CHAPTER III

METHODOLOGY

3.0.0. INTRODUCTION

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3.3.0. TOOLS

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3.0.0. Introduction

With the research problem specified and the review of related literature completed the researcher selected the research approach to collect the necessary data. For the purpose, the researcher selected an appropriate research method and sample, collected the appropriate tools for measuring the variables under study and decided the plan for collecting and analysing the data. The research approach followed in carrying out the present investigation has been described in the present chapter. The details with respect to the sample, the design, the tools, the procedure of data collection and the statistical techniques used for analysing the data are given in separate captions.

3.1.0. Sample

In most research instances in social science, it is not possible to collect the data from every respondent relevant to the study but only from some fractional part of all the respondents. The process of selecting the fractional part is called sampling. From four major selection procedures, namely random, systematic, deliberate and cluster, the researcher used random sampling technique for selecting the sample.

The population of the present study comprised the pupils of grade VII. It was decided to select the pupils from the schools
situated in Ahmedabad city. There are 375 primary schools situated in Ahmedabad. From these schools the researcher randomly selected 35 Gujarati medium schools. All the three types of schools like co-education school, boys' school and girls' school were selected. The total sample comprised 1,000 (500 boys and 500 girls) pupils in the beginning. The sample reduced to 995 (498 boys and 497 girls), because five pupils (2 boys and 3 girls) did not appear at the annual examinations. The subjects in the entire sample belonged to the age group of 11 to 13 years. They belonged to the urban area.

3.2.0. Design

Looking to the nature of the topic and objectives, the present study comes under the umbrella of descriptive research. Generally descriptive studies are classified in three areas namely survey studies, interrelationship studies and developmental studies. The present investigation invariably comes under survey studies, particularly correlational survey. The correlational survey is exactly what its name implies: a survey designed to estimate the extent to which different variables are related to each other in the population of interest.

According to the objectives of the present investigation, the dependent and the independent variables under the study are mentioned below:
### Table - 3.1 Nature & Levels of Variables

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Variable</th>
<th>Nature of Variable</th>
<th>Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sex</td>
<td>Independent</td>
<td>Male, Female</td>
</tr>
<tr>
<td>2.</td>
<td>Sex</td>
<td>Independent</td>
<td>High SES, Low SES</td>
</tr>
<tr>
<td>3.</td>
<td>Intelligence</td>
<td>Independent</td>
<td>High Intelligence, Low Intelligence</td>
</tr>
<tr>
<td>4.</td>
<td>Vocabulary</td>
<td>Independent</td>
<td>Rich Vocabulary, Poor Vocabulary</td>
</tr>
<tr>
<td>5.</td>
<td>Achievement Motivation(A.M.)</td>
<td>Independent</td>
<td>High A.M., Low A.M.</td>
</tr>
<tr>
<td>6.</td>
<td>Study-habits</td>
<td>Independent</td>
<td>Good Study-habits, Bad Study-habits</td>
</tr>
<tr>
<td>7.</td>
<td>Reading Speed (R.S.)</td>
<td>Independent</td>
<td>Fast R.S., Slow R.S.</td>
</tr>
<tr>
<td>8.</td>
<td>Reading Comprehension(R.S.)</td>
<td>Dependent</td>
<td>-</td>
</tr>
<tr>
<td>9.</td>
<td>Scholastic Achievement</td>
<td>Dependent</td>
<td>-</td>
</tr>
</tbody>
</table>

To study the influence of R.C. on the scholastic achievement of the pupils, R.C. worked as an independent variable which had two levels, namely high R.C. and low R.C.

To measure the independent and dependent variables the researcher collected standardized tests or scales or inventories for getting reliable data. Tools used for data collection are given below.
3.3.0. Tools

The variables to be measured in the present investigation were; reading comprehension (R.C.), reading speed (R.S.), SES, intelligence, vocabulary, achievement motivation (A.M.), study-habits and scholastic achievement.

In order to measure scholastic achievement, the percentage of the total scores of the pupils in all the subjects namely Gujarati, Hindi, English, social studies, science & mathematics in the annual examination were collected from the school records. The percentage of the total marks were taken into consideration.

The other variables were measured by using the appropriate standardised tools. The brief description of the measurement tools with respect to each of the variables is given below.

(A) Reading Comprehension and Reading Speed.

