Chapter IV
Design and Methodology

The problem formulated in the preceding chapter was investigated by using the following design and methodology:

Sample:

A sample of 40 undergraduates was drawn on a random basis from the population of 157 students of 3.A.II and III students of University, College, Rohtak. These were randomly assigned to four groups in such a manner that each group had 10 subjects.

Design:

A multigroup design with four groups was employed. Each group consisted of 10 subjects. Three lists of 20 words each—meaningful words, nonsense syllables of 100% association value and nonsense syllables of 60% association value were presented to the subjects on three consecutive days. Each group learnt according to the following learning method:

Group I: Massed method
10 trials to be given without any rest pause.

Group II: Spaced method
10 trials to be given with an intertrial interval of 2 minutes.

Group III: Whole method
Complete list to be exposed for 400 seconds.
Group IV: Part method  
First 5 syllables to be exposed for 10 trials, then the next five, and so on until the complete list is exposed.

However, the total effective learning time was kept constant at 400 seconds, for all the practice groups.

Instrumentation:

Only two instruments were used in the experiment—memory drum and stop watch.

Memory Drum:

This instrument consists of a rotating drum partially covered with a metallic screen, which has an aperture in it. The learning material was written on sheet of paper which was fixed on the drum. The material was written on the paper in such a manner that only one syllable was visible through the aperture at a moment and the succeeding syllable appeared after the expiry of the predetermined exposure time.

Learning Material:

One list of meaningful and two of nonsense syllables, each consisting of 20 syllables were used in this experiment.

A list of 50 meaningful words of common usage was prepared. Each word consisted of 4 alphabets. Our of these 20 words were selected in a random manner. The lists of nonsense syllables were prepared by randomly selecting 20 :S: with
100% association value and 20 with 60% from the standardised lists of N.S.S. by Glaze (Stevens, 1951).

Method

The prepared list of meaningful syllables was fixed on the memory drum and the exposure time was set at two seconds. The memory drum was placed on a table in such a manner that the syllables could easily be seen by the person sitting in front.

The subject was seated in front of the memory drum and the following instructions were given.

Instructions:

"You would be given the ready signal after which you have to keep your eyes on that aperture through which a list of meaningful/nonsense syllables will be shown to you. Try your best to memorise them since you would be required to recall the list after a few trials."

After giving the instructions the E started the memory drum. Ten trials were given without any rest pause and then the subject was asked to recall the words. The syllables recalled were noted down and the percentage of correct responses was calculated.

The same procedure was repeated on the next two days. The only variation was that how the lists of N.S.S. (100%
association and 60% association value) were used. The
two lists of N.S.S.(100% and 60% association value) were also
presented in the same manner.

The same procedure was repeated on the remaining
9 subjects of this group(i.e. Group I).

The lists were presented in a similar manner to the
subjects of Group II and IV, except that the subjects of
Group II were given a rest pause of 2 minutes after each
trial and those of Group IV were presented with 5 syllables
at a time. The whole list was given for 400 seconds to the
subjects of Group III. In this case the memory drum was not
used. In order to control for the carryover effect, counter'
balancing was done. Some subjects were shown the list of
meaningful syllables on the first day and the N.S.S.(60% and
100%) on the next two days. In other cases the sequence was
altered such that all the possible sequences were used.

We may now pass on to the next chapter dealing with
the results and discussion.