

CHAPTER-V

ANALYSIS OF THE DATA:
CHANGE IN PUPILS' PERFORMANCEC O N T E N T S

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CHANGE IN PUPILS' PERFORMANCE

V.1 INTRODUCTION

Teachers' behaviour under the experiment was discussed in the previous chapter. Training and feedback were given to the teachers of the experimental group, the result was that the teachers of the experimental group became more indirect in their behaviour.

In this chapter the effects of the modified behaviour of the teachers on the following variables were tested are discussed:

- (1) Pre-Adolescent Adjustment Scale (PAAS)
- (2) Pre-Adolescent Class-room Trust Scale (PACT)
- (3) Pre-Adolescent Initiative Questionnaire (PAIQ)
- (4) Achievement Tests (Science)

V.2 PRE ADOLESCENT ADJUSTMENT SCALE (PAAS)

Pre-Adolescent Adjustment Scale (PAAS) was administered in the beginning of experiment (Pre-test) and

at the end of the experiment (Post-test). The scale consists of six different areas of adjustments viz. Home, School, Peers, Teacher, General and the total score of the scale.

2.1 PRE-ADOLESCENT ADJUSTMENT TOWARDS HOME

Pre and post scores of the adjustment towards home from PAAS test were collected. Mean, SD and t-values were calculated which are given below in Table 5.1.

TABLE 5.1

Mean, SD and t-value of PAAS (Home) of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	4.935	2.834	5.371	DF=398 at 0.01 level 2.59
Post-Test	6.515	3.046		Significant
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-Test	5.494	2.999	1.924	DF=168 at 0.01 level 2.60
Post-Test	6.353	2.819		Not significant

The theoretical range for the scores on the area of adjustment towards Home range from -10 to +10. The scores below -5 show maladjustment and scores above +5 show high adjustment.

The table suggests that the change is not at significant level in the control group. Whereas, the score for adjustment towards home of the pretest in the experimental group was 4.935 which changed to 6.515 at 0.01 significant level. This means that as a result of change in the teacher behaviour the pupils gained significantly.

It can be concluded from the above discussion that pupils under the teachers of the experimental group whom the training was given scored higher, significantly on adjustment towards Home.

Therefore, the hypothesis:2: is accepted.

A question will arise what are the results in other studies ?

Pareek and Rao (1971) in their project study for mental health of Primary and Middle Schools pupils of Municipal Corporation, New Delhi, ^{found} the mean score of adjustment towards Home was 6.49.

Jangira (1972) in his study of primary school pupils of Assam, ^{found} the mean score of adjustment towards Home was 6.12 but was found not significant.

2.2. PRE-ADOLESCENT ADJUSTMENT TOWARDS SCHOOL

Pre and post scores of adjustment towards school from PAAS test were collected Mean, SD and t-values were calculated which are given below in table 5.2.

TABLE 5.2

Mean, SD and t-value of PAAS (School) of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	1.885	2.836	6.050	DF=398 at 0.01 level 2.59 Significant
Post-Test	3.495	2.474		
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-Test	1.776	2.598	2.136	DF=168 at 0.01 level 2.60 Not significant
Post-Test	2.588	2.352		

The theoretical range of the scores on adjustment towards school extends from -10 to +6 with 0 as the cutting point between the adjustment (+) and maladjustment (-) scores. Scores below -5 show high maladjustment while scores above +3 show high adjustment.

The table suggests that the change is not at significant level in the control group. Whereas, the score for adjustment towards school of the pre-test in the experimental group was 1.885 which changed to 3.495 at 0.01 significant level. This means that as a result of change in the teacher behaviour the pupils gained significantly.

This suggests that as a result of the change in teacher behaviour the pupils gained in adjustment. They got better adjustment towards the school. In other words, the teachers' indirect behaviour contributes to pupils' adjustment positively.

The direct behaviour of teacher did not contribute to better adjustment of pupils.

Therefore the hypothesis:2: is accepted. Do the results of the other studies support the findings ?

Jangira (1972) in his study found that the adjustment towards school was significant at 0.05 level.

Pareek and Rao (1971) in their study found that the mean score was 3.495.

2.3 PRE-ADOLESCENT ADJUSTMENT TOWARDS PEERS

Pre and post scores of the adjustment towards peers from PAAS were collected. Mean, SD and t-values were calculated which are given below in table 5.3.

