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The study is conducted in two phases. The first phase of the study consists of evolving the psychological education input model. In the second phase of the study, the model developed under the first phase is experimentally tested as to its effectiveness in bringing about psychological development in primary school children and its effect on their academic performance. The details regarding the first phase of the study is presented in Chapter IV. This chapter presents, in brief, certain methodological aspects relating to the second phase of the study, such as the specific hypotheses to be tested, the experimental design, the sample chosen for the experiment, the tools used for measurement, and the scheme of data analysis adopted.

III.1 THE HYPOTHESES

The hypotheses derived here are based on the previous researches. As noted earlier, there have been certain attempts made by McClelland (1968), Mehta (1967), Desai (1970) and Alschuler (1971) to develop psychological input models and study their effectiveness on academic performance. The research results indicate that various treatments have affected the academic performance of the pupils. These and also some other researchers, Heredero (1969), Rosenthal (1968), Rist (1970) and Pareek (1971) studied the effects of their treatments on chosen aspects of the pupils' psychological behaviour such as n-Ach.,

classroom trust, adjustment, classroom initiative, classroom activity level, test anxiety, social relationships, perception of self and goal perception.

They have found that the effects were positive and desirable changes took place in these aspects of psychological behaviour as a result of their treatments (Details of these findings have been presented in Chapter II). In light of these findings of the earlier researches, investigator has formulated the following hypotheses:-

1. The psychological education input programme will lead to an increase in academic performance of pupils.

2. The effects of psychological education input programme are retained for a longer duration of time which affects performance positively.

3. The psychological education input programme will lead to an increase in n Ach. level of pupils.

4. The psychological education input programme will lead to an increase in adjustment and classroom trust of the pupils.

5. The psychological education input programme will lead to a decrease in the level of test anxiety in pupils.

6. The psychological education input programme will lead to an increase in the initiative level of pupils.

7. The psychological education input programme will lead to an increase in activity level of pupils.

8. The psychological education input programme will lead to better social relationships among the pupils.

9. The psychological education input programme will enable the pupils to set more realistic goals.

10. The psychological education input programme will enable the pupils to manifest moderate risk-taking behaviour.

11. The psychological education input programme will make the pupils form a better self-image.

12. The psychological education input programme will make the pupils to have a clearer goal perception.

13. The psychological education input programme will enable the pupils develop a clearer perception of teacher's role.

14. The psychological education input programme will develop in the pupils a clearer perception of their role in relation to school.

15. The psychological education input programme will make the pupils develop a favourable attitude towards school.

16. The psychological education input programme will make the pupils get higher images for emulation.

17. The psychological education input programme will widen the non-academic interests of the pupils.

III.2 THE PROCEDURE

2.1 The Sample

The question would arise as to why the present investigator has selected primary school pupils as sample for experiment.

Two arguments came to the investigator while selecting the sample. As McClelland (1953) has argued, basic personality structure is formed to a large extent during early childhood, as associations formed at that time are likely to be stronger and more enduring. Thus, the logical inference is that the time to influence motive and other psychological facts is early life, and not adulthood when the basic personality structure would have already got stabilized that it would only shape or distort whatever might come later in the form of an educational effort.

Further reason for selecting primary school children as the sample is that the major population of the country, go only upto primary school level as primary education is free and

compulsory. But a large number of these, dropout or stagnate causing enormous wastage of resources. One of the main reasons for this has been often pointed out as the absence of a suitable emotional climate in the school. Thus, a restructuring of classroom work, as has been planned under the present study through integration of emotional and cognitive aspects of development, should help in reducing the rate of wastage and stagnation to a substantial extent.

