CHAPTER - III

METHODOLOGY

The review of literature in the previous chapter has shown that while much work has been carried out in regard to reading readiness, studies on Reading Ability relating to home, personal and school factors have been rather limited. Furthermore, very little research has been done on factors related to correlates of Reading Ability and the latter's effect on academic performance of students. The present investigation thus has as its main objective, ascertaining the various correlates of Reading Ability and the effect of Reading Ability on academic performance of students.

In order to ascertain the above aspects, certain methodological considerations have been made which are enumerated in detail in this chapter. The ordering of the contents in this chapter would be to first present the hypothesis and their rationale followed by research designs, selection of subjects, tools for obtaining the information and statistical technique to be used in the present investigation.

Hypotheses and Rationale

In order to ascertain the correlates of Reading Ability and its effect on academic performance, certain hypotheses have been laid down. The first hypothesis is concerned with factors contributing to Reading Ability.

There are theoretical grounds to choose the above hypothesis. In recent investigation, Srivastava (1982) has found that in India,
reading failure is one of the potent causes of academic failure, which leads to wastage and stagnation. This can be observed in the All India Educational Survey (1985), which shows a significant downward enrolment from Class I (with 100 students) to Class V (with 39 students).

The review of literature has shown various factors which affect the Reading Ability; to name some of them are intelligence (Malmquist, 1970; Leray, 1985), home background (Menon, 1973; Subramanyam, 1984), physiological factor (Dwyer, 1973; Johnson, 1973), personality factor (Vygotsky, 1962; Dechant & Smith, 1977), school factor (Mooses and Mayuri, 1984; Sinha, 1980) and so on. There has been, however, no study as such, where all these factors have been taken together and related to Reading Ability, except a few researches which have attempted to relate one or two factors, for example, home and school to reading achievement (Subramanyam, 1984).

Thus it may be argued that not only Reading Ability in students may be influenced by home background variables such as parent's occupation, parent's education and student's personal variables like intelligence, reading habit etc., but also these may by themselves or together also contribute to Reading Ability and academic performance in students. Therefore, by inter correlating the factors, one may expect to discover certain underlying factors of Reading Ability and academic performance. Thus the first hypothesis formulated was:

**Hypothesis 1**

Reading Ability may be the effect of a combination of a group of factors rather than of any single factor.
During the 1970's educators and public expressed concern in U.S.A. and Britain at student's level of achievement in reading and the methods that could improve the standards in reading achievement (Beazley, 1980; Otto, 1982). Satz et al. (1976) suggested that early detection of future difficulties is necessary so that a remedial programme may be initiated, while the Central Nervous System is still plastic and therefore, responsive to change before the child is subject to the shattering effects of repeated academic failure. Thus by improving Reading Ability one may expect to improve the academic performance in students which means that Reading Ability and academic performance may be positively correlated. Thus the second hypothesis was as follows:

**Hypothesis 2**

The academic performance of students will be a function of Reading Ability in students.

However, as Reading Ability and academic performance of students are also influenced by a large number of environmental and personal factors such as types of school, personal attributes, home background, personality trait etc., it is important to consider the influence of all these factors on Reading Ability.

It is well known that the school has a unique and major responsibility of teaching students certain skills and abilities to read, write and to perform arithmetical computation. During the primary years of schooling it is essential to develop not only Reading Abilities
in students but also guide them for successful academic performance. As Srivastava (1979) pointed out that amongst the four skills of language, i.e., listening, speaking, reading and writing, the first two begin to develop informally as the child grows in the family. Reading and writing which are the formal skills are mainly to be developed by the primary school. Reading unifies the related language arts of writing, listening and speaking. Therefore, continuous development of reading competence can result in better oral and written expression as well as improved learning and thinking.

As demonstrated by Sen Gupta and Veeraraghavan (1986), and Mayuri & Reddy (1984), the academic performance of student varies in terms of the type of school in which a pupil studies. These findings lead to the question whether these schools follow any different methods of teaching or focus differentially on the development of Reading Ability in students. For instance, loud reading and writing have been found to be given very high importance in Missionary run schools whereas it does not appear to be given similar importance in other schools. Thus one may hypothesise that the development of Reading Ability in students may vary in terms of the types of school in which the child studies.

Thus the third hypothesis for the study was as follows:

Hypothesis 3

There will be a variation in the Reading Ability of a student in terms of the type of school in which he/she studies.
A sequel to the above hypothesis will be as follows:

3(a) A combination of certain types of school with a certain level of Reading Ability may lead to differential academic performance in students.

Apart from school, socio-economic and cultural factors have a bearing upon the reading progress of a child. An academically oriented home background may provide a relatively more stimulating atmosphere to a child than an unacademic atmosphere. In the former, the child may get an opportunity to converse with parents who may encourage his learning and expressing new words. It may also provide the child with relatively more varied social experiences which may help in the growth of concepts and vocabulary. Many studies carried out in America and Britain (for example, Goodacre, 1967; Hughes, 1975) and a few in India (for example, Rao & Subramanyam, 1982) have shown a positive relationship between children's experiential background at home and Reading Ability, because for better reading, a certain type of past experience is required. It is not only the socio-economic status of parents but their sympathetic and helpful attitudes also provide an impetus to the child's efforts in learning to read (Moyle, 1972). Students need richness of experience especially in language and that needs parental time in talking with students. Another important factor is the differences in the spoken language at home and the language in which the child studies in the school. In this context Srivastava (1979) discussing children's learning and reading of English pointed out the relative difficulty in mastering the language, for a child
who speaks different language at home as compared to the one who speaks also English at home.

In the light of the above arguments, one may expect the Reading Ability of students to differ in terms of the various home background factors mentioned above.

Thus the next hypothesis will read as follows:

Hypothesis 4

There will be a difference in the Reading Ability of students in terms of their varying home background factors.

If the type of school is added to home background a sequel to the hypothesis will be as follows:

4(a) A combination of a typical type of school with a certain type of home background will differentially affect the Reading Ability in students.

4(b) A combination of a certain type of school, a certain type of home background and a certain level of Reading Ability may affect the academic performance in students differentially.