TABLE 5.3

Mean, SD and t-value of PAAS (Peers) of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	0.655	3.524	6.504	DF=398 at 0.01 level 2.59 Significant
Post-Test	2.790	3.022		
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-Test	1.424	3.314	0.910	DF=198 at 0.01 level 2.60 Not significant
Post-Test	1.894	3.426		

The theoretical range of the scores towards peers extends from -10 to +6. Scores +3 and above show high adjustment, while scores nearer to -10 indicate high maladjustment, and scores nearer to 0 are indicative of mild adjustment or maladjustment depending on the magnitude and direction of the score.

The table suggests that the change is not at significant level in the control group. Whereas the score for adjustment towards peers of the pretest in the experimental group was 0.655 which changed to 2.790 at 0.01 significant level. This means that as a result of the change in the teacher behaviour the pupils gained significantly.

It is seen from the above discussion that the pupils of the experimental group scored higher. This suggests that as a result of change in teacher behaviour the pupils gained in adjustment. They got better adjustment towards peers. In other words the teachers' indirect behaviour contributes to pupils adjustment positively, whereas the direct behaviours of teachers did not contribute to better adjustment of pupils.

Therefore the hypothesis:2: is accepted. A question would arise what are the results in other studies ?

The mean score was 2.31 on adjustment towards peers in Pareek and Rao (1971) study on mental health of the primary school pupils of New Delhi.

The mean score of the post test in Jangira (1972) study was 4.03 and was significant at 0.05 level.

2.4 PRE-ADOLESCENT ADJUSTMENT TOWARDS TEACHER

Mean, SD and t-values were calculated of pre and post scores of adjustment towards teacher which are given below in table 5.4.

TABLE 5.4

Mean, SD and t-value of PAAS (Teacher) of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	2.220	2.868	7.778	DF=398 at 0.01 level 2.59 Significant
Post-Test	4.190	2.146		
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-Test	2.259	2.633	1.670	DF=168 at 0.01 level 2.60 Not significant
Post-Test	2.906	2.413		

The theoretical range of the scores towards teacher varies from -10 to +6. Scores nearer to -10 indicate high maladjustment and near to 0 indicate mild adjustment, while scores +3 and above show high adjustment.

The above table reveals that the change is not at significant level in the control group whereas, the score for adjustment towards teacher of the pretest of the experimental group was 2.220 which changed to 4.190 at 0.01 significant level. This means that as a result of the change in the teacher behaviour the pupils gained significantly.

In other words, the integrative behaviour of the teacher make pupils better adjusted to the teachers.

Therefore, the hypothesis:2: is accepted. A question would arise what are the results in other studies ?

The mean score of adjustment towards teachers in Pareek and Rao (1971) study of primary school pupils of New Delhi was 2.25.

The mean scores of post test in the experimental group was 3.98 in Jangira (1972) study of pupils of primary schools of Assam. The result was significant at 0.05 level.

Jangira (1972) study and Pareek (1971) study also show that as a result of the change in the teacher behaviour there was a change in adolescent adjustment towards teacher.

2.5 PRE-ADOLESCENT GENERAL ADJUSTMENT

Pre and post scores of general adjustment from PAAS test was collected Mean, SD and t-value were calculated which are given below in the table 5.5

TABLE 5.5

Mean, SD and t-value of PAAS (General) of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	2.660	2.218	4.569	DF=398 at 0.01 level 2.59 Significant
Post-Test	3.605	1.907		
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-test	2.976	2.155	1.626	DF=168 at 0.01 level 2.60 Not significant
Post-test	3.482	1.894		

The theoretical score ranges from -6 to +6. Scores nearer to +6 indicate high adjustment, scores nearer to -6 indicate high maladjustment and scores nearer to 0 indicate mild adjustment.

The above table suggests that the change is not at significant level in the control group. Whereas the scores for general adjustment of the pretest of the experimental group was 2.660 which changed to 3.605 at 0.01 significant level. It means that as a result of change in the teacher behaviour the pupils gained significantly.

This means that the teachers modified behaviour through training and feedback helps to increase the general adjustment of pupils. In other words, the democratic behaviour of a teacher makes pupils better adjusted to general adjustment score.

Therefore, the hypothesis:2: is accepted. Do the results of other studies are supporting ?

Jangira (1972) in his study found the mean score of the experimental group in the post test was 4.76 significant at 0.05 level.

In Pareek and Rao (1971) study the mean score was 3.34.