In order to measure reading comprehension (R.C.) and reading speed (R.S.) of the pupils, Reading Ability Test for standard VII in Gujarati constructed and standardised by Patel and Vora was used. The test has five subjects. Each of the first four tests contains a paragraph and questions below it. The subjects are required to read the paragraph and answer the questions given below it. The answers are to be given on a separate answer sheet. In the fifth sub-test there are only multiple choice type questions containing synonyms, proverbs and idioms. Each sub-test has 12, 20, 16, 15 and 15 questions respectively.
thus the sum total of test items is 78. There is no fixed time
limit to complete the tests, but it usually takes 50 to 55
minutes including the time for instructions. The directions for
administering the test are given with an example in the tool
itself.

The following components of reading comprehension can be
measured by this test.

1. Ability to give significant details,
2. Ability to given meaning of the words and phrases,
3. Ability to give sequence of the events or ideas, and
4. Ability to give the caption to the paragraph that he/she has
   read and draw generalization.

The test measures all the components of reading comprehension
mentioned above, hence, it has good construct validity.
Factorial validity of the test was calculated and it was
satisfactory. The reliability coefficient found out by applying
split-half, K - R Formula - 20 and Analysis of Variance
Approach, were 0.80, 0.89 and 0.89 respectively.

The scoring of the R.C. can be done by using the key given by
the authors. One score is given to right answer only, and the
sum total of all the subjects is the R.C. score of the pupil.
Thus the score ranges from 0 to 78. The level of the R.C. is
determined by dividing the mean score of R.C. of the pupils.

The same test can measure reading speed of the pupils. While
reading the first sub-test, the pupils are instructed after a
minute to stop reading and draw a straight line after the word which they read last. The number of words read by pupils in one minute are calculated and that is the pupil's reading speed score. This exercise is done only in the first sub-test.

A copy of Reading Ability Test with separate answer sheet is given in Appendix - A.

(B) Socio - Economic Status (SES)

Socio - Economic Status - SES is the level indicating both the social and the economic status of an individual in the group. In the present investigation, the SES scale developed by Patel and Vora was used to measure the SES of the pupils. This scale is in Gujarati and it is widely used by the researchers in Gujarat. It is a self-administering scale divided into six areas like nature and size of the family, education of the family members, family income and its sources, number and types of vehicles they possess, housing accommodation as well as furniture and reading facilities. Information regarding various aspects under each area is sought. The subject has to respond to all items that may describe his/her condition. There is no fixed time limit to complete the scale. The scoring is done according to the scoring key prepared by the authors. The manual was not available.

A copy of SES scale is attached in Appendix - B.

(C) Intelligence and Vocabulary.

Intelligence and Vocabulary of the pupils were measured by using
Mini Intelligence Test (MIT) developed by J.H. Shah. It measures verbal ability of the subjects. It can be used to measure intelligence when it is taken as a variable in researches. It can be administered to the students of 11 to 18 years of age. The test contains 35 words in Gujarati with four alternatives under each. The subjects are required to respond to the alternative which, according to him/her, is the correct synonym of the given word. The scoring is done according to the scoring key provided in the manual. Each correct response is given the weight of 1. The sum total of the scores to the individual items is the raw score of the subject. The I.Q. of the subject is determined according to the established norms given in the manual. The time limit for the pupils of grade V, VI and VII to complete the test is 20 minutes including the time for instructions. The test-retest, split-half and K - R (21) reliability coefficients were .93, .86 and .85 respectively. The test was validated against the Desai-Bhatt Group Intelligence Test and achievement scores in Gujarati language. The correlation coefficients were found to be .57, .74 and .75, respectively. Since the test contains vocabulary, the same was used to measure vocabulary of the pupils. The raw scores of the pupils were considered as their vocabulary scores.

A copy of the MIT is given in Appendix - C.

(D) Achievement Motivation

Achievement Motivation Inventory (AMI) constructed and standardised by Prayag Mehta was used to measure pupils'
achievement motivation. Achievement motivation means the subjects need to reach success or goal in various types of activities, especially in competition with other people.

The AMI consists of 22 items. Each item is followed by six responses, of which two are achievement related (AR), two are task related (TR) and the rest are unrelated to achievement (UR). The subject is told to select one alternative under each item, which according to him/her, is the most appropriate answer. The answers are to be given on a separate answer sheet. In the present investigation, only AR factor was taken into consideration while scoring the test. The test takes 30 minutes to be administered. The split-half reliability and K - R, Formula 20 was found .55 and .67, respectively. Theoretical validation of the AMI has been presented by the author.

The copy of the AMI is presented along with answer-sheets in Appendix - D.

(E) Study - Habits.