Other than the home background factors, there are many physiological and intellectual factors (together termed as personal attributes) which an individual posseses within himself or develops by learning. There are many abilities, skills and interests which are found to be related with Reading Ability (Thackray, 1977; Holmes, 1960).
General mental ability is an important determinant of reading readiness and reading progress. The abilities of reasoning, abstract thinking, interpretation, problem solving, comprehension and concept learning are common to both intelligence and reading. High positive correlation has been found between these two factors (Subramanyam, 1982; Shah, 1981). It is an accepted fact that intelligence plays a very important role in bringing about success in learning to read. In some countries like America, teaching a child to read is postponed until the child reaches a mental age of six and a half years. However, this theory is relatively less accepted in other countries. Children in British schools start schooling at the age of five and are fairly quickly introduced to reading (Srivastava, 1979).

However, a student cannot reach to a certain mental age until and unless he is healthy, energetic and alert. The importance of vision, hearing and speech to the reading process thus cannot be underestimated. A student's ability to read the print is obviously closely connected with the quality of his sight, sense of hearing and speech. For better reading, phonic ability is also equally important, especially at the beginning stages of learning, when the foundations of language are being established in a student. Phonic ability involves the ability of a student to associate sound with symbol. Even if a student has all the above factors, he/she still may not develop an adequate Reading Ability if he has no interest in reading or does not have a proper reading habit. All the above factors can be termed as 'Personal attributes' as affecting the Reading Ability in students. Thus the next hypotheses for the study was laid down as follows:
Hypothesis 5

The variations in the personal attributes in students will influence the Reading Ability in students differentially.

If to the personal attributes are added the type of school and academic performance, the sequel to the hypothesis will be as follows:

5(a) A combination of a certain type of school with/certain personal attribute may differentially affect the Reading Ability in students.
5(b) A combination of a certain type of school, with a certain personal attribute and a certain level of Reading Ability may affect the academic performance in students differentially.

It is generally believed that personality problems or emotional disturbances do appear frequently where there is difficulty in learning to read. Hughes (1975) studied Reading Ability with different traits of personality, such as self confidence, sociability, co-operation, perseverance conscientiousness and emotional stability, and found positive correlations between Reading Ability and these variables. Hugohe's study demonstrated to an extent the relationship between Reading Ability and emotional and personality adjustment. In a school, one may expect the traits such as diligence at work, honesty, adjustment, neatness, leadership etc., also to be present in a student which may affect his/her Reading Ability and academic performance. Thus the hypothesis six reads as follows:

Hypothesis 6

The different personality traits amongst students will influence
the Reading Ability differentially.

If to the personality trait are added the type of school and the academic performance, the following hypotheses will be sequel to the above hypothesis.

6(a) A combination of a certain type of school with a certain personality trait in students may differentially affect the Reading Ability in students.

6(b) A combination of certain type of school, with a certain personality trait and a certain level of Reading Ability will lead to differential academic performance in students.

While Reading Ability may be related with many variables and also be determined by a large number of factors, reading involves a certain facility with the concerned language and vocabulary.

It is well known in the field of child development that maturation in girls is faster than in boys; and that girls tend to talk earlier in age than boys (Cashdan et al., 1971). Perhaps this early physical maturation may have some effect on the vocabulary and Reading Ability. Thus one may perhaps argue that, there may be a difference in the Reading Ability between boys and girls particularly in the primary levels of education when they learn the art of reading.

Thus the hypothesis set up to ascertain the sex difference in Reading Ability was as follows:
Hypothesis 7

Reading Ability in students may vary in terms of sex factor.

As previous studies have shown a positive relationship between Reading Ability and academic performance and since improvement in Reading Ability may lead to better academic performance (e.g. Satz et al., 1976), an attempt has been made to ascertain the same with the following hypothesis.

Hypothesis 8

Improvement in Reading Ability may lead to improvement in academic performance.

The above hypotheses will be tested empirically with the help of the following research design.

Research Design

1. To test the Hypothesis 1, viz. 'Reading Ability may be the effect of a combination of a group of factors rather than of any single factor', an inter-correlational matrix will be worked out and a regression analysis will be carried out. This would lead to the ascertaining of various factors that are correlates of Reading Ability.

2. The Hypothesis 2, viz. 'academic performance of students will be a function of Reading Ability' will be tested by the product moment co-efficient of correlation to be computed between the two variables.
3. The main Hypothesis 3 to 6, will all be tested with the help of correlational matrix: the sub hypotheses 3(a,b), 4(a,b), 5(a,b), 6(a,b) will all be tested with the help of a 4 x 2 x 2 ANOVA, with types of school at four levels and personal attributes, home background and personality traits - all at two levels each.

4. The Hypothesis 7, viz. Reading Ability may vary in terms of sex factor, will be tested with a t-test, in order to ascertain if Reading Ability differs between the male and female students.

5. The Hypothesis 8, viz. 'improvement in Reading Ability may lead to improvement in academic performance', will be tested by carrying out an experiment with the following design.

\[
\begin{align*}
Ya & \times Yb & \text{ (Experimental Group)} \\
 Ya \sim X & \sim Yb & \text{ (Control Group - I)} \\
 \sim X & \sim Yb & \text{ (Control Group - II)}
\end{align*}
\]

\begin{itemize}
  \item \textbf{Ya} - Academic Performance scores of students before treatment of Reading training
  \item \textbf{X} - Introduction of material for improvement in Reading Ability.
  \item \textbf{Yb} - Scores on academic performance after treatment of Reading training
  \item \textbf{\sim X} - Not getting the treatment \textbf{X} above.
\end{itemize}

\[M = \text{ Matched in terms of good and poor reader.}\]

\[r = \text{ Randomization}\]

\textit{Control I and Control II}

Two groups of students matched in terms of school, class and intelligence (above average) with equal number of high and low Reading Ability formed the control group I and II.
1. School Sample

Following the categorisation of schools used in the studies of Veeraraghavan (1985) and Sen Gupta and Veeraraghavan (1986), the types of schools chosen for this study are Public school, Missionary School, Navayug School (Municipal School) and Central School. One school from each type has been chosen more on the basis of purposive sampling than any random sampling, as many schools refused to grant permission to collect information on the large scale in which it was needed. However, within the School, every attempt has been made to select students randomly so as to render the sample as representative of the particular school population as possible. For this purpose, all the students of class II, III and IV have been pooled together in terms of their roll numbers assigned to them by the school authorities. As there are generally four sections in each class and in each section there are 35 to 40 students; at the time of collection of data from each school, the number of students per class (in different schools) varied between 140-160 students. For the purpose of the present study 1/5 of the total students have been chosen randomly using random numbers. Thus 30 students for each class have been selected. As there were 3 classes and 4 types of school, the total sample consisted of 360 students.

