CHAPTER V

METHOD OF INVESTIGATION
the aim of the present investigation as already stated was to find whether cognitive efficiency and personality are related to perceptions of time.

A pilot study was undertaken with a sample of thirty subjects. Product moment correlations were computed between cognitive efficiency and perceptions of time and personality and perceptions of time, and also several intercorrelations were computed to find out the implications of the problem, for the final study. Cognitive efficiency was measured by the d'Amore's National Learning Test. This is a problem solving task which requires certain logical processes in learning and memory. To measure personality the Internal-External scale (I-E scale) was used. Based on the Social Learning Theory of Personality (Rotter, 1954) introduced the Internal-External scale as a measure of individual differences in the generalised belief that a person can control his own destiny. In this theory individuals are labelled external controls when they are said to have a generalised expectancy that reinforcements are not under their control, and internal controls who believe that reinforcement is contingent on their own behaviour.

The measures of perceptions of time used in the present study were 1. Experiential Inventory, 2. Money game, 3. Duration Inventory, 4. Circles Test (Cattell, 1963). Reasons for the selections of the above instruments in the present study are given in Chapter III, page 60-72. It was found that there is no
need to alter any one of the above instruments, so the same
instruments were selected for the final investigation also.

Subjects

The subjects for the final investigation were drawn from
a local women's college, Wiresati, etc. The sample consisted
of 300 undergraduate students selected randomly from second and final
year arts and science classes. The age range of the subjects
was between 17-19 years.

Order of Testing

The above three tests of cognitive efficiency, personality
and Perceptions of time were conducted in the following order:

1. Peterson's Rational Learning Test to measure cognitive
   efficiency.

2. Internal-External Locus of control to measure person-
   nality.

3. Perceptions of time measures:
   a. Experiential Inventory
   b. Money Game
   c. Duration Inventory
   d. Circles Test

Cognitive Efficiency

The cognitive efficiency was measured by the Peterson's
Rational Learning Test. This is a problem solving task which
requires certain logical processes in learning and memory. In this kind of problem solving task the subject manipulates symbols, reasoning, which is a variety of learning, where past experiences play a greater role is involved in this problem solving task.

The Peterson's Rational Learning Test was administered to the subjects individually according to the procedure given in the manual (Gunn, 1946). The following instructions were given to the subjects:

"This is a memory reason test with each of the alphabets 'A' to 'K' associated one among the numbers 1 to 16. When I call out the first letter 'A' you have to press the buttons by guessing until you get its correct associate. Then your association is correct the light corresponding to alphabet 'A' will be on. Then I shall call out the next letter in the sequence and so on. You must ask no questions, but have to use all the ability at your command. You will be judged by the number of errors you make, and the number of repetitions required to learn the code."

This procedure was continued until the subject got each number right, at the first response without any error and thrice in succession. In each trial errors were noted and classified as 1. logical errors, consist in guessing a number already established in the series as correct for another, 2. Perseverative errors, consist in repeating the associate for a particular
unclassified, 2. unclassified errors, which do not fall within logical or perseverative errors. The total number of errors which include logical, perseverative and unclassified errors were noted down. It is assumed that the more errors the subjects make, the less efficient they are.

The Rotter's Internal-External Locus of Control is one of the widely used for studying problem solving efficiency. Hence this apparatus was chosen in the present study to assess the cognitive efficiency, i.e., to find how the previous learning influences the present performance.

**Personality Measurement**

Since the dimension of personality chosen for the present study was internal-external locus of control, the Internal-External locus of control scale (I-E scale) developed by Rotter (1966) was used. The I-E scale assesses the degree to which a person attributes the events that happen to him as being within or beyond his personal control and understanding. In relation to social learning theory, Rotter conceptualizes internal-external control as a generalized expectancy based upon past learning. He argued that this variable is of major significance in understanding the nature of learning in different kinds of situations.

The I-E scale contains 23 items in forced choice format and includes six filler items. The test was scored for external control and the range of possible scores was from 0 to 23. A
high score on this scale indicates an external orientation. The items were listed inanner (1966, pp. 11-19) together with information about test construction. This test was given individually and also in small groups of 10-15 subjects in each.

The test-retest reliability of the 20-item scale of X developed by Netter is consistent and acceptable, varying between .47 and .80 for varying samples and intervals; time periods, relationships to measures of intelligence have generally been nil. I-E is consistently related to a variety of personality scales with internal scores describing themselves as more active, striving, achieving, powerful, independent, and effective (Dorsch and Scheibe, 1967).

In the present study the reliability was computed using the all 20 modified formula. The reliability coefficient was found to be .60 significant at .01 level.

Instruments to measure perceptions of time

The temporal perspective as one of the aspects of perceptions of time is not extensively explored. Our behavior is a function of everything which determines the present. But these present activities are not only depend on the situation in which we find ourselves but also on everything we have already experienced and all our future expectations. In other words, we might say that each of our actions takes place in a temporal perspective. The perspectives, past, present, and future are interrelated
In such a way that the present is the continuation of the past and extension into the future. This interrelationships of past, present, and future are measured by the tests developed by Gottlie (1970) in his study on adolescent perceptions of time. The four measures were chosen in the investigation to measure the perspectives of time. They are 1. Experiential Inventory, 2. Memory Game, 3. Duration Inventory, 4. Circles Test.

The individual procedures were as follows:

1. **Experiential Inventory**

The experiential inventory measures predispositions to reflect or expect and an intensity of involvement with various time zones. This test instructs the subjects to list ten most important experiences of their life, and then to locate them in one of the five time zones, distant past, near past, present, near future, and distant future. The respondents should consider the entire temporal horizon, i.e., from birth to death in listing and locating experiences. The zone frequencies signify an intensity of involvement with recollection (past) experiencing (present) or expectation (future).

The score of the subject in the Experiential Inventory was the number of experiences in each time zone. This test was given in groups of 10-15 subjects in each.
1. **Life Span Estimations of the Present and Future.**

The method used was the Life Span Estimation, where respondents were to indicate how much money they would spend to "purchase" various allotypes of past and future. They may select any hour, any day, any year from all three periods. For each period, score was the number of the expenditure for that allotype. The total number of scores for each subject was six. It was assumed that the more they wished to recover or forget a particular time period, the more money they would be willing to spend for it.

This test was given in groups of 10-15 subjects in each.

5. **The Duration Inventory**

The Duration Inventory refers to estimations of the significance and extension of time seen treated in the experiential inventory. Respondents are instructed to fill in the blank spaces with one of the words listed. They are asked to place the number of the word, which indicates their choice.

Bracketing scores were computed by subtracting extensions of near zones from distant zones. The four boundaries termed bracketing regions are: distant past, near past, present's past, present's future, near future, and distant future. The scoring procedure was given in Chapter XII, Page 70.
The circleo test is given in groups of 10-15 subjects in each. Scoring procedure was given in Chapter XII, Page 71-75.

Each subject underwent all the three tests. It took approximately 1 to 3 hours to complete the entire experimental program for each subject.