2.6 PRE-ADOLESCENT ADJUSTMENT SCALE (TOTAL SCORE)

Mean, SD and t-values were calculated for the pre and post test of PAAS of both the groups. The details are given in the table 5.6.

TABLE 5.6

Mean, SD and t-value of PAAS (total score) of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	12.580	8.210	9.470	DF=398 at 0.01 level 2.59 Significant
Post-Test	20.065	7.585		
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-test	13.788	10.239	2.178	DF=168 at 0.01 level 2.60 Not significant
Post-test	17.294	10.847		

The total adjustment score is obtained by adding the Home, School, Peers, Teacher and general scores. The total score ranges from -46 to +34. Positive scores indicate good adjustment to the extent^{of} the magnitude of the score nearer to 34 and negative scores indicate the lack of adjustment or maladjustment to the extent it is away from 0.

The above table reveals that the change is not at significant level in the control group. Whereas, the total score for adjustment of the pre-test of the experimental group was 12.580 which changed to 20.065 at 0.01 significant level. This means that as a result of the change in the teacher behaviour the pupils gained significantly.

In other words the modified behaviour of the teachers of the experimental group help^{ed} the pupils in modifying their levels of adjustments to the significant level.

Therefore, the hypothesis:2: is accepted.

A question will arise what are the results in the other study ?

Pareek and Rao (1971) in their study of primary school pupils of New Delhi found the mean score 15.51.

V.3 PRE-ADOLESCENT CLASS-ROOM TRUST SCHEDULE (PACT)

Pre and post test scores of PACT were collected for both the groups. Mean, SD and t-values were calculated. The results are given below in table 5.7.

TABLE 5.7

Mean, SD and t-value of PACT of the experimental and control group pupils

EXPERIMENTAL GROUP

N=200

Test	Mean	SD	t-value	
Pre-Test	22.415	3.129	11.843	DF=398 at 0.01 level 2.59 Significant
Post-Test	25.900	2.744		

CONTROL GROUP

N=85

Test	Mean	SD	t-value	
Pre-Test	22.000	3.177	2.279	DF=168 at 0.01 level 2.60 Not significant
Post-Test	23.041	2.771		

The theoretical range of the score of PACTS test ranges from 8 to 32. The theoretical midpoint is 20.

The above table reveals that the change is not at significant level in the control group, whereas, the score for the class-room trust of the pre-test of the experimental group was 22.415 which changed to 25.900 at 0.01 significant level. This means that as a result of the change in the teacher behaviour the pupils gained significantly.

The modified behaviour of the teachers of the experimental group helped the pupils in increasing their class-room trust to a significant level.

If there is greater class-room trust of the pupils, the pupils will be able to receive the knowledge imparted to them. But if the trust is low then whatever amount of knowledge imparted to them does not reach them.

Therefore, the hypothesis:3: is accepted.

What are the results of the other studies ?

In the study of Pareek and Rao (1971), the mean score was 22.07.

Jangira (1972) in his study of Assam pupils; the class-room trust mean score of the experimental group was 25.69 in the post-test which is significant at 0.05 level.

V.4 PRE ADOLESCENT INITIATIVE QUESTIONNAIRE (PAIQ)

Pre and post test scores on PAIQ were collected and Mean, SD and t-values were calculated which are given below in table 5.8.

TABLE 5.8

Mean, SD and t-value of PAIQ of the experimental and control group pupils

EXPERIMENTAL GROUP				N=200
Test	Mean	SD	t-value	
Pre-Test	11.310	3.661	10.568	DF=398 at 0.01 level 2.59
Post-Test	14.560	2.348		Significant
CONTROL GROUP				N=85
Test	Mean	SD	t-value	
Pre-Test	11.482	3.672	2.299	DF=168 at 0.01 level 2.60
Post-Test	12.682	3.110		Not significant

Score of

The theoretical range of the PAIQ test ranges from 0 to 18. Scores ^{from} 0 to 6 show less initiative, scores 7 to 12 show moderate initiative and scores 13 to 18 show high initiative.

The above table suggests that the change is not at significant level in the control group. Whereas, the score for PAIQ of the pre-test of the experimental group was 11.310 which changed to 14.560 at 0.01 significant level. It means that as a result of modified behaviour the pupils gained significantly.

The changed behaviour of the teachers of the experimental group helped the pupils in modifying their level of initiative to a significant level.

Therefore, the hypothesis:4: is accepted.

A question would arise what are the results in other study ?