Table 3.1

<table>
<thead>
<tr>
<th>Public School</th>
<th>Missionary School</th>
<th>Navayug School</th>
<th>Central School</th>
</tr>
</thead>
<tbody>
<tr>
<td>II III IV</td>
<td>II III IV</td>
<td>II III IV</td>
<td>II III IV</td>
</tr>
<tr>
<td>30 30 30</td>
<td>30 30 30</td>
<td>30 30 30</td>
<td>30 30 30</td>
</tr>
</tbody>
</table>
2. Students Sample

For the purpose of ascertaining the correlates of Reading Ability and the latter's effect on the academic performance the subjects chosen are students studying in Classes II, III and IV respectively. The reasons for not choosing Class I and V were based on the arguments put forward by Chall (1979) and Menon (1977), which were more or less on the following lines:

i) Students of Class I are new in learning vocabulary, because previous to Class I i.e. Nursery or K.G., they do not learn much vocabulary and some of the schools do not even have Nursery and K.G. classes; thus at the end of Class I, one may maximum expect them to have some vocabulary and also be able to read small simple sentences.

ii) Students of Class V were not chosen because upto class IV the conceptual understanding is over. Age-wise as well as class-wise, they get matured in their vocabulary. On the other hand from Class II to IV, students concentrate on learning and maximising their vocabulary. The students sample for the study consisted of those studying in Class II, III & IV from different types of school.

3. Sample for the IIInd Phase

For the second phase of the study, Class III students of Navayug school have been chosen, as the latter was the only school who were ready to give one month's time for Reading Ability training. Class III students have been chosen for this phase of the study because these students will
neither be too advanced in Reading Ability nor too low in their Reading Ability and vocabulary.

Out of 30 students in the class, 15 of them were given training and the remaining 15 formed the control group I. Of the 15 students taken for the experimental group, 7 were good readers and 8 were poor readers. In control group I, another 15 students were chosen matched for class and intelligence with experimental group students, and these were again divided into 7 good and 8 poor readers. The Control group II, consisted of 15 students with a combination of both good and poor Reading Ability students who were not exposed to Reading Ability instrument. Here too, there were 7 students who were good readers and 8 were poor readers, matched with students of experimental group on the variables mentioned above. These groups were chosen in collaboration with the teacher randomly.

**Table 3.2**

<table>
<thead>
<tr>
<th>Distribution of Sample for IInd Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental Group</strong></td>
</tr>
<tr>
<td>Good reader</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>
Tools

Tools used were in all six and they are discussed in the following order:

1. Reading Ability test instrument,
2. Personal Attributes instrument,
4. Phonic ability instrument (Hughes, 1975)
5. Home background instrument,
6. Personality trait instrument.

Reading Ability Test Instrument

Different researchers and psychologists have considered different factors as constituting Reading Ability. For instance, Rao (1978) had used comprehension and speed, whereas Deobör and Dallman (1964) had only used comprehension. Very recently Crowder (1985) has used eye movement, speed, pattern recognition, word perception, comprehension, handwriting, spelling and speech to assess Reading Ability.

It is clearly evident from the above that if Reading Ability needs to be assessed, all the above factors have to be considered. In the present study in order to assess Reading Ability in students of Class-II, III and IV, an instrument was developed using a number of factors such as speed, comprehension, vocabulary, spelling and handwriting (Appendix I). These factors were considered essential for testing the Reading Ability because of the following reasons.
1. A student can read fluently without error only if he can comprehend or understand what is written in the particular passage concerned. Without understanding if he tries to read a passage he may make many mistakes in pronunciation, punctuation, and may not be able to read without repetition and error.

2. In order to be able to read fluently it is equally essential that the student is capable of a fairly good vocabulary. If a student does not have the required or expected vocabulary then it may not be also possible for him/her to read a passage fluently. A student with adequate number of vocabulary appropriate to his age will naturally be able to read a passage more fluently than a student with less adequate vocabulary.

3. Reading requires that a student is able to spell a word correctly. Spelling helps in correct pronunciation as well as helps him to read without error. If a student has a good knowledge of spelling of various words then he would be able to pronounce it even if certain alphabets have to be silent in pronunciation. Knowledge of spelling thus facilitates students in reading fluently and without error.

4. It is not only sufficient to know an alphabet but it is equally important for a student to recognise and reproduce the alphabet correctly while writing. Similarly, when he pronounces a word he should also be able to write it with correct
spelling on the line, using capital or small letter and with certain degree of neatness. A student who is able to do so, will also be able to read the word or sentence more correctly than a student who is unable to so.

Thus the Reading Ability test instrument devised by the researcher included reading speed, comprehension, vocabulary, spelling and handwriting. Each of these factors were scored separately on certain criteria. For instance, reading speed was scored on the basis of time taken to read, number of errors in pronunciation, punctuation, repetition, misspelling, wrongly reading and reading a word which is not in the passage. Details of the scoring of each of the factors are given in the following sections.

**Passage for Scoring**

For the purpose of assessing the Reading Ability, a passage from the English text book prescribed by the N.C.E.R.T. which has been studied by students in the previous class was chosen. For example, for class II students, the passage chosen was from the book the student has studied as text in Class I, the previous year; for class III students the passage chosen was from the book the students had studied as text in Class II in the previous year and for class IV students the passage was from the book they had studied in class III, the previous year.

