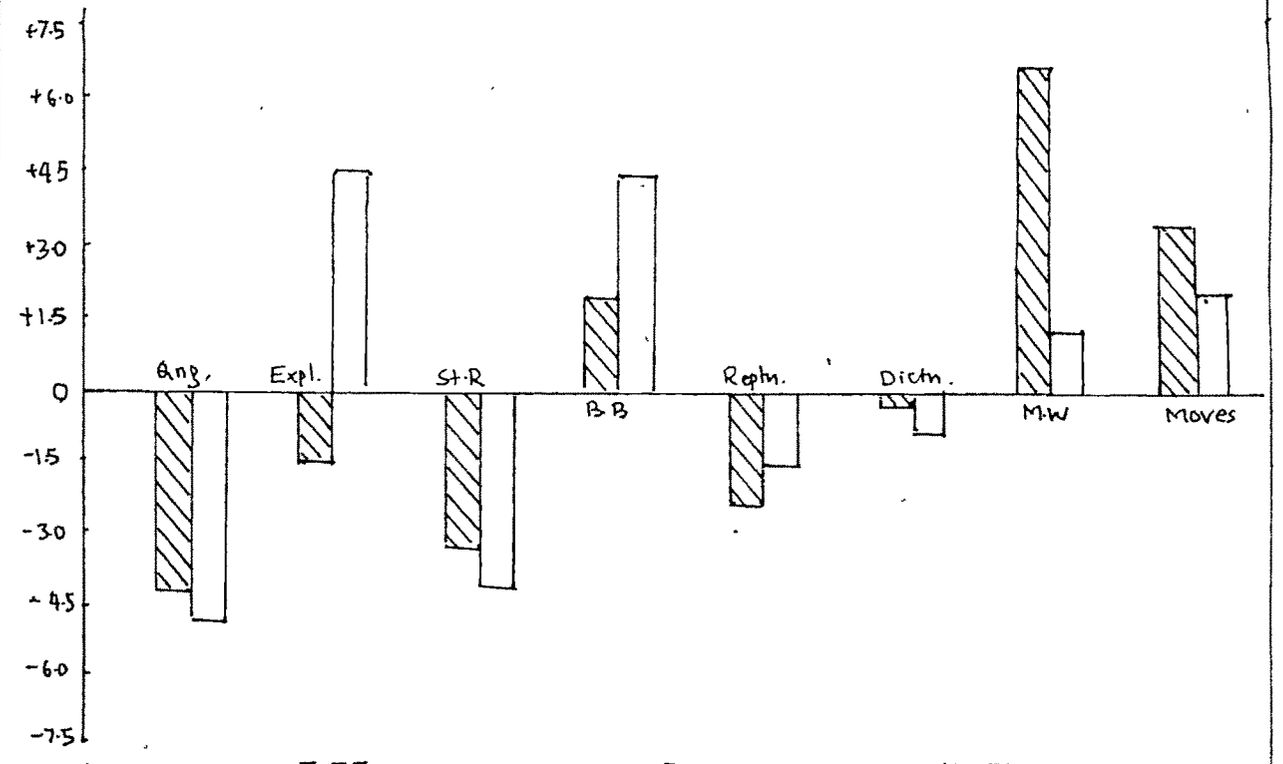


DATA TABLE: 5.32

Below Average on ATM Scores

Above Average on ATM Scores

FIG 5.21 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCEY

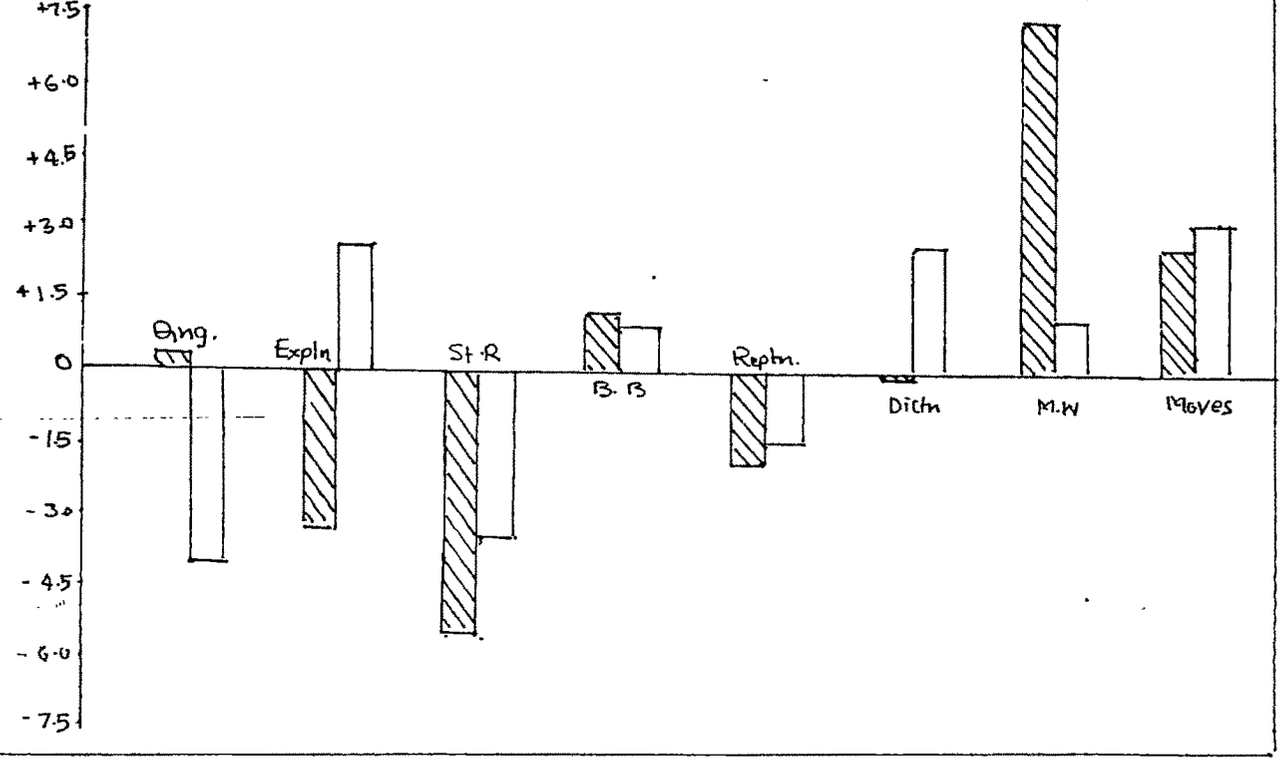


DATA TABLE: 5.33

Below Average A.T.M

Above Average in A.T.M.

FIG 5.22 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP SKILL CATEGORY IN PERCENTAGE FREQUENCEY



rest and rest to questioning show relative increase in group having above average scores on attitude towards microteaching scores to that of group having below average scores. However questioning to repetition do not show relative difference between two groups for change in direction and magnitude.

3. The transistional categories related to questioning, namely, questioning to student response, explaining to questioning and student response to questioning show relative decrease in group having above average scores in attitude towards microteaching compared to the group having low attitude towards microteaching.

4. The sustained block for explanation show relative decrease in group having above average scores to that of below average scores in attitude towards microteaching.

5. The transistional category of explanation namely, explaining to student response, student response to explanation, and questioning to explanation show relative increase in the above average group compared to the below average group.

6. The transistional categories of explanation blocks, explaining to questioning, explaination to blackboard, explaination to rest and rest to explanation show relative decrease in group having above average compared to the to the below average group.

7. The sustained category for blackboard show relative decrease in above average group to that of below average group.

8. The transistional categories related to blackboard namely, questioning to blackboard, blackboard to questioning, blackboard to student response, repetition to blackboard and rest to blackboard show relative increase in group having above average scores compared to the below average group on the microteaching attitude scores.

9. The transistional categories related to blackboard namely, explanation to blackboard work, and blackboard work to rest show decrease in group having above average score to that group having below average scores in attitude towards microteaching.

10. The sustained block related to student response show relative decrease in above average group compared to the below average group when grouped with scores on attitude towards teaching.

11. The transistional categories related to student response namely, explaining to student response, student response to explanation, student response to repetition, blackboard work to repetition and student response to rest show relative increase in group having above average scores compared to the group having below average scores when grouped with scores on attitude towards microteaching.

