Chapter III

METHOD AND PROCEDURE

The purpose of the present study is to ascertain experimentally the effect of cognitive dissonance upon risk-taking behaviour in relation to four personality variables. In order to clarify the various variables that are involved in the present experiment, it is important to delineate them.

Independent variables

The independent variables involved are cognitive dissonance, and four personality variables, namely, anxiety, internal-external locus of control, repression-sensitization, and self-esteem. Their operational definitions are given below:

(i) Cognitive dissonance is varied into: (a) 'arousal of cognitive dissonance', and (b) 'nonarousal of cognitive dissonance'. 'Arousal of cognitive dissonance' is induced in a gambling type of risk-taking situation by giving the S 'a negative feedback of losing the gamble', i.e., by declaring that he has lost the gamble, and 'nonarousal of cognitive dissonance' by giving the S a 'positive feedback of winning the gamble', i.e., by declaring that he has won the gamble.
(ii) In order to study the effect of each one of the four personality variables upon opinion change in response to cognitive dissonance induced in a risk-taking situation, 400 Ss are divided into four groups of 100 Ss each and the Ss in each group are dichotomized into two extreme groups, 'High' and 'Low', on the basis of their scores on the scale measuring each of the different personality variables. That is, the Ss in the first group are dichotomized into 'highly anxious' and 'mildly anxious' Ss on the basis of their scores on Sinha W-A Self-Analysis Form (1968), the Ss in the second group are dichotomized into 'externally-oriented' and 'internally-oriented' Ss on the basis of their scores on Rotter's I.E. Scale (1966), the Ss in the third group are dichotomized into 'sensitizer' and 'repressor' Ss on the basis of their scores on Prasad's Indian Adaptation of Byrne's Repression-Sensitization Scale (1967), while the Ss in the fourth group are dichotomized into 'low self-esteem' and 'high self-esteem' Ss on the basis of their scores derived from the difference between the 'real self' and the 'ideal self' ratings for a number of adjectives. For dichotomization, P75 and P25 are used as cutting points.

Dependent variable

The dependent variable namely, risk-taking behaviour is operationally defined as a change in the selection of one of two risk alternative choices in the second of two bids as
compared to the first one after winning ('nonarousal of cognitive dissonance') or losing ('arousal of cognitive dissonance') a gamble in a risk-taking task. A detailed account of the risk-taking task used in the present study is given below:

Risk-taking Task - The risk-taking task consists of a gamble in a guessing game involving solution of ten anagrams. The anagrams included in the game can be solved easily by any undergraduate student of average intelligence. Each anagram is amenable to two different solutions of meaningful words. The S is mainly required to gamble in guessing which of the two solutions is correct. He is considered to win the gamble if he is able to guess the correct solutions of at least a specified number of anagrams which he intends to guess correctly.

The task is spread over several trials. In each trial, first, the S is presented with a pair of two risk alternatives from which he is required to select any one as a bid for the gamble. When he tries the bid he is given a feedback, either a positive one of winning the gamble or a negative one of losing the gamble, after which he is presented with the same pair of the two risk alternatives for him to choose one risk alternative as a bid for the gamble a second time.

A risk alternative is expressed in terms of the chances of losing the gamble and the complementary chances of winning it.
The risk alternative determines the number of anagrams the S is required to guess correctly, in order to win the gamble, from a number of anagrams he is allowed to try. For example, a risk alternative indicating 2/5 chances of losing the gamble implies that the S will be required to guess at least two anagrams correctly in order to win the gamble from a total of five anagrams he is allowed to try. Similarly, a risk alternative indicating 4/10 chances of losing the gamble implies that the S will be required to guess at least four anagrams correctly, in order to win the gamble, from a total of ten anagrams he is allowed to try.

It is to be noted that earlier studies investigating the effect of outcome upon the risk-taking behaviour (cf. Chapter II) failed to control the effect of risk level upon the change of risk alternative. Kogan and Wallach (1964) reported that an experience of losing a gamble with a risk alternative having higher risk level often led to a selection of a risk alternative having lower risk level in a subsequent choice of risk alternative, whereas the experience of losing a gamble with a risk alternative having lower risk level seldom led to a selection of a risk alternative having higher risk level in a subsequent choice of risk alternative. Along with, an experience of winning a gamble with a risk alternative of low risk level often led to a change to a risk alternative of high risk level in a subsequent choice of risk alternative. In this context, it is considered necessary to control the effect of
risk level upon the choice of risk alternative after the experience of winning or losing the gamble.