The above passages were chosen from N.C.E.R.T. prescribed books, as this institution has taken special care for child's edua-
tion, and prescribes books for each class according to the knowledge student should have at that age level by keeping all types of students and school in mind.

For Class II the passage for reading was as follows:

"Mr. and Mrs. Rana are sitting in chairs. They are drinking tea. Their cups are in their hands. Ashok, Sita and Rita are their children. Ashok and Sita are sitting on the floor. Ashok is reading a book and Sita is writing. Rita is not in the room. She is playing in the garden."

For Class III, the passage for reading test was as follows:

"Kutchu and Kamala have two sons and a daughter. Gangaram and Ravi are their sons. Their daughter is Sita. Gangaram is twelve years old. Ravi is nine. Sita is just four years old. They live in a small house in Hareli. Kutchu's old mother lives with them. Her name is Gowri Bai.

Kutchu is a farmer. Every day he gets up early in the morning. Then he calls up his children. They wash their faces and brush their teeth. Kamala goes to the village well and brings water for her home. Then they have their breakfast. After breakfast Gangaram and Ravi go to school."

For Class IV, the passage for reading was as follows:

"I woke up in bright daylight. I was on a rocky shore. I climbed up a high rock and looked around. I was on a small island. There were rocks all over it and, here and there, some trees and
bushes. There were very few animals, but I saw some wild goats at a
distance. The cry of sea-birds and the roar of the waves were the
only sounds on the island.

I went round to look for food and water. I found a spring
and drank water from it, but I did not find any food that day. In
the evening I was hungry and tired. I lay down by the side of a
rock and slept. I woke up early in the morning, and I was very
hungry. That day I found some shell fish on the sea-shore. I struck
two stones together and made a fire with dry leaves. Over it I burnt
dry wood. I cooked the shell fish in the fire and ate my first meal
on the island."

1. Scoring of Speed:

Reading speed of a student was scored in terms of 5 factors,
each of which was scored on a '0' to '4' point scale, with '0' indi-
cating the lowest score and '4' indicating the highest scores. The
five factors were -

1) Time taken to read the passage,
2) Number of errors in pronunciation while reading the passage,
3) Number of errors in punctuation while reading the passage,
4) Repetition of the same word while reading the passage,
5) Errors made while reading (such as mis-spelling, wrongly
   reading, reading a word which is not in the passage etc).

(a) Scoring of Time: Time taken to read the given passage was
just taken down with the help of a stopwatch (i.e. the stopwatch was
pressed as soon as the student started reading and it was stopped as he/she read the last word). The range of time between the fastest and the slowest reader was noted down for each class separately. The time taken by all the student was classified into 5 categories, as given in the Table 3.3 below, for each class, depending upon the range of time taken by student of each class.

Each passage pertaining to class concerned was first read out by 15 student proficient in reading. The time taken by them was noted down and on the basis of the above, scoring on time factor was finalised as given in Table 3.3. These students were from a school which was not included as a sample in this study.

Table 3.3

<table>
<thead>
<tr>
<th>Points</th>
<th>Class II Time taken in seconds</th>
<th>Class III Time taken in seconds</th>
<th>Class IV Time taken in seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>15 to 30 seconds</td>
<td>30 - 45 seconds</td>
<td>60 - 75 seconds</td>
</tr>
<tr>
<td>3</td>
<td>31 to 45 seconds</td>
<td>46 - 61 seconds</td>
<td>76 - 91 seconds</td>
</tr>
<tr>
<td>2</td>
<td>46 to 60 seconds</td>
<td>62 - 77 seconds</td>
<td>92 - 107 seconds</td>
</tr>
<tr>
<td>1</td>
<td>61 to 75 seconds</td>
<td>78 - 83 seconds</td>
<td>108 - 123 seconds</td>
</tr>
<tr>
<td>0</td>
<td>Above 75 seconds</td>
<td>Above 83 seconds</td>
<td>Above 124 seconds</td>
</tr>
</tbody>
</table>

(b) Scoring of Number of Repetition, Errors, Punctuation and Pronunciation: For punctuation, pronunciation, repetition and reading error, maximum points were given for less number of
errors is 4 i.e. 4 points were given if a student made only 1 error. But if he/she made more than 7 errors he was given 0 point. The points assigned for punctuation, pronunciation, repetition and error were given in the table below:

**Table 3.4**

Scores of repetition, errors, punctuation and pronunciation

<table>
<thead>
<tr>
<th>Repetition</th>
<th>Errors</th>
<th>Punctuation</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>No. of errors</td>
<td>Points</td>
<td>No. of errors</td>
</tr>
<tr>
<td>4</td>
<td>0 - 1</td>
<td>4</td>
<td>0 - 1</td>
</tr>
<tr>
<td>3</td>
<td>2 - 3</td>
<td>3</td>
<td>2 - 3</td>
</tr>
<tr>
<td>2</td>
<td>4 - 5</td>
<td>2</td>
<td>4 - 5</td>
</tr>
<tr>
<td>1</td>
<td>6 - 7</td>
<td>1</td>
<td>6 - 7</td>
</tr>
<tr>
<td>0</td>
<td>Above 7</td>
<td>0</td>
<td>Above 7</td>
</tr>
</tbody>
</table>

Thus, on reading speed, a student could get a maximum score of 20 and a minimum of 0 (zero).

Having indicated how reading speed was scored, the following section presents the scoring of comprehension.

2. **Scoring of Comprehension:**

To assess and score the factor 'comprehension', the students were asked five questions based on the passage given to them for
reading speed. They were asked to write the appropriate answers to the 5 questions. No time limit was given. However, incidental noting of time indicated that all of them were able to complete writing the answer within 20 minutes. The responses given by each student for the 5 questions were then scored for appropriateness and correctness of answers as follows:

<table>
<thead>
<tr>
<th>Performance</th>
<th>Points awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right answer</td>
<td>2</td>
</tr>
<tr>
<td>Partially right answer</td>
<td>1</td>
</tr>
<tr>
<td>Wrong answer</td>
<td>0</td>
</tr>
</tbody>
</table>

Maximum score a student can score in 'comprehension' factor was 10 and the minimum was 0 (zero).