The mean score on PAIQ test of the New Delhi primary school pupils was 10.437 in the study by Pareek and Rao (1971).

V.5 PUPILS ACHIEVEMENTS IN SCIENCE

Three achievements tests in the subject of Science were administered to both the groups. The first

test (Pre-test) was administered to measure the initial achievement of the pupils before the commencement of the experiment. The second test (Intermediate-test) was administered to measure the achievement of the pupils in the middle of the experiment. The third test (Post-test) was administered to measure the final achievement of the pupils at the end of the experiment.

Mean and SD were calculated for all the three achievement tests for both the groups, which are given below in table 5.9.

TABLE 5.9

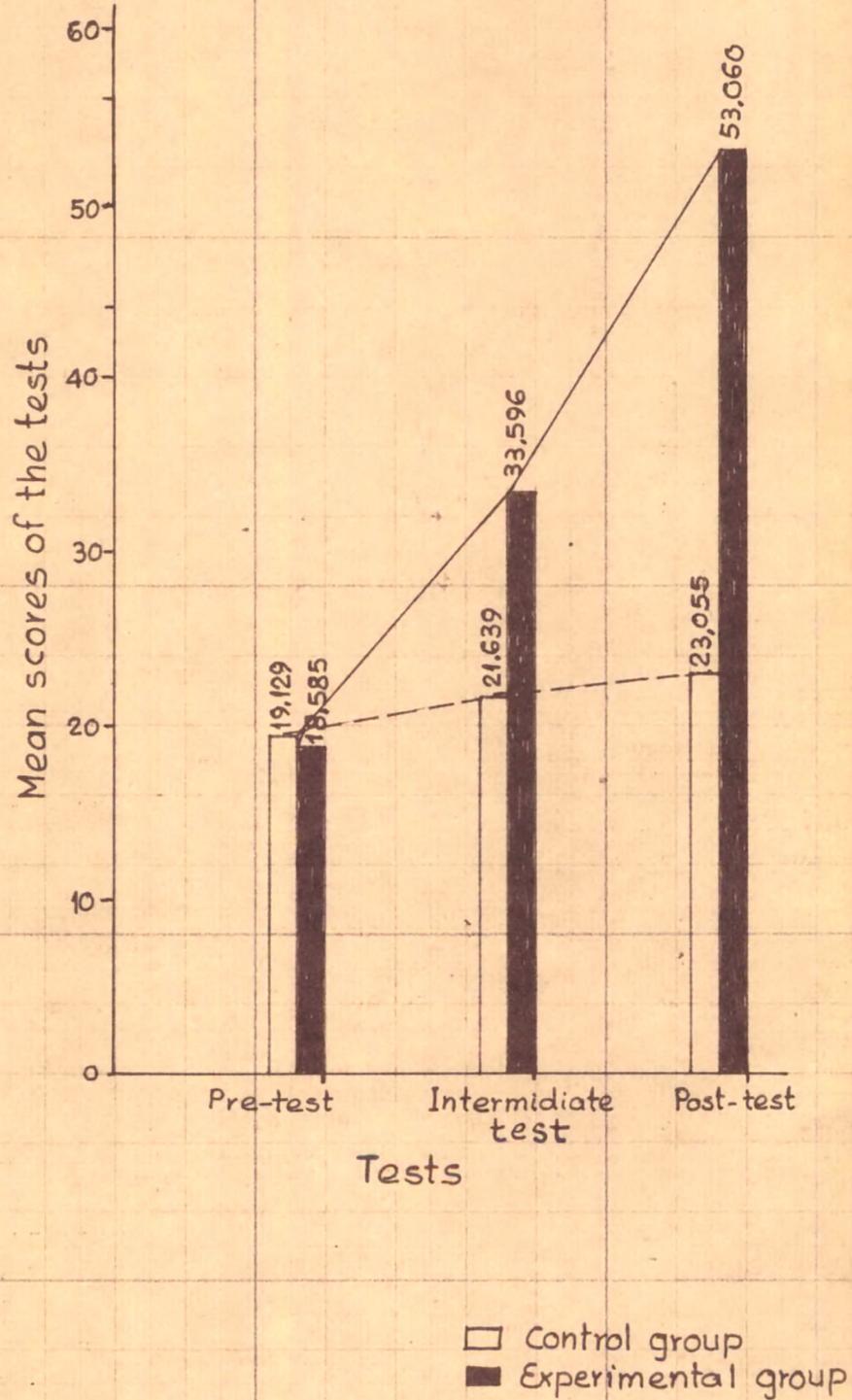
Mean and SD of Achievement Tests (Science)
of the experimental and control group
pupils

EXPERIMENTAL GROUP			
N=200			
Mean and SD	Pre-test	Intermediate-test	Post-test
Mean	18.585	33.598	53.060
SD	8.937	11.247	13.003

CONTROL GROUP			
N=85			
Mean and SD	Pre-test	Intermediate-test	Post-test
Mean	19.129	21.639	23.055
SD	10.251	10.852	11.153

GRAPH-5.1

Mean scores of achievement tests in Science of the experimental and control group pupils.