12. The transistional categories related to student response namely, questioning to student response, student response to questioning and rest to student response show relatively decrease in group having above average group compared to the below average group when grouped on attitude towards microteaching scores.

13. All major categories related to managerial work and dictation except 'rest to dictation' show increase in above average group compared to the below average group when grouped on variable attitude towards microteaching.

Further the integration indicators computed are presented in the Table 5.34. The observations on the table are presented below on the variable attitude towards microteaching.

Table :5.34: Analysis for Integration Indicators for the Two Sub-groups formed as Above Average and Below Average Scores on Attitude Towards Microteaching

Integration Indicators	Group : Above Average		Group :Below Average	
	Direction & Magnitude	Rate of Change	Direction & Magnitude	Rate of Change
I Skill Association				
(a) Questioning and Student Response	+ 0.19	14.56	+ 1.24	55.21
(b) Explanation and Blackboard	- 0.20	23.57	++ 0.55	39.40
(c) Blackboard and Explanation	+ 0.09	20.45	+ 0.16	32.89
II Skill Shift				
(a) Explaining to questioning	+ 1.45	27.73	+10.56	67.86
(b) Explaining to Blackboard	- 0.87	6.27	- 0.49	3.52
(c) Student Response to Questioning	+ 0.24	5.10	- 1.17	- 48.15
(d) Questioning to Student Response	- 2.9	39.3	- 2.19	31.60
III Skill Dispersion				
(a) Student talk to Rest of Skills	- 3.23	19.8	- 4.32	35.00
(b) Blackboard to Rest of Skills	+ 1.73	9.28	+ 4.24	18.96
(c) Explanation to Rest of Skills	- 1.6	38.9	+ 4.97	22.22
(d) Questioning to Rest of Skills	+ 4.41	22.45	+ 4.9	29.84

1. All skill associations computed namely, between questioning and blackboard, explanation and blackboard, and blackboard and explanation show relatively more with group having below average scores on attitudes towards microteaching compared to the group having above average attitude scores towards microteaching.
2. Skill shifts namely, explaining to questioning, explanation to blackboard and questioning to student response show relatively more with group having below average attitudes compared to group having above average attitude scores, whereas the shift for 'Student response to questioning' show relatively less with group having below average attitudes to that of group having above average scores on attitudes towards microteaching.
3. Skill dispersion for blackboard, explanation and questioning show relatively increase in the below average group compared to the above average group, whereas the dispersion for student response show relative decrease in the below average group compared to the above average group on the variable attitude towards microteaching.

Analysis of General Teaching Competence Data :

The individual scores of student teachers were processed into Table 5.35 using the procedure as mentioned for the first variable study.