3. Scoring of Vocabulary:

20 words with meaning were chosen from the English Text book read by the students respectively in their previous classes. These 20 words with meanings for each class differed. These 20 words were then arranged randomly into 2 groups of 10 words each. These 2 groups were labelled as Set A and Set B. The meanings were then arranged in a random manner in such a way that a word and its correct meaning were never placed together. Thus against each word, some other word's meaning was placed. First the Set A was given to the student and asked to mark the right meaning for all the 10
words. Then she/he was given the Set B and asked to mark the right meaning for the 10 words in that list. (The 20 words chosen were divided into 2 lists because the students may not get confused with too many words to match as well as to sustain their interest in the task).

The scoring was as follows:

Both the lists were treated together as one for the purpose of scoring. Thus if for a word the correct meaning was indicated, the student was given 1 point, if 2 were correctly indicated 2 points and so on. If a student was able to indicate correct meaning to all the 20 words, he/she was given 20 points. Thus a student can score a minimum of 0 (zero) to a maximum of 20 points on this test.

4. **Scoring of Spelling:**

To assess the spelling, the students were given dictation of 10 words from the concerned English Text book used by them in the previous class which was also used for speed, comprehension and vocabulary. 1 mark was given for each word written correctly with correct spelling.

The maximum point a student can score on this test was 10 and minimum was 0 (zero).

5. **Scoring of Handwriting:**

Each student was asked to write in a given four line ruled paper (English writing) and were asked to write one sentence i.e.
My name is __________./. Each student wrote the same sentence inserting his name at the end of the sentence. The evaluation and scoring of the handwriting was done in terms of 5 factors as given below:

<table>
<thead>
<tr>
<th>Categories</th>
<th>Score</th>
<th>point assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Neatness</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2. Within the line</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3. Spelling</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4. Capital/Small letter</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5. Direction</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

The maximum score a child can get in this subtest was 5 and minimum 0 (zero).

Thus the total score on Reading Ability, students can obtain was the sum total of all the scores obtained by him/her in all the 5 sub tests. If a student had scored all sub tests absolutely correctly then the maximum score that he could obtain would be 65 and minimum would be 0 (zero). The scores thus obtained by each student was taken as the composite Reading Ability score for that particular student.

Procedure & Instruction for administering Reading Ability Instrument

Instructions given for each sub-test of Reading Ability instrument were as follows:
Speed:

"I will give you a paragraph to read. You will have to read it as fast as you can without any mistake. Are you ready? Then start," (Any doubts they had or clarifications that they needed were provided before starting the test).

Stop watch was started as soon as the student started reading. Time, pronunciation, punctuation, repetition and errors were all noted in a schedule specially prepared for this purpose.

Comprehension:

"This is a paragraph", pointing out to the paragraph, "you read this paragraph very carefully. Read it as many times as you want. Below this are some questions which are asked from the above paragraph. You have to answer these questions below here", pointing to the blank space. "Is it clear to you? Then start". (Any doubts they had were cleared and any clarifications they needed were provided).

No time limit was given. Sheets were taken back after the students completed all the answers. (Normally the time taken by students ranged between 15 to 20 minutes).

Vocabulary

"Here is a list of certain words and opposite each word is a meaning which may or may not be its meaning. You have to find the right meaning from the set. For example, (for class-II) first
word here is 'Puppet', pointing to the first word of Set A. 'Now the meaning of this word, you have to find from here (pointing out the column of meaning). The meaning given here is 'Doll moved by wires' i.e. No. 5. You write number 5 in the bracket next to the first word in the Set A. Is it clear to you? Now start". (Doubts were clarified when asked, Only when it was clear that all of these students have understood, the test was started).

After the students completed the Set A, they were given the Set B, and the same instructions as above were given. After ensuring that the students have understood the instructions clearly the test was started.

Spelling:

Dictation of 10 words was given to the students to write down with the following instructions. 'Now, I am going to speak 10 words, one after the other. You have to write each word after I complete reading it. Is it clear? Then start'.

Hand writing:

Four-line English handwriting papers were distributed to students and they were asked to write a sentence with the following instructions.

"Here is a sheet of ruled paper. You just write a sentence 'My name is ___________'. For example, if your name is Raju, write 'My name is Raju'. You must write in all the lines in the
page given to you. You must write in all the 4 lines. Here the investigator demonstrated on the board by drawing 4 lines as was given in the sheet and writing her name. After students had seen it and said they had understood, she rubbed it off what she had written. Then she told them, "Are you ready now? Then start".

The sheet was taken back after the student had completed.

Personal Attributes Instrument

The personal attributes in students were assessed on the basis of a weighted questionnaire specially devised for the purpose. Following Rao (1982) the factor included in this test were:

1) Intelligence
2) Phonic ability
3) Reading habit of children
4) Reading interest of children
5) Member of library
6) Mother tongue
7) Health (viz., Vision, Hearing and Speech) of children.

The following section deals in detail with the test in this instrument.

Intelligence:

To ascertain the intelligence of children, Draw-A-Man test by Misra (1971) was used. The scoring was done according to the manual and the intelligence score of each student was then obtained. A
copy of the original test and answer form is attached in the Appendix (Appendix II).

Phonic Ability

This test was based on Hughes' assessment of phonic skills. This test is basically a diagnostic instrument. The aim is to provide the teacher with information concerning a student's strengths and weaknesses in various areas of phonic knowledge. The test consists of 7 sections as follows:

1. Initial vowels sounds:  a, e, i, o, u.
2. Initial consonant sounds: b, c, t, p, j, r, n, d, l, m, s, g, k, f, v, w, h, y, z, q.
3. Short middle vowel sound:  a, e, i, o, u.
4. Long vowel sounds:  a, i, o, u.
5. Initial consonant blends and diagraphs: fl, fr, pl, cl, cr, gr, bl, tr, br, dr, sk, sw, gl, wh, sp, pr, st, sm, sn, sl, ch, sh, th, qu, th, sc.
6. Final consonant blends and diagraphs sk, nk, ft, st, sp, nt, ch, sh, ct, ld, th, nd.
7. Vowels digraphs and diphthongs: oa, ea, ee, oo, ai, au, ou, ie, aw, ow, ew, oy, ay, ue, ow, oo, ea.
The test consists of 90 words. Each word tests one phonic element which is placed in a set of four other phonic elements. The test may be used with group of students or with individuals. Response sheet of this test is attached in the Appendix (Appendix III).