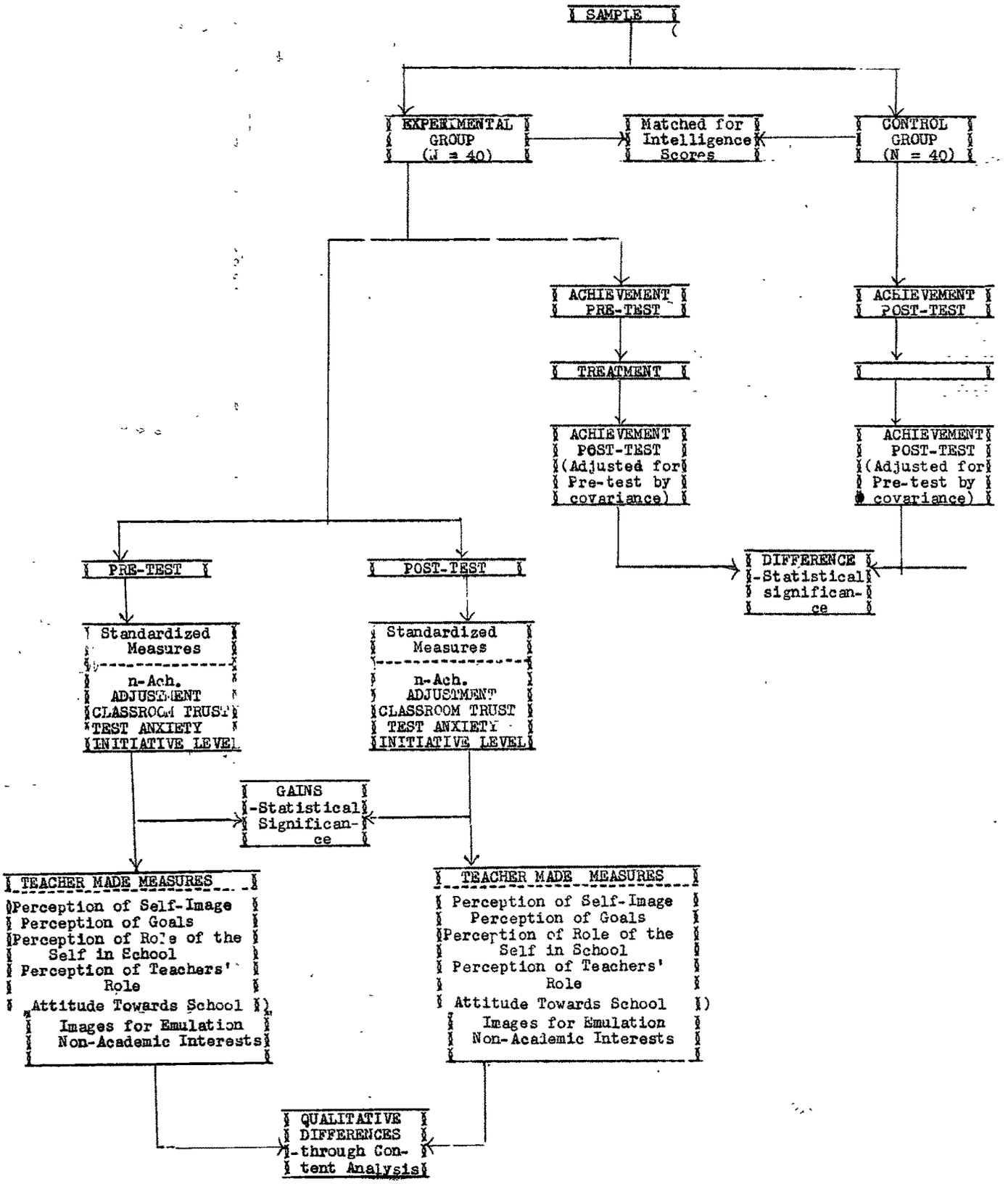
With the above points in view, the sample for the study was selected from one of the primary schools of Baroda city. Pupils were not given any cue regarding the experiment. In order to avoid distortions in results due to the investigator's presence, pupils were informed at the beginning of the academic session that a new teacher has been recruited for teaching in standard VII.

The experiment was conducted in two stages. The tryout study was conducted in January 1975. The sample consisted of eightyfour boys of the standard VII, belonging to the age group 12-14 years. At the final stage, the experiment was conducted for one full term, i.e., June 1975 to September 1975, with a sample of eighty boys who had just been promoted to standard VII in the same primary school.

2.2 The Experimental Design

The sample was divided into two matched groups. The

EXPERIMENTAL DESIGN



groups were matched on intelligence. In the experimental group, teaching was done by the investigator. Along with the teaching, psychological inputs were also induced as an integral part of the regular classroom programme. Details of the classroom work were planned and organized according to the psychological education input model prepared under the present study which has been described in Chapter IV.

In the control group, the teacher from the same school taught. Both the teachers used to discuss about the specific points to be covered in different class hours so that the content matter was planned and controlled in both the groups. A pre-test and a post-test and weekly periodical tests in each subject were administered to both the group at the same time which was planned and specified well in advance. Apart from these tests, two delayed post-tests, namely, the terminal and the annual examinations were conducted. These delayed post-tests were prepared and administered by Municipal Primary Education Board.

