Chapter - III

METHOD AND PLAN

The methodology was worked out strictly in accordance with the objectives of the study and the major constituents of the methodology — hypotheses, sample, measures, design and procedure — which were addressed to meet these objectives:

Hypotheses: On the basis of the theoretical and empirical considerations of vigilance performance among introverts and extroverts as related to task-similarity - dissimilarity, the following hypothesis were formulated:

1. Introverts will detect more signals than extroverts on the low similarity task.
2. Introverts will detect more signals than extroverts on the high similarity task.
3. Introverts will detect more signals than extroverts on the dissimilarity task.
4. Introverts will make fewer commission error than extroverts on the low similarity task.
5. Introverts will make fewer commission error than extroverts on the high similarity task.
6. Introverts will make fewer commission error than extroverts on the dissimilarity task.
7. Introverts will show higher performance on the low similarity task than the high similarity task.

8. Introverts will show higher performance on the dissimilarity task than the low similarity task.

9. Introverts will show higher performance on the dissimilarity task than the high similarity task.

10. Extroverts will show higher performance on the low similarity task than the high similarity task.

11. Extroverts will show higher performance on the low similarity task than the dissimilarity task.

12. Extroverts will show higher performance on the high similarity task than the dissimilarity task.

13. Introverts will make fewer commission error on the dissimilarity task than the high similarity task.

14. Introverts will make fewer commission error on the dissimilarity task than the high similarity task.

15. Introverts will make fewer commission error on the dissimilarity task than the high similarity task.

16. Extroverts will make fewer commission error on the low similarity task than the high similarity task.

17. Extroverts will make fewer commission error on the low similarity task than the dissimilarity task.

18. Extroverts will make fewer commission error on the high similarity task than the dissimilarity task.
Sample: The sample (N = 400) comprised undergraduate students from different faculties of Arts and Social Sciences of AMU, Aligarh. Of these, 200 subjects were female and the remaining 200 males. The subjects were further classified on the basis of scores obtained on the Maudsley Personality Inventory (Jalota & Kapoor, 1965) 75 introverts and 75 extroverts were drawn from those scoring below 20th percentile and 80th percentile on the extroversion scale.

From amongst these 75 introverts and 75 extroverts, 3 groups of extroverts and 3 groups of introverts, each comprising 25 subjects were selected randomly for the study. Some of the subjects in each category were kept in reserve for use as replacement in case any of the assigned subjects of any group failed to turn up for the experiment.

Measures: Hindi version of Eysenck's M.P.I. (Jalota and Kapoor, 1965) was used to classify subjects into two categories i.e. Extrovert and Introvert. The M.P.I. consisted of 48 items with the three alternative response categories i.e. 'yes', 'undecided' and 'no'. 24 items measured the phenomenon of Extroversion and the remaining items measured the Neuroticism.

The present study used the scores obtained on the items representing extroversion - sub-scale. Each item is
scored as 2, 1, 0. High scores indicate extroversion. The range of scores on extroversion sub-scale was from 1 to 48.

**Tasks:** All the three series of Tasks comprised 2880 items representing 3 digits. In the 1st series of Task I, each of the 21 signals had the middle digit in even number and the two adjoining digits in odd numbers (e.g. 347, 963) etc. In the second series of Task II, every signal had the middle digit in odd number and the two adjoining digits in even numbers, such as (496, 254). In the III series or Task III every signal had odd numbers such as (397, 579).

The signal items in Task I comprised of three constituent digits different from non-signals in the sense of being in odd numbers, whereas non-signal items consisted of all the 3 constituent digits in even number, the degree of similarity between the odd items being 33%. Task II which had to do with three constituent digits consisted of signal and non-signal items, the former comprising 2 even and 1 odd number, and the latter all the numbers in even. The degree of similarity between signal and non-signal items was 66%. Task III comprised of 3 constituent digits in each signal and non-signal items were of the odd and even number respectively. The degree of dissimilarity between signal and non-signal item was 100%. Each task breakable into three equal
units and each unit having 7 signals and 373 non-signals. The signals were distributed randomly among non-signals. Each task was separately tape-recorded in a low and steady female voice at the rate of one item $1\frac{1}{2}$ sec. Experimenter acquired this skill through trial and error Method. That is, several recordings were made and discarded before the once selected finally for presentation to the subject.

Three groups of 10 undergraduate students, each comprising equal numbers of boys and girls, served as subjects in the try-out experiment. The experimenter followed the standard procedure for each vigilance task. The subject of the 1st, 2nd and 3rd groups worked individually on Tasks I, II & III respectively. The time allotted for each task was 45 mts. Before conducting the proper experiment, subject of each group worked on a familiarity task.