The instructions given to the child were as follows.

"I am giving you a list of words. Please read them aloud. I will read one word and show you. You must read similarly". Same procedure was used with all the sets.

**Table 3.7**

Phonic elements was called in the following order:

1. ab  2. ep  3. im  4. od  5. ug  6. bab
13. dat  14. lig  15. mut  16. sem  17. gud  18. kib
25. quan  26. bap  27. ted  28. gip  29. gog  30. hun
31. gabe  32. tipe  33. bote  34. tute  35. flig  36. fran
37. plad  38. clog  39. crin  40. gren  41. blup  42. tron
43. brud  44. drog  45. skat  46. swit  47. glig  48. whad
49. spen  50. prat  51. stup  52. smen  53. snat  54. slet
55. chig  56. shox  57. thun  58. quax  59. thet  60. scen(sk)
61. dask  62. senk  63. luft  64. lest  65. wusp  66. pent
67. tarch  68. bish  69. fect  70. feld  71. beth  72. bund
73. doat  74. gean  75. jeet  76. gook  77. kail  78. roin
79. taul  80. foud  81. nied  82. tawn  83. gowl  84. bew
85. loy  86. vay  87. gue  88. fown  89. hoon  90. nead

(short sound)
The 90 words were divided into three groups on the basis of difficulty level are as follows:-

1-30 for class II students
31-60 for class III students
61-90 for class IV students

Scoring was done according to the manual. 1 point was assigned for each correct pronunciation.

Reading habit:

Reading habit of a student is measured according to parents and teachers' view. This view is taken in terms of a 3-point scale.

Maximum point i.e. 3 were given to a student who spends a lot of time in reading children's books, comics, magazines etc. other than school books. 2 points were given to those student who spends a part of his time looking at pictures and magazines in addition to school works and 1 point were given to a student who spends no time in extra reading other than school books.

Reading Interest:

Reading interest is also scored in terms of 3 points scale, as per teacher and parents response. 3 points were given to a student who has a lot of interest in reading books. 2 points for moderate interest, i.e. sometimes like to read but if he or she has no interest, 1 point is assigned.
Member of library

It is scored in terms of 3 points scale. 3 points were given if a student is a member of library other than school library. 2 points for those who are only a member of school library. 1 point for a student who is not a member of any library.

Mother tongue (Language spoken at home):

3 points were given if a student's spoken language at home is the same as the medium of instruction at school. 2 points were given if language spoken at home is somewhat related to medium of teaching in the school. 1 point if not at all related.

Health:

This factor consists of 4 sub factors i.e. general health of a student, vision of a student, health of a student and speech of a student. Scores were assigned on a 3 point scale for each sub-factor, maximum a student can score is 3 and minimum 0 for each sub-factor.

Score assigned were as follows:-

<table>
<thead>
<tr>
<th>Categories</th>
<th>Points awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>Moderate or Average</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
</tbody>
</table>

In health factor thus a student can score a maximum 12 and a minimum 4.
The students score on each item was taken and added to give the total score on personal attributes (The questionnaire is reproduced in Appendix IV).

**Home Background Instrument**

In order to assess the home background of the students, an instrument was devised, which covered those aspects of the home which is relevant to the development of reading ability in children. These were:

1. Educational level of parents'.
2. Occupation of parents.
3. The reading habit of parents.
4. Availability of reading materials at home.
5. Parents' encouragement of the child in reading.
6. Parents' encouragement of the child in loud reading.
7. Parents' conscious efforts to introduce new terms to the child.

**Educational level**

To ascertain the educational level of parents, certain weights were assigned to each category as given in Table 3.8. The rationale for assigning weights in the manner given in the table was that if both parents were highly educated, their children will also be interested in reading, writing etc. Thus the item were assigned weights, varying between 0 to 9 depending upon the educational level of parents as given in Table 3.8. It may be noted that
where both parents were above post graduate level they had been assigned a score of 9, whereas in the case of parents being illiterate the scores assigned was the '0' (zero).

Table 3.8

Points assigned for parents education

<table>
<thead>
<tr>
<th>Mother</th>
<th>Father</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-graduage &amp; above</td>
<td>Post graduate &amp; above</td>
<td>9</td>
</tr>
<tr>
<td>Upto PG</td>
<td>Upto PG</td>
<td>8</td>
</tr>
<tr>
<td>Upto Graduate</td>
<td>Upto PG</td>
<td>7</td>
</tr>
<tr>
<td>Upto Graduate</td>
<td>Upto Graduate</td>
<td>6</td>
</tr>
<tr>
<td>Upto Higher Secondary</td>
<td>Upto Higher Secondary</td>
<td>5</td>
</tr>
<tr>
<td>Upto Higher Secondary</td>
<td>Upto Higher Secondary</td>
<td>4</td>
</tr>
<tr>
<td>Below Higher Secondary</td>
<td>Below Higher Secondary</td>
<td>3</td>
</tr>
<tr>
<td>Below Higher Secondary</td>
<td>Below Higher Secondary</td>
<td>2</td>
</tr>
<tr>
<td>No Education</td>
<td>Below Higher Secondary</td>
<td>1</td>
</tr>
<tr>
<td>Illiterate</td>
<td>Illiterate</td>
<td>0</td>
</tr>
</tbody>
</table>

Occupation:

This factor was considered only in terms of the parents' occupation. The classification is in accordance with the classification made by the school before admitting the children to their school. These categories have been given the weightage arbitrarily in accordance with the status the profession has from the school's point of view. The scores were as follows:
Table 3.9

Points for different occupation of parents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Weightage assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor, IAS, Engineer, Manager</td>
<td>5</td>
</tr>
<tr>
<td>Doctors</td>
<td>4</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
</tr>
<tr>
<td>Officers and School Teachers</td>
<td>2</td>
</tr>
<tr>
<td>Semi-skilled and small business</td>
<td>1</td>
</tr>
</tbody>
</table>

The factors, reading habit of parents, availability of reading materials at home, parents encouragement of the child on reading as well as loud reading and parents conscious efforts to introduce new terms to the child were scored in terms of a three point scale devised specially for this purpose. These were as follows:

Table 3.10

Scoring of reading habit of parents, availability of reading materials at home and parents encouragement

<table>
<thead>
<tr>
<th>Categories</th>
<th>Weightage assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
</tbody>
</table>
These instruments were filled in by parents and instructions given to them are attached to the respective questionnaire. (The questionnaire is reproduced in Appendix V).