2.3 Tools Used for Measurement

In order to measure the different variables involved in the study, various tools were used. Details about these have been given under the heads specified below:

1. Academic Performance Tests
2. Shah's Non-Verbal Group Test of Intelligence (1965)
3. Thematic Apperception Test (TAT) adapted by Mehta (1967).

4. Pre-Adolescent Adjustment Scale (PAAS) by Pareek (1971)

5. Pre-Adolescent Classroom Trust Scale (PACTS) by Pareek (1971)

6. Test Anxiety Scale for Children (TASC) by Nijhawan (1971)

7. Pre-Adolescent Initiative Questionnaire (PAIQ) by Pareek (1971)

8. Pre-Adolescent Activity Level Scale (PAALS) by Pareek (1971)

9. Pre-Adolescent Sociometry Scale (PASS) by Pareek (1971).

1. Academic Performance Tests

For pre-post-testing the pupils in academic achievement, the tests prepared by the investigator were used. In addition to this, unit tests were used for measuring academic performance during the course of investigation. Performance of pupils on tests administered by the Municipal Primary Education Board, two months and six months after the completion of the experiment, were taken as measures of delayed effect of the treatment. In each of the post-treatment measures, a total performance index was obtained for each student based on his performance in the different subjects.

2. Shah's Non-Verbal Group Test of Intelligence (1965)

This test provides a measure of the subject's intelligence in the form of Intelligence Quotient (I.Q.). It was used to match the two groups. The test has as its underlying theory the Spearman's Two Factor Theory. It considers the general ability and special (specific) ability. The factors considered are reasoning, perception, memory and numerical ability. The test has seven subtests, namely, Similarity, Classification, Analogy, Absurdity, Progressive Series, Substitution Table 1 and Substitution Table 2. The test is developed for the age range between 7 years 6 months and 14 years 5 months.

The validity of the test is established on the following grounds: (a) Correlation of this test with verbal test of intelligence developed at the Faculty of Education and Psychology, Baroda, is found to be 0.7 $\pm$ 0.072 (at 0.01 level of significance), (b) Correlation of IQs on the test with the standard scores of four subjects (Science, Mathematics, Gujarati and English) was found to be 0.55 $\pm$ 0.09 (at 0.01 level of significance), (c) Correlation of IQs on the test with teachers' estimates of intelligence was found to be 0.53 $\pm$ 0.01 (at 0.01 level of significance). The reliabilities of the test are: (a) by test-retest method $r = 0.94 \pm 0.0057$, (b) split-half method $r = 0.92 \pm 0.019$, and (c) by the method of rational equivalence $r_{11} = 0.961 \pm 0.0098$ (all values significant at 0.01 level of confidence).

3. Thematic Apperception Test (TAT)

This test was originally developed by McClelland,et al. (1953) and adapted by Mehta (1967) for the Indian pupils. With the help of this test the chain of thoughts from unconscious mind are captured and these thoughts are classified into different components, constituting achievement motivation.

In this test, six pictures are used to obtain stories from the subjects for analysis of their motivation. Pupils are instructed to see the pictures one by one. Only twenty seconds are given to observe each picture. They are then required to write a story based on the picture observed within four minutes.

For finding the test-retest reliability of the test, two groups of high school pupils were retested after an interval of four months by Mehta (1967).

In one case the correlation was found to be 0.39 (N = 41) and in the other case it was 0.56 (N = 42). A split-half reliability was found to be 0.73 (N = 22) on a group of research trainees.

The scoring key of this test has been given in Appendix B_1.

4. Pre-Adolescent Adjustment Scale (PAAS)

This scale has been constructed by Pareek (1971). He defines Adjustment as the individual's orientation towards his

parents, peers, school and himself in terms of the satisfaction he derives from his interactional relationship with others and himself.

The scale consists of 40 items: home (9), school (8), teachers (8), peers (8), and general (7). For each area of adjustment the scoring is separate. Thus, there are five sub-scores of adjustment obtainable from the scale for an individual pupil.

The score of an individual in any area of adjustment is the sum total of the scale values of the items checked by him falling under that area. The score may be negative or positive, a negative score indicating maladjustment, and a positive score indicating good adjustment, depending on the magnitude of the score.