Vigilance performance was measured in terms of correct detection and commission errors (false alarms).

Design:— The experiment was designed to find out the significance of difference between introverts and extroverts in their performance on low and high similarity tasks, and dissimilarity tasks. The problem involved two independent variables: personality variable and the difficulty level of the vigilance tasks.
The present experiment followed a 2x3 factorial design, using two levels of personality (Extroversion - Introversion) and three levels of Tasks (33% similarity, 66% similarity and 100% dissimilarity). Schematic representation of the design is given below:

<table>
<thead>
<tr>
<th>Task</th>
<th>Low Similarity</th>
<th>High Similarity</th>
<th>Dissimilarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-75 Introvert</td>
<td>33%</td>
<td>66%</td>
<td>100%</td>
</tr>
<tr>
<td>N-75 Extrovert</td>
<td>33%</td>
<td>66%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Three groups of introverts and three groups of extroverts were used. Each one was exposed to low similarity, high similarity and dissimilarity task. That is, 25 introverts and 25 extroverts were given low similarity task, 25 introverts and 25 extroverts were given high similarity task, and the remaining 25 introverts and 25 extroverts were given the dissimilarity task. That is a different group of 25 extroverts and 25 introverts was exposed to each of the three tasks - low similarity, high similarity, and dissimilarity.
Procedure:

The present investigation was carried out in a secluded room of the laboratory, Department of Psychology, and the laboratory of Women's College, AMU, Aligarh. The data were collected individually. The subject was invited into the experimental room, and was asked to sit comfortably on a chair. The experimenter then placed before him on the table the written illustration of the task, and asked him to go through it and worked out the items following the instruction and the given example. For the visual familiarity part of Task I, the subject was required to make a cross mark (x) on the line below each item, if all the 3 constituent digits of an item were in even numbers and put a tick mark (_/_) if the middle digit was in even number and the two adjoining digits of the item were in odd numbers. In the case of Task II, the subject was required to put a cross mark (x) if all the constituent digits of an item were in even numbers and to tick mark (_/_) if the middle digit of an item was in odd number and the two adjoining digits were in even number. For Task III, subject was asked to put a cross mark if all the constituents digits of an item were in even number and a tick mark (_/_) if all the constituent digits of an item were in odd numbers.

Thereafter, the subject was told that he/she would be presented with a similar task auditorily through a tape-
recorder. For the low similarity Task I, subject was told that through the tape-recorder he would listen a series of 3 digit item one by one like the once he did earlier in the visual familiarity task. Most of the items would be in even numbers but a few items would comprise the middle digit in even number and the two adjoining digits in odd numbers and the three digits in odd numbers. These items are called as signals. The subject was particularly asked to be attentive to detect the signals in the manner described earlier. A response sheet representing the number of items in the familiarity and the 3 units of the test watch of the experiment was supplied to the subject for giving the responses. Starting from the 1st item, subject was asked to put a cross mark (x) if the item heard was a non-signal, and a tick mark (_) if the item heard was a signal without being any item, unresponded.

The instructions given to the subject for Task I were as follows:

"A task similar to the one you have just performed but of a much longer duration will now be presented to you through a tape-recorder. You will hear a series of 3 digit item one by one. The constituent digit of most of the item will be in even numbers such as 242, 824. Scattered among these items will be a few signals, i.e. the item having the
middle digit in even number and the adjoining digits in odd
numbers such as 369, 743, etc. You are required to detect
signals when they occur. On hearing a non-signal, you are
required to make cross mark (x) and on hearing a signal a
tick mark (✓) on the short lines. Please note that no
item should be left unresponded.

As signals are very few and scattered randomly among
non-signals, you have to be very attentive. In fact, this
experiment is a test to measure one's ability to keep him-
self / herself attentive. I hope you have fully understood
what you are required to do. Now please put your pen on the
1st line of the first row and be ready for making the res-
ponse. If you wish clarification of any point relating to
the experiment please ask now, but once the experiment
starts, you should not ask anything but to continue to do
your work silently till it is complete." After the subject
had received the full instructions his / her responses on the
familiarity Part I of the experiment were checked up, he/she
was asked whether or not he / she had detected the signals
correctly. After a gap of 5 mts., the experimenter started
the proper experiment and the subject took 45 minutes. Be-
fore leaving the room the subject was thanked for his / her
cooperation.
The data for Task II and Task III were collected from the Extrovert & Introvert subjects following the same procedure as in Task I, except in the manner of presentation of signal and non-signal stimuli. The responses of the subjects in all the groups for Task I, Task II & Task III were scored in terms of correct detection, and commission errors.