Thus the scores on 'Home background' factor ranged on each item as follows:

Table 3.11

<table>
<thead>
<tr>
<th>Categories</th>
<th>Point range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parents education</td>
<td>0 - 9</td>
</tr>
<tr>
<td>2. Parents occupation</td>
<td>1 - 5</td>
</tr>
<tr>
<td>3. Reading habit of parents</td>
<td>1 - 3</td>
</tr>
<tr>
<td>4. Availability of reading material at home</td>
<td>1 - 3</td>
</tr>
<tr>
<td>5. Parent's encouragement of the child to read</td>
<td>1 - 3</td>
</tr>
<tr>
<td>6. Parents encouragement towards loud reading</td>
<td>1 - 3</td>
</tr>
<tr>
<td>7. Parents conscious efforts to introduce new terms</td>
<td>1 - 3</td>
</tr>
</tbody>
</table>

Total 6 - 29

Scores on each item was taken and added to give the total scores on home background. Thus the minimum score on home background one can get was 6 and the maximum 29.
Personality Trait Instrument

The personality trait instrument was devised for the purpose of assessing the typical personal characteristics of students.

The items included in this instrument were the ones on which the pupil of class II, III and IV were evaluated by their respective class teacher in the school record. The items included in this instrument were 11, scored on a 3 point scale are as follows:

1. Punctuality
2. Diligence at work
3. Adjustability
4. Neatness
5. Honesty
6. Leadership
7. Speech
8. Cheerfulness
9. Responsibility
10. Discipline
11. Respect for elders

This instrument was given to the respective class teacher who knew their students personally by virtue of interacting with them every day in the class. The teachers concerned were asked to evaluate the child under them on each of the above 11 traits by stating good, average or poor as given in the table below.
Table 3.12

Scoring of Personality traits

<table>
<thead>
<tr>
<th>Categories</th>
<th>Weightage assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
</tr>
</tbody>
</table>

The personality trait score of each child was the sum total of weights assigned to each of the 11 items on which the child was evaluated. Thus maximum score a child can get was 33 and minimum 11. (The questionnaire is reproduced in Appendix VI).

For Phase II, the tools used were as follows: (for details refer page 278)

1. Books
   a) Read for Pleasure - Book 1, NCERT, 16 lessons
   b) Lets Learn English - Book 3 (Few Lessons)

2. Meeting with Parents - On one second Saturday parents were told to help children by providing some books and also by showing them their interest towards reading.

3. Phonic Ability Instrument - Phonic Words by Hughes was used for this purpose.

4. Availability of Reading Materials - With the help of the principal the experimental group children were provided with comics and story books.
5. Health of Children - Speech, vision, Audition and general health check up was got done and only those children who had no problems were taken as sample.

6. Reading Ability tests.

Having discussed the instruments used in this study, the scoring procedure and the administration of the tests, it is imperative to define and explain some of the terms used in this study. The present section operationalises the variables and concepts used in the research.

Operational Definitions

1. Reading Ability (RA)

For the purpose of this study, Reading Ability has been defined as the proficiency of a student in vocabulary, comprehension, speed, spelling and handwriting. All the above factors are scored and the composite score constitutes the Reading Ability scores. The scoring procedure is given in detail in page 112 - 117.

2. Types of School

Schools are of different types according to their own unique organisational features and their own structural arrangements which all influence their management systems, the efficiency of their teachers, and growth and competence of their students. According to Sinha (1980), there were schools maintained by (a) the Central Government, (b) the State Government, (c) by direct beneficiaries (student paying fees), (d) religious and charitable institutions and (e) private agencies.
For the purpose of this study, only 4 different types of schools have been taken. These are (1) Public School (direct beneficiary), (2) Missionary School (run by religious & charitable institutions), (3) Central School (run by Central Government) and (4) Navayug School (run by Municipal Corporation).

3. Academic Performance (AP):

For the purpose of this research, academic performance is defined as the marks obtained by students in the final examination of their previous class. The marks of the previous class final examinations is taken because (1) the entire study was conducted in the beginning of the sessions; and (2) every child may be expected to be highly motivated to do well in the examination and pass, so as to be promoted to the next class. Thus the motivation factor in students may be more or less equal in all students and (3) also the teacher's effort to teach and evaluate students will also be equal for all students.

4. Personal Attributes (PA)

Following Rao and Subramanyam (1982), personal attributes have been defined in this study to include factors like intelligence, reading habit, reading interest, language spoken at home (mother tongue), health, and phonic ability. Intelligence was assessed in terms of the scores obtained by a student on Misra's Draw-A-Man test (1970). The phonic ability was defined on the basis of the
scores obtained by a student on the phonic skill test by Hughes (1975).

Reading habit, reading interest, mother tongue and health were all assessed in terms of test developed by the researcher.

Reading habit - This was defined in terms of the time spent by a child in reading books other than school books.

Reading Interest - This was defined in terms of the interest shown by a child in reading books other than school books.

Member of library - This was defined in terms of the library membership.

Mother Tongue - This was defined in terms of the language spoken at home.

Health - This was defined in terms of general health vision, audition (hearing) and speech.