In order to measure study-habits of the pupils, the Study-Habits Inventory (SHI) constructed and standardised by B.V.Patel was used. This inventory measures seven factors related to study-habits, viz. home environment and planning, reading with preparing notes, planning of subjects, concentration, preparing for examination, habits and attitudes and school environment. The SHI consists of 45 items with five alternatives, like always, mostly, sometimes, hardly and never. The subject is told to select one alternative under each item which according
to him/her is the most appropriate answers. The directions for giving responses are given with one example in the tool itself. The scoring of SHI can be done by with separate window stensils for positive and negative aspects. The weightage for five alternatives for a positive aspect is 5, 4, 3, 2, 1 respectively and for a negative aspect is 1, 2, 3, 4 and 5 respectively. The scoring of each item is done separately. The sum total of the scores for each factor is a person's study-habits score. Thus the scores range from 45 to 225.

The level of study-habits can be determined by the author as follows.

El Norms for SHI

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Score</th>
<th>Level of Study-habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Home Environment</td>
<td>29 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>28 or below</td>
<td>bad</td>
</tr>
<tr>
<td>2. Reading and preparing notes</td>
<td>30 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>29 or below</td>
<td>bad</td>
</tr>
<tr>
<td>3. Planning the subjects</td>
<td>18 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>17 or below</td>
<td>bad</td>
</tr>
<tr>
<td>4. Concentration</td>
<td>14 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>13 or below</td>
<td>bad</td>
</tr>
<tr>
<td>5. Preparing for examination</td>
<td>18 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>17 or below</td>
<td>bad</td>
</tr>
<tr>
<td>6. Habits and attitudes</td>
<td>26 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>25 or below</td>
<td>bad</td>
</tr>
<tr>
<td>7. School Environment</td>
<td>19 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>18 or below</td>
<td>bad</td>
</tr>
<tr>
<td>8. Total</td>
<td>154 or above</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>153 or below</td>
<td>bad</td>
</tr>
</tbody>
</table>
There is no fixed time limit for filling up the SHI, but normally pupils take 30 to 40 minutes including the time for instructions. The test-retest reliability coefficient of the SHI come out to be .92. The validity of the SHI was established by obtaining the opinions of the teachers who were teaching the subjects.

A copy of the SHI is given in Appendix - E.

3.4.0. Procedure Of Data Collection

As the sample of the present investigation was from the pupils studying in VII grade of the schools of Ahmedabad city, the authorities of the selected 35 schools were contacted to seek their permission and cooperation for allowing the test administration. The researcher is happy to state that all the schools included in the sample showed readiness to extend all possible help and cooperation in administration of the tools. A detailed schedule was prepared for carrying out the administration of tools.

There were in all five standardised tools described in 3.3.0. to be administered in the schools. The investigator herself administered the tools in the selected schools. The pupils were selected randomly from the divisions of grade VII. One special class-room was provided by each school for the administration of the tools at the request of the researcher. The pupils selected for the sample in each school were well informed about the purpose of the work prior to the test administration. They were
also assured that the personal data and scores obtained on the tests would be used only for the research purpose. The researcher tried to establish a rapport with the students, so that they could respond to the test satisfactorily. The oral instructions according to the manual about how to register their responses in each of the test were also issued by the researcher. Among all tests, Reading Ability Test needed more time than the others. Hence, the researcher decided to administer it in the beginning. In other tests, preferences were given to SES, intelligence and vocabulary, achievement motivation and the test of study-habits respectively. To overcome the fatigue in responding to the tests, ten minutes' rest was given between the time for refreshment after the completion of three tests. The administration task took four to five hours in each school. The whole administration took three and a half months.

The responses of each of the pupils were evaluated and scores were assigned according to the instructions provided in the manual of the tests. The data sheet showing the classification of scores was prepared following the completion of scoring.

3.5.0. Statistical Techniques Used

The obtained data were analysed statistically keeping the objectives of the study in view.

The statistical treatment given to the data are mentioned below.

(1) In order to study R.C. of the pupils Mean, SD and
Percentiles were computed.

(2) In order to study the main as well as various interaction influences of Sex, SES, R.S., intelligence, vocabulary, A.M. and study-habits on R.C. of the pupils, the data were analysed separately with the help of $2 \times 2 \times 2$ factorial design ANOVA of unequal cell-size.

(3) In order to study the influence of R.C., sex, SES, and their various interactions on scholastic achievement of the pupils, $2 \times 2 \times 2$ factorial design ANOVA of unequal cell-size was used.

(4) In order to study the contribution of intelligence, SES, R.S., vocabulary, A.M., various factors of study-habits like home, environment, reading and preparing notes, planning the subjects, concentration, preparing for examination, habits and attitudes, school environment and total study-habits in the prediction of R.C. of the pupils, the technique of Multiple Regression Analysis was used.