

CHAPTER - IIIPROCEQURE OF THE STUDYDESIGN OF THE STUDY

This section describes the design of the study under the following sub-headings:

1. Sample
2. Tools and techniques.
3. Collection of data
4. Statistical procedures

1. SAMPLE

A sample of about 200 students from the VIII class in the age range from 12-14 years was drawn from the Shahdol and Bhopal district.

- (a) Size of the sample:

Inorder to study gender variable the sample included one girls school and seven co-ed school. The list of Schools and the number of students included in the sample, gender and areawise, are given in the tables Nos 3.1 and 3.2

TABLE NO. 3.1

	Name of School	Male	Female	Total
<u>BHOPAL</u>				
1.	Demonstration HSS	22	10	32
2.	Model H.S.S.	13	6	19
3.	Sarogininaidu Girls Higher Secondary School	-	33	33
4.	Anand Vihar H.S.S.	16	-	16
				100

TABLE NO. 3.2

	Name of School	Male	Female	Total
<u>SHAHDOL</u>				
1.	Amiliha Middle School	17	8	25
2.	Chandaniya Middle School	8	7	15
3.	Jamui Upper Middle School	15	15	30
4.	K.V. Shahdol	20	10	30
				100

Random sampling techniques was used in drawing of the sample. Both the boys and girls have been included in the study. The schools were selected by incident sampling technique.



2. TOOLS:

(a) The tools used for measuring the personality traits was H.S.P.Q. (High school personality questionnaire by S.D. Kapoor & Srivastava, 1980).

(b) Test for Achievement in Mathematics

In order to prepare the test paper of mathematics VII class maths book was taken and 25 questions were prepared from it. Then the questions were shown to local school teachers and the difficult questions were removed by consulting the teacher. Then remaining 21 questions were tried out in a school on 30 students. The questions which were either very easy or very difficult were deleted and finally 11 questions were selected for the final achievement test in Maths.

(a) H.S.P.G.

The Jr. Sr. High School personality questionnaire is a Junior version of sixteen personality factor questionnaire (The 16PF, 1962). The Jr.Sr. H.S.P.Q. is a standardised test that can be given within a class period to single individual or in groups to yield a general assessment of personality development. The H.S.P.Q. measures fourteen distinct dimensions of traits of personality which has been found by psychologists to constitute the total personality. By working with

these 14 scores the psychologist can obtain predictions of school achievement of vocational fitness of danger of delinquency, of likelihood of leadership qualities of need for clinical help in availing neurotic conditions etc. The reading level of the test is adopted to age 11 to 1 through 18 years, and the scoring can be done rapidly by punched key.

Description of personality factors in the H.S.P.Q.

The fourteen factors included in the H.S.P.Q. are described briefly in the table below:

TABLE NO. 3.3

BRIEF DESCRIPTION OF THE FOURTEEN HSPQ PERSONALITY FACTORS

Table 5: BRIEF DESCRIPTION OF THE FOURTEEN HSPQ PERSONALITY FACTORS

LOW STEN SCORE DESCRIPTION (1 - 3) <i>A boy or girl with low score is :</i>	ALPHABETIC DESIGNATION OF FACTOR	HIGH STEN SCORE DESCRIPTION (8 - 10) <i>A boy or girl with high score is :</i>
RESERVED, DETACHED, CRITICAL, ALLOOF, STIFF	A	WARMHEARTED, OUTGOING, EASY- GOING, PARTICIPATING
LESS INTELLIGENT, CONCRETE- THINKING, OF LOWER SCHOLASTIC MENTAL CAPACITY	B	MORE INTELLIGENT, ABSTRACT- THINKING, BRIGHT, OF HIGHER SCHOLASTIC MENTAL CAPACITY
AFFECTED BY FEELINGS, EMOTION- ALLY LESS STABLE, EASILY UPSET, CHANGEABLE, OF LOWER EGO STRENGTH	C	EMOTIONALLY STABLE, MATURE FACES REALITY, CALM, OF HIGHER EGO STRENGTH (not the same as "ego- tistical")
UNDEMONSTRATIVE, DELIBERATE, INACTIVE, STODGY, PHLEGMATIC	D	EXCITABLE, IMPATIENT, DEMANDING OVERACTIVE, UNRESTRAINED
OBEDIENT, MILD, EASILY LED, ACCOMODATING, SUBMISSIVE	E	ASSERTIVE, COMPETITIVE, AGGRE- SSIVE, STUBBORN, DOMINANT
SOBER, TACITURN, SERIOUS	F	ENTHUSIASTIC, HEEDLESS, HAPPY-GO-LUCKY
DISREGARDS RULES, EXPEDIENT, HAS WEAKER SUPEREGO STRENGTH	G	CONSCIENTIOUS, PERSISTENT, MORALISTIC, STAID, HAS STRONGER SUPEREGO STRENGTH
SHY, TIMID, THREAT- SENSITIVE	H	ADVENTUROUS, "THICK-SKINED," SOCIALY BOLD
TOUGH-MINDED, REJECTS ILLUSIONS	I	TENDER-MINDED, SENSITIVE, CLINGING, OVER-PROTECTED
ZESTFUL, LIKES GROUP ACTION	J	CIRCUMSPECT INDIVIDUALISM, REFLECTIVE, INTERNALLY RESTRAINED
SELF-ASSURED, PLACID, SECURE COMPLACENT, UNTROUBLED	O	APPREHENSIVE, SELF-REPROACHING, INSECURE, WORRYING, GUILT PRONE
SOCIABLY GROUP-DEPENDENT, A "JOINER" AND SOUND FOLLOWER	Q ₂	SELF-SUFFICIENT, PREFERENCES OWN DECISIONS, RESOURCEFUL
UNCONTROLLED, LAX, FOLLOWS OWN URGES, CARELESS OF SOCIAL RULES, HAS LOW INTEGRATION	Q ₃	CONTROLLED, SOCIALLY-PRECISE, SELF-DISCIPLINED, COMPULSIVE, HAS HIGH SELF-CONCEPT CONTROL
RELAXED, TRANQUIL, TORPID, UNFRUSTRATED, COMPOSED	Q ₄	TENSE, DRIVEN, OVERWROUGHT, FRUSTRATED, FRETFUL