5. Home Background (HB)

Home background was defined in terms of the scores obtained by a child on items as parents education, parents occupation, availability of reading material at house, parents reading habit, parents encouragement towards reading and also towards loud reading, introduction of new terms used by parents etc. A total score obtained based on the individual scores on all these factors constituted the home background.
6. **Personality Trait (PT)**

Personality trait has been defined, for the purpose of this study, in terms of the categories used by the Primary schools at Delhi. The ability of a student to be punctual, diligent at work, honest, adjusted, neatness, leadership and clear speech, cheerfulness, responsibility, respect for elders and discipline have all been scored separately and summed up together as the personality trait of a student.

**Procedure and Administration**

The entire study was conducted in two phases. The first phase was concerned with ascertaining the correlates of Reading Ability and academic performance.

The second phase was concerned with ascertaining the following i.e. if the student were given Reading Ability training and if their Reading Ability improves, will it lead to better academic performance.

Thus for the first phase, the students selected as sample were taken from one class of a particular school at a time, to a separate room and given the already chosen passage to read (passage reproduced in page 110-112). The time taken to read the paragraph, the number of errors made in pronunciation, punctuation and repetition of words etc. were noted down as given in the scoring procedure in page 112-114).
These students were then given a dictation of 10 words, followed by the phonetic skill test in which they were asked to read the phono-
tic words. Then they were given a sheet of paper and asked to draw-
a-man giving instructions as per the manual. After giving 10 minutes
break, they were then given the tests of vocabulary, comprehension,
and handwriting. This procedure was followed for all the students
exactly in the same manner.

In order to obtain the academic performance of each student
as stated earlier in this section, the marks secured by each student
in their previous class final examination were taken from the teacher.
The teachers were also asked to rate each student on personality traits
items as given in their progress reports. To assess the personal attrib-
utes and home background of each student, the concerned question-
naires were sent to the parents of the student by the teacher of the
class. The parent filled in the questionnaire and sent the same back
through the student.

For the second phase of the study, the selected students were
first taken and their final examination marks of the previous class
were noted down. Then the students were divided into group I, II, and
III, respectively as given in the sampling section of this chapter.

One month training in Reading Ability was given to students
of experimental group. These students were taught everyday phonic
words and children's story were read to them and after that each
student was made to read the same and by asking in-between question it was checked whether they are following what they are reading.

Control Group I and II were not given any such treatment. The control group I was tested with the Reading Ability instrument before the training was given to the experimental group whereas control group II were not given any test. This was to ward off any bias that may arise due to practice effect. In the end final examination marks were noted down for all the students.

**Statistical Analysis**

For the purpose of analysis of the data, a correlational matrix was worked out and stepwise regression analysis was used to ascertain the correlates of Reading Ability and academic performance. Analysis of variance (ANOVA) and t-test were used in addition to percentiles.

**Preliminary Investigations**

A pilot study was carried out before the final data collection was started. The pilot study had the following aims:

1. To ascertain if the factors chosen for Reading Ability test were appropriate.

2. To test the suitability of the instruments such as the Personal Attribute Instrument, the Home Background instrument and the passages chosen for the Reading Ability test instrument.

3. To test the appropriateness of the methodology such as the method of presentation, procedures to be followed and the
use of instruments such as the phonic ability test by Hughes and the Draw-a-man test by Misra (1971).

**Subjects**

A group of 60 students was taken for the pilot study from one school in Delhi which was not included in the final study. Of these 60 students, 20 each were from Class II, III and IV respectively. Out of a total of approximately 80 students in each class, 20 were drawn randomly for the purpose of this pilot study thus totalling in all 60 students.

**Methodology**

Tools used for the pilot study were:

1) Reading Ability test instrument,
2) Personal attributes instrument,
3) Intelligence
4) Phonic Ability Test
5) Home background instrument
6) Personality trait instrument.

The selected students were taken into a separate room and were administered the different tests personally. Previous academic performance marks and personality traits were taken from the class teacher concerned. The instruments consisting of home and personal factors, were sent to the parents of each child who filled the form and returned the same to the researcher.
Analysis of the Pilot Data

Following the scoring procedure given elsewhere in details in this chapter. The subjects were scored on Reading Ability, personality trait, intelligence, personal attributes and home background. Their academic performance was taken as mentioned elsewhere, from the class teacher - i.e. the marks obtained in the final examination of the previous class attended (i.e. Class I, II, and III).

The Mean, SD and t values and the correlations obtained were analysed. The following conclusions emerged.

1. Reading Ability factors, such as speed, comprehension, vocabulary, spelling and handwriting are positively correlated with each other.

2. Reading Ability is positively correlated with academic performance i.e. high Reading Ability group students have better academic performance.

3. Reading Ability is highly correlated with personal attributes and specially with intelligence.

4. Better home background leads to better Reading Ability.

5. Students who are more diligent at work, punctual, honest, neat etc. also do better in their Reading Ability.

Thus the pilot study conducted and the analysis of the pilot data led to the following conclusion:

1) The Reading Ability was a function of personal attributes,
intelligence, interest in reading, reading habit home background and personality trait. Reading Ability was also highly correlated with academic performance indicating higher the Reading Ability, better the performance.

2) The instruments for Reading Ability was found to be appropriate and the intercorrelations of the items were also found to be very high except the handwriting factor which had low correlation with Reading Ability in one class. Since this factor had otherwise positive and in some cases more than \( r = .60 \) correlation, it was decided to retain this factor as part of the Reading Ability instrument. (The details of the correlation given in the Appendix VII).

3) The passage chosen for each class was very appropriate and the student's familiarity with the passage was equal because of their having read the same in the previous class.

4) The phonic ability test which was divided into three parts, one each consisting of 30 words was also found to be appropriate.

5) The home background instrument needed slight changes in respect of the availability of reading materials and parents educational categories and occupational categories and these were incorporated and the home background instrument was duly modified.

6) Modifications were needed in the instructions to an extent in the case of handwriting.
Based on the above findings of the pilot study the researcher wrote on the blackboard as an illustration the sentence that the students had to write and the number in which it should be written in the 4 lines.

The above modifications were incorporated and presented elsewhere in this chapter.

Armed with the knowledge gained from the Pilot Study the main investigation was designed and carried out accordingly. The following chapters are concerned with the details of these investigations.