The analysis of covariance shows that the mean square between the group is more than the mean square within group, indicating high interaction between the two groups. Further the F value is 13.44, showing the significant difference between the two groups. Comparing the adjusted means, the group having above average scores on attitude towards microteaching show

Table :5.35: Analysis for Testing Gains Difference for the General Teaching Competence Scores for the Variable Attitude Towards Microteaching

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Above average	59.08	4.18	83.26	5.46
Below average	48.09	11.81	76.26	6.04

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	133.34	133.34	13.44 *
Within	10	433.11	43.31	
Total	11	568.45	51.68	Table value: 4.96

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Above average	6	59.68	83.26	80.71
Below average	7	48.09	70.26	78.43

higher scores compared to the below average score on attitude towards microteaching. The results confirm the superiority of the group having above average attitude towards microteaching compared to below average in developing integration of skills through the developed integration stratagey.

Analysis of Teaching Effectiveness Comprehensive Data :

The individual scores of student teachers were processed into Table 5.36 using the procedure as mentioned for the first variable study.

Table :5.36: Analysis for Teaching Gains in Differences for the Teaching Effectiveness Comprehensive Data for the Variable 'Attitude Towards Microteaching.'

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Above average	14.28	1.87	20.14	1.16
Below average	11.46	3.46	17.26	2.10

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	3.70	3.70	1.0516
Within	10	35.21	3.52	
Total	11	49.87	4.53	Tabled value: 4.96

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Above average	6	14.28	20.14	18.19
Below average	7	11.43	17.26	17.22

The analysis of covariance shows that the mean square between the group is more than the mean square within group, indicating high interaction between the two groups. However, the F value 1.0516 show insignificance of difference claiming no

significant difference between the two groups.

Interpretations :

The group having above average attitude scores towards microteaching show relatively less sustained questioning, explanation to questioning and transaction with questioning. Whereas all the rest of transistional categories involved with questioning namely with explanation, blackboard work, rest to questioning show significant increase. The skill shift from student response to questioning is significantly high. These indications conclude that the group having above average scores on attitude towards microteaching has increased long discussion with short questions and answers.

The group having high scores shows decrease in sustained explanation and increase in transistional categories related to explanation namely explanation to student response and student response to explanation, which denotes short explanations with high student initiations.

The blackboard work as sustained activity is less whereas it is high with all transistional categories indicating blackboard work is carried alongwith other categories for the above average group. This is supported by high rate of skill association between explaining and blackboard too.

All the above observations are relative in nature and they do not indicate having no explanation or blackboard in above average group. They indicate comparatively low sustained

work on these categories and high discussion oriented classes and vice versa in other group namely group having below average scores on attitude towards microteaching.

The ANCOVA results for general teaching competence and teaching effectiveness comprehension show that, the interaction mean square for between the group is higher than within the group, indicating groups formation variable has influence on the development of integration ability. Further the computation of F for general teaching competence shows 13.44, which is highly significant at 0.01 level of significance. The observations of adjusted means show above average group having higher mean squares to that of below average group. The F value for comprehensive teaching effectiveness is 1.05, which is less than tabled value indicating no significant difference though the interaction between group is higher compared to within group.

The results of all these observations conclude that the group having above average scores on attitude towards microteaching have performed better relatively to below average scores for developing integration ability through the evolved integration stratagey.

Findings :

1. The two groups formed on the basis of attitude scores on attitude towards microteaching show that the two groups having above average scores and below average scores have produced two distinct type of interaction patterns.

2. The interaction pattern formed by the two sub-groups did not show any relative efficiency of one pattern over the other group pattern.
3. The integration indicators for the sub-group having scores below average on attitude towards microteaching show relative superiority over the group having above average scores.
4. The ANCOVA results for the two groups show significant difference between the two adjusted mean scores indicating superiority of above average group on general teaching competence.
5. The ANCOVA results for the two groups do not show any significant difference between the adjusted means of two sub-groups on teaching effectiveness comprehensive scores.

5.2.7 Relative Effectiveness of Integration Strategey against the Variable 'Teaching Experience' :

The two sub-groups were formed as one having experience and the other as having no experience. The experienced group consists of these who have previously taught for at least one complete academic term. The group having no experience constitute those having no experience to class room teaching and having less than one term of teaching experience.

Hypothesis :

The two sub-groups do not differ in integration of teaching skills during their post test on teaching performance, when measured in terms of (a) Skill interaction analysis category system, (b) Baroda general teaching competence, and (c) Teaching Effectiveness Comprehensive Rating.

For testing the hypothesis, the three measures were independently analysed and observations were made. These observations were further interpreted collectively to test the hypothesis.

Change in amount of time from pre test to post test for different categories for the two sub-groups is presented in the Table 5.37. Similarly Table 5.38 presents change in amount of time from pre test to post test for skill categories to rest and from different skill categories to specific skill category, for the two sub-groups. The detailed procedure followed to analyse the data has been presented in the previous chapter.