The scoring key of this scale is given in Appendix B_2.

The scale has been validated by the test constructor with the ratings of the teachers from five schools. The level of significance of U test for the validity of PAAS is given below:

	Schools			
	1	2	3	4
Home	....	.206	....	.008
School	.001	....	....	....
Peers	....	.028	....	....
Teachers	....	....	....	....
General	....	....	.100	.028
Total	.010	....	.100	.050

Note: Dots in the cells indicate rejected schools due to lack of data and not low U values.

For reliability of the scale, retest data were obtained from five middle schools, with a gap of three months between test and retest. Test-retest reliability coefficients of PAAS is given below:

School	1	2	3	4	5
Sub-scales	N = 27	N = 18	N = 12	N= 21	N = 22
Home	-.05	-.04	-.07	.20	.46
School	.53	-.22	.08	.60	.50
Peers	.20	.36	.18	.49	.54
Teachers	.08	.28	-.12	.23	.28
General	.40	.39	.25	.44	.28

5. Pre-Adolescent Classroom Trust Scale (PACTS)

It is a semi-projective measure constructed by Pareek (1971). It measures the classroom trust of pupils. He defines classroom trust as 'the pupils, feeling free to interact with the teachers; to discuss with him day to day classroom problems. PACTS consists of eight classroom situations, with four alternate responses. The pupil is asked to read a situation. In each situation a pupil is involved - and guess what kind of feeling or action response that pupil gave in that situation. The responses checked are then scored as 4, 3, 2 or 1, according to degree of trust represented by the response. The sum of all the scores on the various situations checked by the pupil gives his total score on PACTS.

The scoring key for the test is given in Appendix B_3.

Internal consistency and test-retest reliability were calculated (Pareek, 1971). Internal consistency was determined by the split-half method. The correlation was found to be 0.81 indicating a significantly high internal consistency of the test. The stability of the test was found out by correlating scores of pupils from three of the middle schools tested in the beginning, to whom the test was given after an interval of 14 weeks. The correlations obtained were 0.33, 0.46 and 0.77. These show an acceptable level of reliability for the test.

6. Test Anxiety Scale for Children (TASC)

The scale is originally constructed by Sarason, et al. (1960). It has been adapted by Nijhawan (1971) for the Indian children to measure test anxiety. She defines "Test anxiety relates to anxiety in relation to the quality of performance in a test situation". The scale includes thirty items which are restricted only to the test anxiety of the children. The sum of the positive score on test gives the total score on test anxiety. Each item has +1 score.

Reliability was calculated by using the split-half and the Kuder-Richardson methods (Bala, 1966). The reliability figure obtained were .88 (TASC, split-half).

7. Pre-Adolescent Initiative Questionnaire (PAIQ)

The questionnaire is constructed by Pareek (1971). He defines initiative as 'the tendency to start actions independently, such independence may or may not involve originality.' The questionnaire consists of six situations, and each situation has an open ended question at the end. The respondent is asked to guess what the pupil involved in the situation did. Four categories are prepared. The responses are scored as 3, 2, 1 or 0 according to the degree of initiative. On PAIQ a pupil can get 18 as the highest score and 0 as the lowest score. The scoring key of the test is given in Appendix B_4.

Test-retest reliability, based on correlation of the

original scores of pupils with retest scores taken after 14 weeks (Pareek, 1971) was found to be 0.50, 0.55, and 0.66 in three schools. Inter-scorer reliability of the test was also found out. The responses of pupils of two schools were scored independently by three scores. The coefficients of correlation, showing agreement in six pairs range from 0.83 to 0.90. Both the stability and the inter-scorer coefficients are high.

8. Pre-Adolescent Activity Level Scale (PAALS)

The scale is developed by Pareek (1971). In order to measure the activity level of the pre-adolescents, teachers' ratings are used, since the teachers come in closer and longer contact with pupils. He defines activity as 'any type of voluntary performance, curricular or co-curricular by a student in a controlled situation like the classroom. Activity may be either verbal or non-verbal'.

These activities are divided into seven groups, from the highest to the lowest activity levels. Each group contains five to six activities indicating the level of activity in that group. The highest level group is assigned a score of 9, and the lowest 1 and those between these two extremes are assigned scores of 7, 6, 5, 4 and 3. The gap of one digit at both the poles of high and low activity is provided to emphasize and bring out the extreme groups more sharply.