Keeping this in mind, the two risk alternatives in a pair are made proportionately equal in terms of the chances of losing the gamble. For example, if one risk alternative in a pair has 2/10 chances of losing the gamble, the other one will have 1/5 chances of losing it. Though the two risk alternatives in a pair are proportionately equal in terms of the chances of losing the gamble, they may be said to represent two different risk strategies, the first one representing a 'wide risk-strategy' and the later one, a 'narrow risk-strategy'.

According to several authors (Coombs, 1967; Edwards, 1962) the choice of a risk alternative is affected by its expected value (EV), i.e., by the sum of the product of the chances of winning and the amount to be won and the product of the chances of losing and the amount to be lost. It is, therefore, considered necessary to equalize the EVs of two risk alternatives in a pair by taking equal amounts to be won and equal amounts to be lost. The pairs of risk alternatives used in the present experiment are given in Table A. In each trial one of the three pairs will be presented to an S in a random order, each pair of risk alternatives being presented to him four times in a series of twelve trials.
TABLE A

Pairs of Risk Alternatives Used in the Experiment

<table>
<thead>
<tr>
<th>Pair</th>
<th>Alternative I</th>
<th></th>
<th></th>
<th>Alternative II</th>
<th></th>
<th></th>
<th>Amount to be lost or to be won</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/5</td>
<td>4/5</td>
<td></td>
<td>2/10</td>
<td>8/10</td>
<td></td>
<td>0.05</td>
</tr>
<tr>
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<td>2/5</td>
<td>3/5</td>
<td></td>
<td>4/10</td>
<td>6/10</td>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td>3</td>
<td>3/5</td>
<td>2/5</td>
<td></td>
<td>6/10</td>
<td>4/10</td>
<td></td>
<td>0.05</td>
</tr>
</tbody>
</table>

Research Design

Four different experiments were performed in order to determine the effect of cognitive dissonance on risk-taking behaviour in relation to each one of the four personality variables separately. With two values of cognitive dissonance, 'arousal' and 'nonarousal', and two values of each one of the personality variables, high and low a 2x2 factorial design of experiment was employed.

Personality Measures

The four personality variables, namely, anxiety, internal-external locus of control, repressing-sensitization, and self-esteem were measured by the Sinha W-A Self-Analysis Form (1968), the Rotter's I-E Scale (1966), the Prasad's Indian Adaptation of Byrne's R-S Scale (1967), and the Self-Ideal-Self Discrepancy on a Trait Adjectives Rating Scale, respectively. Each scale was translated from English to Manipuri.
translating the scale all items were translated literally. Popular sayings whenever applicable were not used to avoid social desirability. The principle of translation was comparable to that of Gough and Sandhu (1964) who translated the socialization scale of California Personality Inventory for cross-validation in India and that of Hsieh, Shybut and Lotsof (1969) who translated the Rotter's I-E Scale into Chinese. To test the Manipuri translation, three judges who knew both English and Manipuri were asked to translate independently the Manipuri version into English. Their versions were very similar to each other and to the original English version. The Manipuri version of the scale was administered to 20 students. Nearly three weeks later, they were given the English version of the scale in order to determine the reliability of the translated version of the scale.

A brief description of the four personality measures is given below:

(a) The Sinha W-A Self-Analysis Form (1968): It consists of one hundred questions, each provided with 'yes' and 'no' alternative responses. Each 'yes' response is scored one, and the 'no' response, Zero. The total number of the 'yes' responses provides the anxiety score, with a high total score indicating low anxiety. Sinha (1961) has reported that this form correlates 0.73 with the Taylor Manifest Anxiety Scale and has a split half reliability of 0.94. The Manipuri translation of the form is found to be correlated 0.84 with
the original English version.

(b) The Rotter's I-E Scale (1966): It is a widely used scale to measure the personality dimension of internal-external locus of control. Throop and Macdonald (1971) consider it to be the best scale for measuring internal-external locus of control with adult population. It has 29 forced-choice items including 6 filler ones, in each of which the S is required to make a choice between two alternatives, one indicating external-orientation and the other, internal orientation. Each choice of the alternative indicating external-orientation is scored, and thus, a high total score indicates external-orientation while a low total score indicates internal-orientation. The translated version is found to be correlated 0.87 with the original English version.

(c) The Prasad’s Indian Adaptation of Byrne’s R-S Scale (1967): It consists of 90 items in which 13 items are scored with 'false' answer and the rest with 'true' answer, with a high total score indicating 'sensitization' while a low total score indicating 'repression'. Prasad (in press) reported that the corrected split-half reliability of the scale on a sample (N = 100) of Patna University students is 0.91 and coefficient of stability after 7 weeks is found to be 0.87. The construct validity coefficient of the scale found by correlating it with Ullmann's 12-item Facilitation-Inhibition Scale is as high as 0.80. The translated version is found to be correlated 0.86
with the original version.