Observations :

1. The sustained category for questioning has comparatively decreased in experienced sub-group to that of sub-group having no experience.
2. Transistional categories related to questioning skill namely, questioning to student response, questioning to repetition, questioning to explanation, questioning to blackboard, explaining to questioning, student response to questioning, questioning to all other different categories and from all different categories to questioning show increase, in the sub-group experienced teachers compared to that of sub-group having no experience.
3. In the questioning related transistional categories, only two transactions, blackboard to questioning and repetition to questioning have decreased comparatively in sub-group having teaching experience to that of sub-group having no teaching experience. Out of these two

Table :5.37: Change in Amount of Time from Pre test to Post test for Different Skill Components for the Two Groups having Experience to Teaching and No Experience in Teaching of the Sample

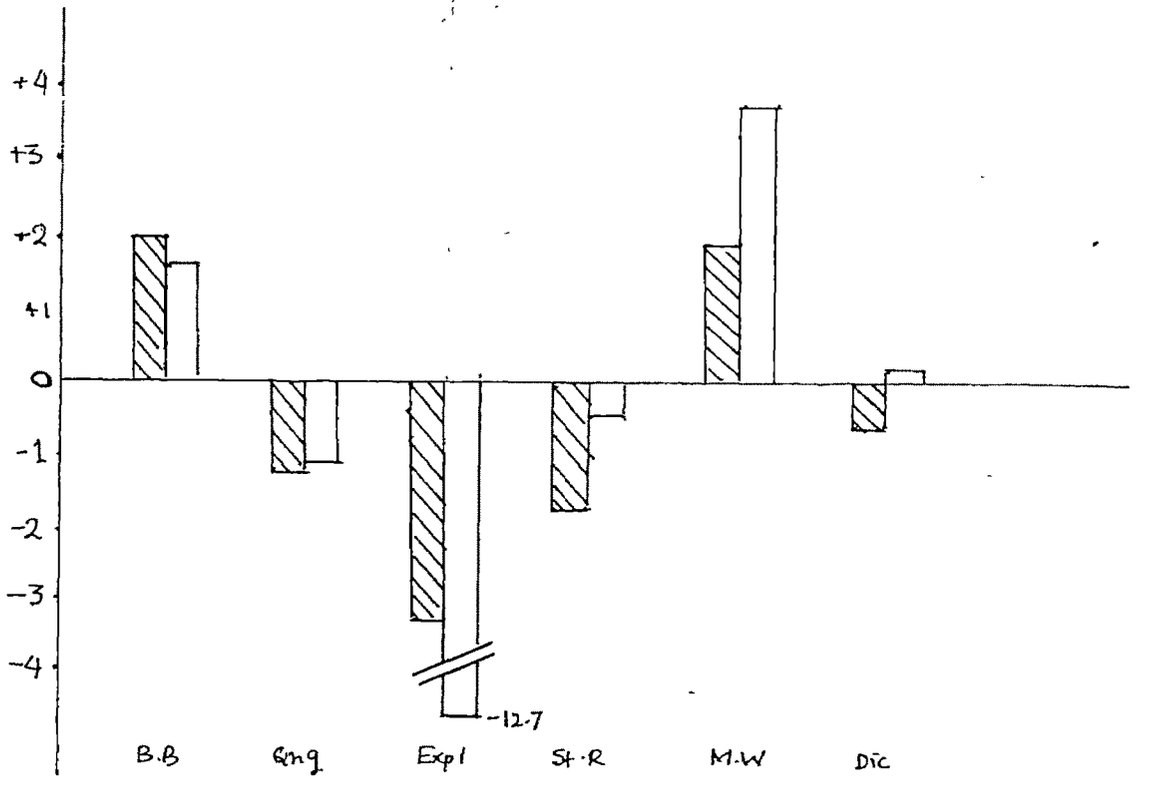
Categories	Group I : Having Experience			Group II : Having No Experience			Change in Gr.1 in relation to Gr.II
	Pre test	Post test	Change	Pre test	Post test	Change	
Blackboard work	4.66	6.66	+ 2.00	5.34	6.91	+ 1.57	Positive
Questioning Sustained	3.49	2.20	- 1.29	2.24	1.12	- 1.12	Negative
Questioning to Student Response	9.70	8.15	- 1.55	9.60	6.11	- 3.49	Positive
Questioning to Repetition	1.10	0.46	+ 0.36	0.99	0.41	- 0.58	Positive
Explaining to Student Response	1.30	0.76	- 0.54	1.16	0.38	- 0.78	Negative
Student Response to Explanation	3.64	3.27	- 0.37	3.60	1.94	- 1.66	Negative
Questioning to Explanation	0.89	0.90	+ 0.01	1.31	0.55	- 0.76	Positive
Questioning to Blackboard	1.44	2.41	+ 0.97	2.16	2.79	+ 0.67	Positive
Explaining to Questioning	4.30	8.57	+ 4.27	5.01	2.74	- 2.27	Positive
Explaining Sustained	20.95	17.10	- 3.85	14.13	1.96	-12.17	Positive
Explanation to Blackboard	7.10	5.36	- 2.83	7.63	8.74	+ 3.09	Positive
Student Response to Questioning	4.29	4.17	- 0.12	3.87	2.77	- 1.12	Positive
Student Response Sustained	4.32	2.63	- 1.69	4.13	3.61	- 0.52	Negative
Student Response to Repetition	2.66	2.08	- 0.58	2.75	1.03	- 0.82	Negative
Blackboard to Questioning	3.13	2.76	- 2.37	3.08	2.80	- 0.28	Negative
Blackboard work to Student Response	0.98	1.40	+ 0.42	1.47	1.36	- 0.11	Positive
Repetition to Questioning	1.37	0.91	- 0.46	1.43	1.13	- 0.30	Negative
Repetition to Blackboard work	0.64	0.87	+ 0.23	0.87	0.44	- 0.45	Positive
Managerial work	1.85	4.24	+ 2.39	2.69	6.57	+ 3.88	Negative
Dictation	1.02	0.43	- 0.59	0.36	0.47	+ 0.11	Negative

Table :5.38: Change in Amount of Time from Pre test to Post test for Different Specific Skill Components to Rest of Skill Components and Vis-a-Vis for the Two Groups having Experience in Teaching and No Experience in Teaching of the Sample