Regarding the experimental group the difference between the mean scores of pre-test and intermediate test was of about 15 scores and that of between the intermediate test and post-test was about 20 scores. The change in the later half of the experiment was found to be more than the earlier period of the experiment. The results also indicate that a consistent positive change in achievement was observed. Of course, the group varies much in the distribution of scores between pre and post tests.

Similarly a consistent change of a positive nature was also observed between the different achievement tests in case of the control group also, but the difference was much more less as compared to the experimental group pupils. Like the experimental group the control group also showed an increase in the variability of distribution of scores, but was less than the experimental group. A graphical presentation of the results is given (Graph 5.1).

TABLE 5.10

(Next page)

Regarding the experimental group, the mean score of the post-test increased by about 35 scores. The t-value between the pre-test and post-test was 30.92. The mean difference was significant at 0.01 level.

TABLE 5.10

Mean, SD and t-value of Achievement tests
(Science) of the experimental and control
group pupils

EXPERIMENTAL GROUP

N=200

Test	Mean	SD	t-value	
Pre-Test	18.585	8.937	30.92	DF=398 at 0.01 level 2.59 Significant
Post-Test	53.060	13.003		

CONTROL GROUP

N=85

Test	Mean	SD	t-value	
Pre-Test	19.129	10.251	2.39	DF=168 at 0.01 level 2.60 Not significant
Post-Test	23.055	11.153		

In case of the control group the increase in the score between pre and post test was only about 4 scores which was considerably low as compared to the experimental group. The t-value between the pre and post scores was 2.39. The mean difference was not significant at 0.01 level.

The difficulty index of the items of the tests was considered and all the three tests have similar difficulty index of their items.

From the discussion of the above results as mentioned above, means that the modified behaviour of the teachers of the experimental group helped the pupils' under the sample, in increasing the achievement to a significant level than the control group, in Science.

The result supports the hypothesis:5: that the modified behaviour of the teachers will affect pupils' academic achievement positively.

This study, by nature is a field experiment, not only that but was conducted in natural and real classroom settings. Hence, the finding of this study, might be more useful to the educators. Moreover, the results might be of greater help to the researchers in formulating generalizations.

The results about academic achievement of the present study was also supported by the following studies:

Lulla (1973) in her study, of the VII grade pupils of Baroda Municipal Corporation Primary Schools, on achievement in the subject of Geography, found that in

case of experimental group the mean score was 23.37 and was 26.30 for the control group. The mean difference was found significant at 0.01 level.

Mehta (1969), Mehta and Kanade (1969) and Mehta and Dandia (1970), reported ^{higher} achievements in follow up studies of the experimental groups.

Desai (1970) in his project study of the pupils of Kaira district, found that the total gain was about 15 percent, the gain was significant.

Morrison (1966) found significant evidence supporting the relationship between teacher influence and achievement gain scores in language usage, social study skill, arithmetic computation and problem solving.

Coats (1966) reanalysed the relationship between pupils' attitudes and achievement scores versus various measures derived from 10x10 matrix based on Flanders categories.

Lashier (1967) supports the above relationship, in a study, between verbal behaviour of student-teacher and achievement.

Weber (1968) found, pupils with teacher using indirect influence in the class-room, scoring higher on

verbal creativity than pupils with teachers using direct influence.

Rosenshine and Furst (1971) found relationship between teacher behaviour and students achievement.

Johns (1968), Snider (1966), Soar (1964), Furst (1967), Pankvatz (1967), Mitzel (1969) have also consistently reported, on the basis of their studies, that the indirect behaviour yields better achievements by the students.

It can be concluded from the study regarding the support given by the different Indian and foreign studies that there is a positive relationship between the teachers integrative behaviour and pupils academic achievements.

The last chapter deals with the summary of the chapters, conclusions and implications.