(d) A Triat Adjectives Rating Scale: It is of the type which Murstein (1971) used. It consists of 20 adjectives each of which the S is required to rate, first in respect of 'as he really is' (real self) and then in respect of 'as he would like himself to be' (ideal self), on a seven-point scale ranging from 'most like me' to 'least like me'. After the S has rated all the adjectives both 'as he really is' and 'as he would like himself to be', the discrepancy between the two ratings for each adjective is calculated, and all the differences between the two ratings are totalled without algebraic sign. The total of the differences between the two ratings gives the discrepancy score. If the discrepancy score is high, the real self is perceived to be falling short of the ideal self, while if the discrepancy score is low the real self is perceived to be closer to the ideal self, the former indicating 'low self-esteem' while the later indicating 'high self-esteem'.

Procedures

(i) Selection of Ss

Four samples of 100 Ss each were randomly selected from the male Arts undergraduate students of degree colleges in Imphal. All the Ss came from middle class families, and their age range was 17 to 20 years.
The four personality measures were administered on the four samples of Ss; each personality measure being administered on a different sample. The administration of each personality measure was carried out in small groups of 5/6 Ss. For each personality variable, two groups were formed one scoring above P75 and the other scoring below P25. In this manner, eight groups of Ss were formed. The groups were designated as 'Highly Anxious' (HA) and 'Mildly Anxious' (MA), 'Internally-Oriented' (IO), and 'Externally-Oriented (EO), 'Repressors' (R) and 'Sensitizers' (S), and 'High Self-Esteem' (HSE) and 'Low Self-Esteem' (LSE) groups.

For each experiment using one different personality variable, 20 high scorers and 20 low scorers for the personality variable were randomly selected.

(ii) Experimental Procedures

The experiment was performed on each S individually. He was given instructions regarding what he was required to do. When it was clear that he had understood what he had to do, the experiment proper started.

The S was required to make a bid for a gamble in a guessing game. He was presented with a pair of two risk alternatives (strategies), and was required to select one alternative (strategy) as a bid for a gamble in the game. Whenever he tried out the bid, he was given a positive feedback (i.e., was told that he won the gamble) or a negative feedback (i.e., was told that he
lost the gamble) according to the design of the experiment, after which he was, once again, presented with the same pair of the two risk alternatives (strategies) and was required to select one alternative (strategy) so as to use it as a bid in the gamble second time. This whole procedure constituted one trial. The same procedure was repeated twelve times, so that the S would select one risk strategy from a pair of two risk strategies in a gambling risk-taking two times, first before the feedback and second after the feedback, in each one of twelve trials.

The experimental condition of the 'arousal of cognitive dissonance' was induced in half of the Ss randomly selected from the total Ss constituting each one of the two dichotomised groups for each personality variable, and the control condition of the 'nonarousal of cognitive dissonance', in the remaining half of the Ss. In order to make the situation appear real, the Ss in the 'arousal of cognitive dissonance' condition were given a few trials of 'positive feedback of winning the gamble' which were filler ones (i.e., trials which would not be scored), and in the similar manner, the Ss in the 'nonarousal' of cognitive dissonance' condition were given a few trials of 'negative feedback of losing the gamble' which were filler ones. Further, in order to equalize the effect of filler trials, their number was same in both the conditions (i.e., 25 per cent of the total trials). Filler trials were randomly mixed with the trials which would be scored.
Scores

The score is concerned with the change in the selection of a risk alternative (strategy) from a pair of two risk alternative (strategy) choices in the second of two bids as compared to the first one after receiving the feedback either of winning the gamble (positive feedback) or of losing the gamble (negative feedback). A score of one is given if the S selects in the second bid the risk strategy that has not been selected in the first bid, while a score of zero is given if he selects in the second bid the risk strategy that has been selected in the first bid. In this way, a score of one or zero is given to the S for each trial, and all the scores are summed to get the total scores of him.

It is to be pointed out that, according to Harris (1969), the reduction of cognitive dissonance is probabilistic in nature, i.e., arousal of cognitive dissonance does not always lead to opinion change. He has experimentally shown this. In his opinion, the effect of cognitive dissonance may be studied in a better way, in terms of frequency of opinion change, by inducing cognitive dissonance and taking the measure of opinion change in several trials. In the present experiment, the effect of cognitive dissonance upon the risk-taking behaviour was studied by inducing cognitive dissonance in the risk-taking situation and taking its effect upon the choice of risk strategy over a number of trials.