Categories	Group I : Having Experience			Group II : Having No Experience			Change in Gr.I in relation to Gr.II
	Pre test	Post test	Change	Pre test	Post test	Change	
Questioning to Rest	16.96	14.44	+-2.52	18.70	11.35	- 7.35	Positive
Explanation to Rest	35.12	35.81	+ 0.69	30.49	36.14	+ 5.65	Negative
Student Response to Rest	18.24	14.82	- 3.42	17.67	13.57	- 4.1	Positive
Blackboard to Rest	17.17	18. 18	+ 1.01	18.09	20.92	+ 2.83	Negative
Repetition to Rest	5.95	4.16	- 1.79	5.9	3.98	- 1.92	Positive
Dictation to Rest	1.95	1.18	- 0.77	2.04	1.52	- 0.52	Negative
Managerial work to Rest	3.22	6.79	+ 3.57	4.71	8.25	+ 3.54	Positive
Movement to Rest	1.39	4.83	+ 3.24	2.40	4.29	+ 1.89	Positive
Rest to Questioning	16.94	19.77	+ 2.83	19.64	11.91	- 7.73	Positive
Rest to Explanation	35.15	31.94	- 3.21	29.34	34.94	+ 5.6	Negative
Rest to Student Response	17.88	13.95	- 3.93	17.73	12.57	- 5.16	Positive
Rest to Blackboard work	16.40	17.41	+ 1.01	18.72	20.61	+ 1.89	Negative
Rest to Repetition	6.58	3.92	- 2.66	5.74	3.87	- 1.87	Negative
Rest to Dictation	2.06	1.44	- 0.62	1.73	1.21	- 0.52	Negative
Rest to Managerial work	2.05	7.23	+ 4.28	4.95	8.38	+ 3.43	Positive
Rest to Movement	1.95	4.32	+ 2.37	2.15	6.52	+ 4.37	Negative

\+ Positive Shift - Negative Shift

FIG 5.23 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION OF SUSTAINED SKILL CATEGORY PERCENTAGE FREQUENCIES FROM PRETEST TO POST TEST

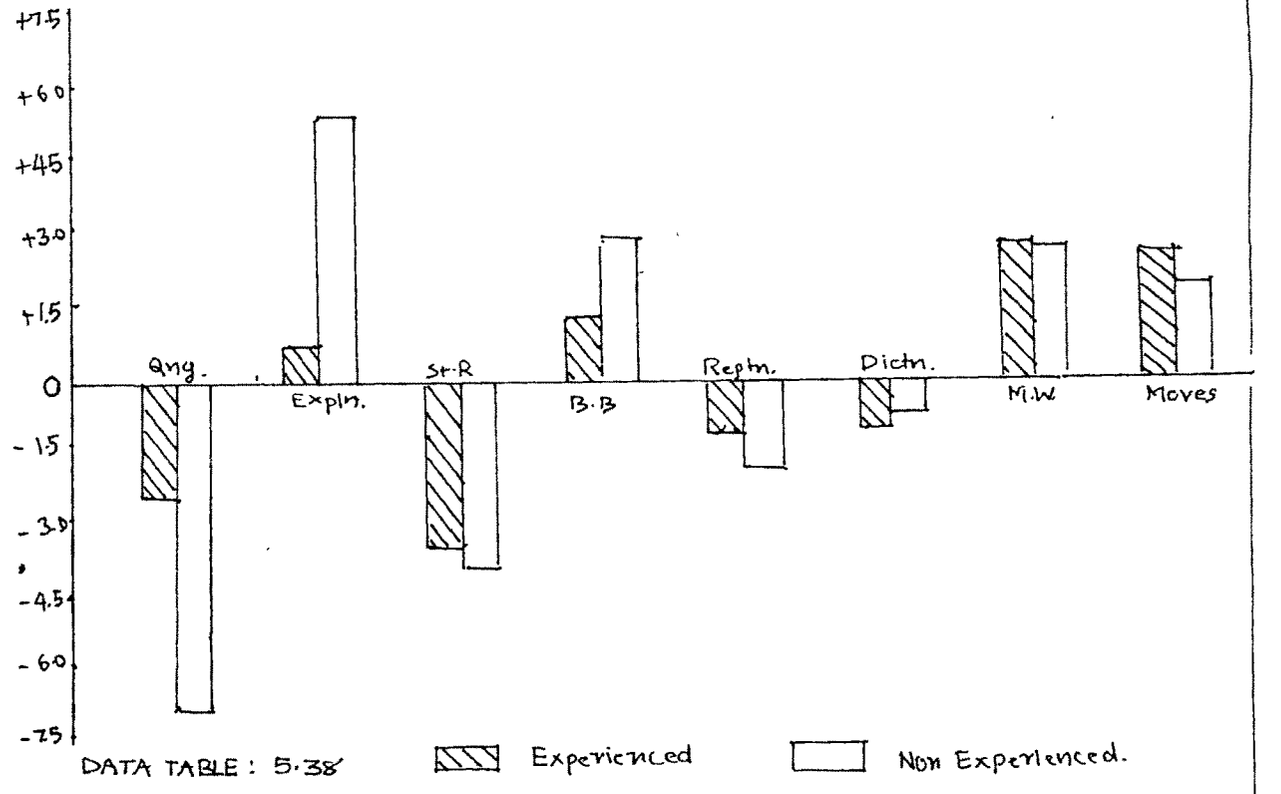


DATA TABLE 5.37.