scores on Factors D, O, and Q₄, while scoring lower than average on Factors C, H, and Q₃. The *neurotic* child shows this same anxiety pattern. In addition, though, he tends to have an above-average score on Factor I and below-average scores on E and F.

3. COLLECTION OF DATA

After selecting the required tools discussed above, the task was to employ them to collect information regarding the dependent and independent variables. Special care was taken to encourage few interest, enthusiasm and frankness among the students while filling the questionnaire. The H.S.P.Q. Form A was administered to students of VIII class in the 4 institutions of Bhopal city and 4 institutions of Shahdol district. Subject were asked to fill in their name, age, gender, class etc. as printed on the first page of test form. Further, the instructions printed on the test booklets were read loudly and explained to the students. After the two examples given on the front page were explained and their responses obtained they were asked to turn over the page and proceed from item response in the test paper. It was ensured that no item of the questionnaire could remain un^sre_ponded before the form was collected.

Their difficulties in understanding the items were invited and removed on the spot.

Then the test paper of mathematics, where given to the students. Each & every questions were explained to the students. then they were asked to answer the question within 35 minutes. Answersheets were also given to them. They were asked to write their age, name, gender & class. Both the tests were administered in one sitting to groups

students numbering 25 to 35. The students were thoroughly explained as to what they were expected to do.

After administering the tests, all the test booklets were scored with a hand made punched key and rechecked for mistakes if any. Also the marks of mathematics test was given.

4. STATISTICAL PROCEDURES

For analysing the data and arriving at results of a number of statistical techniques and formulae were employed. They were as follows:

(a) Mean (M) and standard Deviation (SD)

Mean and standard deviations were calculated in case of distribution of scores in Mathematics test and in H.S.P.Q. in case of urban male, urban female, Rural male rural female. Also the mean and standard deviation of total population, Rural area students and urban area students were calculated in case of mathematics.

The formula used are as follows (Garrett, 1966).

(i) Calculation of mean when data are ungrouped

$$\text{Mean (M)} = \frac{\sum X}{N}$$

N Total number of scores
X Scores of Mathematics

(ii) Standard Deviation (SD)

$$Sd = \sqrt{\frac{\sum x^2}{N} - M^2}$$

$x^2 =$ Square of the scores.
 $N =$ total number of scores.

(b) Critical Ratio.

Inorder to calculate the significant differences in the achievement in maths of total rural and urban students and total boys & girls, critical ratio is used. The formula used are as follows:-

(i) $M_1 - M_2 = D$

$\sigma_D =$ the standard error of the different between the mean.

(ii) $\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}} = \sigma_D$

M_1, M_2 - Mean of the two groups

(iii) $CR = \frac{D}{\sigma_D}$

σ_1, σ_2 - S.D. of the two groups

N_1, N_2 - Total number of scores in each group

Inorder to be significant at .05 level and .01 level the value of CR should be 1.96 and 2.58 respectively

(c) ANOVA

Inorder to calculate the, Gender and areawis significant difference in the achievement in maths ANOV

In order to analyse the variance among group on achievement scores. ANOVA test is used and when it is found that the difference among the groups are significant then the scheffe's t were calculated.

(d) Product: - moment correlation (r)

To find out the relationship between personality traits and achievement scores in maths product moment correlation technique is used. Product-moment coefficient of correlation between personality traits and the aggregate marks of Mathematics have been found out.

The formula employed was as follows:

$$(i) \sigma_x = \sqrt{\frac{\sum x^2}{N} - \left(\frac{\sum x}{N}\right)^2}$$

$$(ii) \sigma_y = \sqrt{\frac{\sum y^2}{N} - \left(\frac{\sum y}{N}\right)^2}$$

$$(iii) V_{xy} = \frac{\sum xy}{N} - \frac{\sum x}{N} \cdot \frac{\sum y}{N}$$

$$(iv) r = \frac{V_{xy}}{\sigma_x \cdot \sigma_y}$$

σ_x = S.D. of Mathematics scores.

σ_y = S.D. of personality scores

V_{xy} = Common variance

r = product moment corre

(e) Test of statistical significance

The .05 and .01 level of confidence have been used for determining statistical significance in all cases.