For measuring the activity level, the teacher is asked to write down names of the pupils who show any one of the

behavioural characteristics most of the time in the school. The scoring key of the test is given in Appendix B_5.

For finding out the reliability, the teachers were requested to name the five most active and five least active pupils, after three months of the first ratings by teachers (Pareek, 1971). Mann-Whitney U-values were calculated for the scores of the most active and least active groups. All the three U's were significant (level of significance being 0.005, 0.01 and 0.002). This shows the high reliability of the scale.

9. Pre-Adolescent Sociometry Scale (PASS)

The scale has been constructed by Pareek (1971) in order to study the classroom structures, especially, the cohesiveness and integration of the pre-adolescent classrooms.

In this scale, each student is asked to name three of his best friends from his class in rank order with whom they like to study. From these rankings three indices, namely, sociometric index, class cohesiveness and class integration index can be obtained. The formula to calculate class integration index is given below:

$$\text{Class Integration index} = \frac{\text{Total number of isolates + Total number of overchosen}}{\text{Total number of students in the class}}$$

where all those getting more than 25 per cent of the first choice are considered as overchosen. Procedure of calculating the other two indices are given in Pareek (1971).

III.3 THE OTHER MEASURES

These items which may be called semi-projective measures have originally been used for similar purposes by Desai (1972) in his study on 'Achievement Motivation Development through Better Self-Image'. A brief description of these items as to what they measure is presented in the following. Details as to how these items serve as input items in addition to measuring certain aspects of psychological development are given in Chapter IV, under the head 'The Model'. Changes are observed through responses to these items by using technique of content analysis.

Some of the inputs serve as measures of psychological development as well as feedback to pupils and teacher facilitating the process of psychological development.

1. Who am I?

In this item pupils write and discuss about themselves - their hopes, interests, abilities, etc. This item is used to observe changes in pupils' self-image.

2. What Would I Like to be? and My Aims

Under each of these items pupils were to specify what they want for themselves in order of preference. The responses are to be analysed to find out changes in the perception of their immediate life time goals. It is to see how clear the pupils are about their goals and means for achieving them.

3. Myself and My School

This item included four questions related to school. The responses are to be content analysed to study the perception of the pupil regarding his role in relation to different aspects of school - teacher, school activities, norms of school behaviour etc.

4. What Type of Teacher Do You Like?

This item is used to study the pupils' perception of the role they expect their teachers to play. It is to find out as to what extent pupils perceive their teachers in proper perspective.

5. Word Association Test

The test consists of six words, namely, school, teacher, peers (classmates), classroom, blackboard and bell. The words are announced in the class one by one. Pupils are supposed to write whatever word or sentence immediately occurs to their mind, in response to each word. The responses are to be content analysed to study their attitude towards school.

6. Steps of Honour

Under this item pupils have to point out a few persons who they have come across either in their life or in studies. These they have to arrange in order of preference as to the person whom they like most and also advance reasons for their

choices. This item is used to study the images which pupil set for themselves to emulate or identify themselves with.

7. My Leisure Time

Here pupils are to briefly write on the item 'My Leisure Time'. Contents of these responses are to be analysed to study the non-academic interests of the pupils.

III.4 SCHEME OF ANALYSIS OF THE DATA

Data has been analysed mainly with the help of descriptive statistics like mean and standard deviation. Analysis of covariance was applied to adjust the academic test performance on different subjects. The major aspects of the system of analysis adopted have been specified in the following:

1. Pre-treatment academic scores were used as covariate for adjusting post-academic performance scores - immediate as well as delayed - by applying analysis of covariance. And, the significance of difference between mean gain score for the control group and that for the experimental group was found out.

2. Significance of differences (pre-post) in n Ach., adjustment, classroom trust, test anxiety, goal setting, classroom integration level, classroom activity level and classroom initiative level was found out for the experimental group.

3. Pupils' responses on the various semi-projective measures such as 'Who am I?', 'What would I like to be' etc. were analysed by applying the technique of content analysis to their pre-and post-experimental writings.

It may be noted from the details presented above that no extremely sophisticated methodology has been adopted either for the organization of the experiment or for analysing the data although the investigator has used computer assistance for certain calculations. This has been deliberately done as the overall purpose of the study is to finally arrive at a model for psychological education in primary schools which the concerned teachers can adopt in their respective classes with minimum training and also evaluate its effectiveness for refining it further.