Experienced

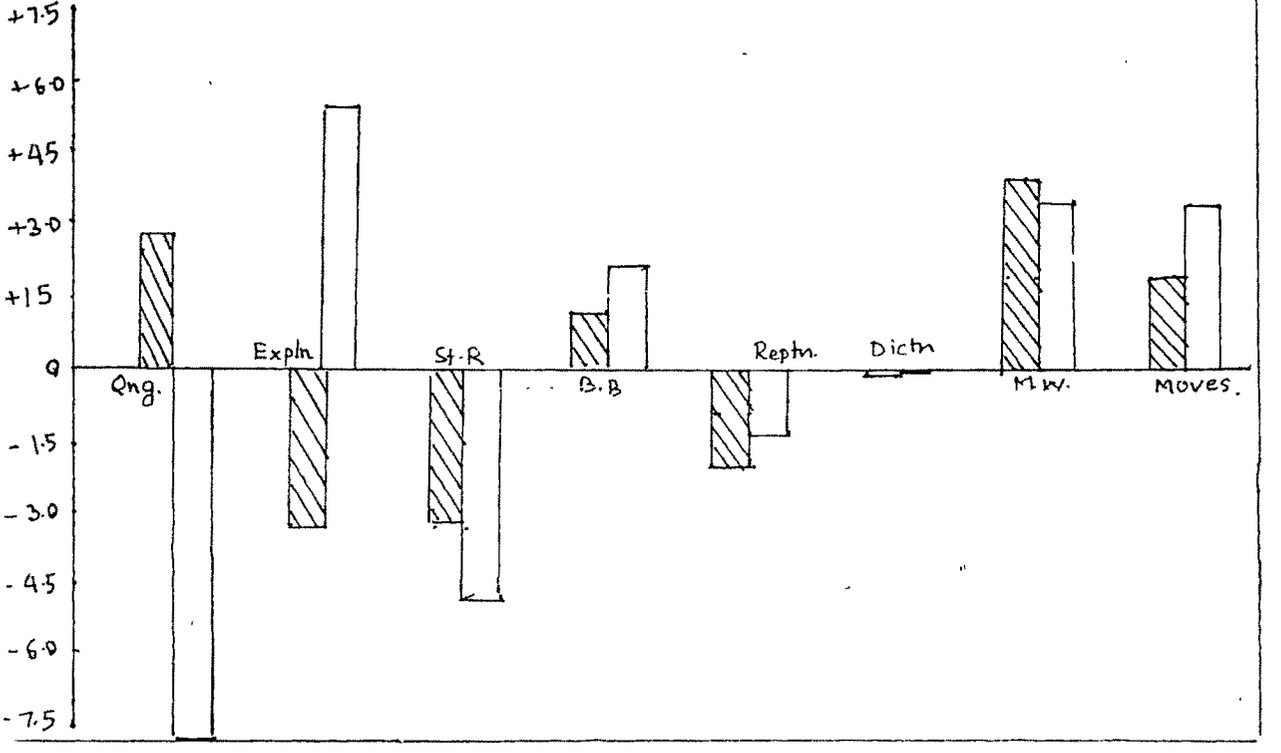
Non Experienced

FIG 5.24 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM SP. SKILL CATEGORY TO REST IN PERCENTAGE FREQUENCEY



DATA TABLE : 5.38 Experienced Non Experienced.

FIG 5.25 RELATIVE CHANGE IN MAGNITUDE AND DIRECTION FROM REST TO SP. SKILL CATEGORY IN PERCENTAGE FREQUENCEY



the category 'repetition to questioning' show a marginal change.

4. The sustained category for explanation has increased in the sub-group having teaching experience compared to the sub-group having no teaching experience.
5. The transistional categories related to the skill of explanation namely, questioning to explanation, explaining to questioning, and explanation to blackboard show increase in the sub-group having teaching experience compared to the sub-group having no teaching experience.
6. The only transistional categories related to skill of explanation showing decrease are explaining to student response, student response to explanation, explanation to rest category and from different category to explanation.
7. The sustained category for blackboard work show slight increase in the sub-group having teaching experience compared to that of sub-group having no teaching experience.
8. The transistional categories with reference to blackboard work namely, questioning to blackboard, explanation to blackboard, blackboard to student response and repetition to blackboard show increase in the sub-group having teaching experience compared to the sub-group having no teaching experience.
9. The only transistional categories related to skill of blackboard showing decrease are, blackboard to questioning, blackboard to other categories in general and from all categories in general to the blackboard work.

10. The sustained categories for managerial work and dictation show decrease in the experienced sub-group compared to the sub-group having no experience. Dictation to rest and rest to dictation show decrease for experienced group. Managerial work to rest and rest to managerial work show comparative increase in experienced group.
11. The sustained category of student response show comparatively decrease in sub-group having experience in teaching to that of sub-group having ~~the~~ no experience.
12. Student response related transistional blocks namely, explaining to student response, student response to explanation, student response to repetition, show decrease in sub-group having no teaching experience compared to the sub-group having teaching experience.
13. Student response related transistional blocks namely, questioning to student response, student response to questioning, blackboard work to student response, student response to rest and rest to student response show increase in group having teaching experience compared to the group having no teaching experience.

Further in the Table 5.39, the analysis for integration indicators is presented. Observations on the table are as given below.

1. Skill association between questioning and blackboard, explanation and blackboard show relatively more with group having no experience compared to the group having experience Whereas association between blackboard and explanation show relatively more with group having experience compared to the other group having no experience.

Table 5.39: Analysis for Integration Indicators for the Two Sub-groups formed on Variable with Experience and No Experience in Teaching

Integration Indicators	Group : With Experience		Group : With No Experience	
	Direction & Magnitude	Rate of Change	Direction & Magnitude	Rate of Change
I Skill Association				
(a) Between Questioning and Student Response	+0.11	+ 9.43	+ 1.38	+ 42.80
(b) Between Explanation and Blackboard	-2.64	-84.14	- 1.63	- 72.58
(c) Between Blackboard and Explanation	+0.59	+47.18	+ 0.09	+ 11.48
II Skill Shift				
(a) Explaining to Questioning	+4.69	+49.26	+ 1.16	+ 23.23
(b) Explaining to Blackboard	-2.83	-52.80	+ 3.09	+ 35.36
(c) Student Response to Questioning	-0.12	- 2.88	- 1.12	- 28.79
(d) Questioning to Student Response	-1.55	-19.01	- 3.49	- 57.12
III Skill Dispersion				
(a) Student talk to Rest of Skills	-3.42	-23,08	- 4.1	- 30.02
(b) Blackboard to Rest of Skills	+1.01	+ 5.55	+ 2.83	+ 13.52
(c) Explanation to Rest of Skills	+0.69	+ 1.93	+ 5.65	+ 15.63
(d) Questioning to Rest of Skills	+2.52	+14.85	+ 7.35	+ 40.60

2. Skill shift namely, explaining to questioning, student response to questioning, and questioning to student response show relatively more with group having experience and skill 'explaining to blackboard show relatively less with group having experience, compared to the other group having no experience.

3. Skill dispersion namely, blackboard, explanation and questioning show relatively more with group having no experience compared to the group having experience, whereas for the student response the group having no experience has relatively less compared to the group having experience.

Analysis of General Teaching Competence Data :

The individual scores of student teachers were processed into the Table 5.40 using the procedure as mentioned for the first variable study.

Table :5.40: Analysis for Testing Gain Differences for the General Teaching Competence Scores for the Variable Experienced and Non-experienced Student Teachers

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Above average	52.55	12.52	79.85	8.64
Below average	53.88	7.83	79.04	3.33

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	7.80	7.80	0.46
Within	10	168.18	16.82	
Total	11	175.98	16.00	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Experienced	7	52.55	79.88	80.86
Non-experienced	6	53.88	79.04	76.07

The analysis of covariance shows that the mean square within the group is more than between the squares. This shows that between the groups interaction is very low. The 'F' is found to be 0.46 which is insignificant. However, it may be noted that the experienced group has gained slightly higher scores compared to the other group having no experience.

Analysis of Teaching Effectiveness Comprehension Data

The individual scores of student teachers were processed in the Table 5.41 following the procedure mentioned for the first variable study.

Table :5.41: Analysis for Testing Gains in Difference for the Teaching Effectiveness Comprehension Scores for the Variable Experienced and Non-experienced Student-teachers

I Mean and S.D.

Group	Pre test		Post test	
	Mean	S.D.	Mean	S.D.
Experienced	12.47	2.84	19.10	3.49
Non-experienced	13.11	3.49	18.00	1.35

II Analysis of Covariance

Sources of Variation	df	SS Residual	Mean Square	F Value
Between	1	0.01	0.01	.005
Within	10	46.42	4.642	
Total	11	46.43	4.221	

III Adjustment of Means

Group	n	Pre test	Post test	Post test adjusted
Experienced	7	12.47	19.10	18.62
Non-experienced	6	13.10	18.00	18.41

The analysis of covariance shows that the mean square within the group is greater than the between the squares and F value is less than one. The analysis shows that there is no significant difference between the two groups gain scores namely group having experience in teaching and group having no experience in teaching.

Interpretations

For the group having experience show comparative decrease in the sustained category for questioning whereas increase in the transistional categories namely, questioning to student response, questioning to repetition, questioning to explanation, questioning to blackboard, explaining to questioning, student response to questioning, questioning to rest and rest to questioning. This indicates that the experienced group has shifted its pattern from long question to short questions and increase in transaction of question-answers throughout the class. This indications are also observable from skill dispersion on questioning and student response, which have increased in the experienced group. The skill shift also show comparative increase in questioning to student response. These indicate the two groups differ in questioning style. The group having no experience depends upon the long questions and long responses from student, clustered at particular stages of teaching session and group having experience depended upon the short-questions and short answers and continuous discussion well distributed throughout the class.

The group having experience show comparative increase in sustained category of explanation, low skill dispersion of explanation. High skill shift with questioning, indicating that the teaching style involved was of intermitent long explanations with much tendency to use questioning than any other components. This concludes that the two group differ in their teaching style, namely group having experience comparatively depends upon longer explanations and short questions-short answer type, more using explanation and questioning alternatively, whereas the group having no experience depended on small explanations and longer questions, long student responses involving sequences.

The sustained category, blackboard do not show change witht two groups. The group having experience shows use of of blackboard shift with explanation and other components more and less with questioning whereas the group having no experience shows much shift with questioning category only. The managerial work and explanation show decrease in experienced group and more with non-experienced group at post integration stage.

The observation on the analysis conclude that the two group differ in teaching patterns formed.

The ANCOVA of general teaching competency and comprehensive teaching effectiveness show that within interaction is more than between the group with F values having very low namely 0.46 and 0.0015 concluding that the two groups do not differ

in the teaching effectiveness.

In general the above observation conclude that the two groups differ in formation of teaching patterns one having experience depends upon the longer explanations, and short questions with short answers involving use of blackboard and explanation, whereas the other group having no experience depends on small explanations and longer questions and longer responses with use of blackboard more frequently with questioning interaction. The two styles of teaching though differ they do not provide any conclusive findings to suggest superiority of one on another.

Findings:

1. The two sub-groups formed on the basis of student-teachers experience show that, the two groups having teaching experience and no teaching experience have produced two distinct type of interaction patterns.
2. The interaction pattern formed by the two sub-groups did not show any relative efficiency of one or the other in terms of interaction patterns.
3. The integration indicators for the two sub-groups did not show any comparative efficiency of one over the other.
4. The ANCOVA results for the two groups do not show any significant difference between the adjusted means of two sub-groups on general teaching competence and teaching efficiency comprehension.

5.2.8 SUMMARY OF INTERPRETATIONS ON STUDY OF RELATIVE EFFECTIVENESS OF STRATAGEY ON VARIABLES

The third objective is, to study the relative effectiveness of the integration stratagey on developing integration ability, for the variables attitude towards teaching, attitude towards microteaching, free availability of study time, teaching experience, skill comprehensive test, qualification and academic merit. Variablewise analysis and interpretation is presented in the earlier part of this section. Following is the collective summary of results for the variables and their results. The Table 5.42 presents summary of interpretations on all the seven variables on which following interpretations are made.

(1) All the variables show that these variables influence in forming teaching patterns. Depending upon the high and low scores on the variable the unique type of teaching patterns are formed. Some of the variations observable in the development (i) questions - response emphasised with short questions and short responses, (ii) question-response emphasized with long questions and long student responses, (iii) discussion at certain stage of class room teaching with explanations during the rest of the teaching period, and (iv) explanation and blackboard dominated class room teaching,

(2) Observations on the skill interaction pattern formation of the variables namely, free availability of study time shows that those having free time to study are able to form superior

Table :5.42: Summary of Interpretations on Relative Effectiveness of Integration Stratagey on Variables

Variables	Results of Interactions			Results of ANCOVA and 'F' Value		Interpretations
	Pattern Differences	Relative Superiority	Integration Indicators	BGTC Ratings	TCE Ratings	
1. Attitude toward teaching	Differ from each other	Equivocal	Equivocal	Insignificant (2.22)	Insignificant (0.27)	Patterns differ but equivocal
2. Free Availability of study time	Differ from each other	Free availability of study time is superior	Positive indicators of group Free availability of study time	Insignificant (0.23)	Insignificant (0.0047)	Patterns differ and group having free study time availability is superior
3. Teaching Experience	Differ from each other	Equivocal	Equivocal	Insignificant (0.0015)	Insignificant (0.46)	Differ in pattern and equivocal
4. Skill comprehension	Differ from each other	Equivocal	Low achievers are superior	Insignificant (0.059)	Insignificant (0.007)	Differ in pattern equivocal
5. Qualifications	Differ from each other	Graduate group Superior	Graduate group superior	Insignificant (0.27)	Insignificant (0.54)	Differ in pattern graduates are superior
6. Attitude towards Microteaching	Differ from each other	Equivocal	Below average group superior	Significant (13.44)	Insignificant (1.05)	Below average group better in integration
7. Academic Merit	Differ from each other	Academically high merited superior	Academically high merited superior	Insignificant (1.309)	Insignificant (0.16)	Differ in pattern High achievers are superior

interaction pattern, compared to post-graduates, graduates are superior in forming the interaction patterns, and those having high academic achievement during their earlier career are able to form the relatively superior interaction patterns. Whereas the variables attitude towards teaching, teaching competence, skill comprehension test, and attitude towards microteaching did not show any apparent difference qualitywise though they had distinct type of patterns.

(3) On integration indicators, student teachers having free availability of study time, graduates, high academic achievers were able to perform better compared to their respective counter parts. Similarly, those groups having attitude below average on microteaching and low achievers on skill comprehension test were able to do better on their counter parts.

(4) All the analysis of Covariance results except for attitude towards microteaching show insignificant results. The high scores on attitude towards microteaching show high achievement on general teaching competency, whereas with rest of the variable, do not show any influence of the variable under the study.

(5) When the total group was divided into two sub-groups as one sub-group having free availability of study time and another sub-group having no free study time, the group having free availability of study time showed distinct type of teaching pattern, which had interaction, superior to its counter group and relatively better in integration indicators also. Since the stratagey depended upon home work as an important component appears to have influenced significantly.

(6) When the total group was divided into two groups, namely, group having high academic career and another group having low academic career, the higher group is found to be distinct in its teaching pattern, superior in interaction style, and also relatively better on integration indicators concluding that, those students having high academic career have done significantly better to that of non-merited group.

(7) When the total group was divided into two groups namely as graduates and post-graduates, graduates have differed from post-graduates in formation of pattern, having superiority in interaction style and are relatively better on integration indicators. This concludes that graduates have done better over the post-graduates on integration ability.

(8) The groups when divided as group having high scores on attitude towards microteaching and group having low scores, the two groups form distinct patterns. The below average group has done better than above average group on integration indicators whereas above average group has done better on general teaching competence achievement with significant difference. This results show below average group is able to integrate the teaching skills better, whereas the above average group has done better on individual skill based achievement.

(9) On observation of sample, it is evident that the graduate sub-group and high achievers have more than half the sample common. Both variables namely being graduate and high achievers

have favoured the results. Perhaps it may be one of these as dominant variable or both variables together may be functioning towards better results.

(10) The above average attitude towards teaching and above average attitude towards microteaching are almost same except two samples subjects. Inspite of this the two groups differ in results on integration indicators and compatible results on general teaching competence as well as on teaching effectiveness comprehensive scale. This is to infer that the two students might have formed heterogeneity with respect to attitude towards microteaching group with polarised data distorting the results.
