TOOLS AND TECHNIQUES
CHAPTER III

In planning a study, the investigator attempts to select the method or methods most appropriate to the particular problem under consideration. The quality of research depends not only on the adequacy of the research design but also on the fruitfulness of the measurement procedure employed. In this chapter, the investigator dealt with the design and procedure of the study.

Procedure involves selection of the sample, selection of tools and collection of data i.e. the investigator plans how the subjects will be treated, how the independent variable will be administered and how the response will be observed and recorded.

3.1 METHOD OF THE STUDY

Survey method of descriptive research was employed in this study. Descriptive research is concerned with conditions or relationships that exist; practices that prevail; beliefs, points of view, or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing.
The survey method gathers data from a relatively large number of cases/limited population which is the only group under consideration. It is concerned with the generalized statistics that result when data are abstracted from a number of individual cases.

3.2 TECHNIQUES OF THE STUDY

Two types of techniques were employed (i) Questionnaire technique and (ii) scaling technique. The questionnaire technique was executed in formation of a self-prepared questionnaire which was also used as a schedule in case of illiterate subjects.

A standardised test of Modernization also employed the questionnaire technique with closed response. Scaling Technique was executed in N.K. Chadha's 'Dimensions of Rigidity Scale.'

The selection of the above techniques was based along the lines of the aims and objectives of the investigation and the subjects under consideration.
3.3 DESIGN OF THE STUDY

The study Paradigm is as under -

![Diagram showing categories and subcategories]

3.4 SELECTION OF THE TOOL

Cronbach (1964) defines a test as a systematic procedure for comparing the behaviour of two or more persons at a particular time or on or more persons at a different time.

The appropriate tool is essential for carrying out a research study in accordance with the problem. Selection, is
hence an important step and requires the survey of existing tests.

3.4.1 SURVEY OF TOOLS

Social mobility has been measured in various terms by various tools eg. interview schedules, questionnaires, inventories and scales.

Some of the tools and tests used by researchers in India and abroad are -

a) **Questionnaire and Interview Schedules** to assess social mobility were used by -
   1) Interview Schedule - B.L. Jindal (1981)
   2) Interview Schedule - R. Singh (1982)
   3) Questionnaire and Interview Schedule - K.C. Santha (1986)
   4) Comprehensive Interview - P.N. Pandey (1988)
   5) Questionnaire - S. Navlakha (1989)

b) **Inventories and Scales**
   1) Attitudinal Modernity Scale - S.L. Sharma (1979)
c) Other Tests
1) Cosmopoliteness test, Empathy-Fatalism test and Activism test - R. Jayaswal (1980)
2) Overall measure Scale by Smith and Inkeles used by V.S. Desai (1984)

3.4.2 SELECTION OF THE TOOL

In order to yield answers to the questions put forward by the aims and objectives of the study, the investigator decided to use a modernization inventory, a scale for Rigidity and a questionnaire cum schedule designed by the investigator.

3.4.3 TWO GENERATIONAL SOCIAL MOBILITY QUESTIONNAIRE CUM SCHEDULE

A two-generational social mobility questionnaire was prepared by the investigator after following the underlying steps one by one.

3.4.3.1 PLANNING THE QUESTIONNAIRE

In the preliminary stage, items were collected which yield information to estimate the change in various aspects of social mobility along maternal decension; collect information about the respondent's social life, attitudes
and views about social issues and practices and perception of the workplace and herself as a working woman.

3.4.3.2 SELECTION OF ITEMS & PREPARATION OF FIRST DRAFT

Of the items collected, 40 items encompassing different parameters of social mobility (caste, monthly income, education, occupation, age of marriage etc.) were written. These items described the various areas which were considered by the aims to be achieved.

3.4.3.3 EDITING BY EXPERTS

This preliminary test of 40 items was given to six experts, well acquainted with the concept of social change and mobility, as defined by the investigator. They were requested to evaluate each item and provide suggestions and guidance for improvement.

3.4.3.4 PRELIMINARY TRY-OUT

14 items for which there was disagreement on one or more criteria were dropped. The remaining items were administered to a sample of twenty working women to check language accuracy, etc. Changes were made in the language of some items. Thus, the adequacy of language and ambiguity of items was checked.

3.4.3.5 PREPARATION OF SECOND DRAFT

The second draft of the questionnaire included (1) 6 items of general information, regarding name, place of residence, age, caste, occupation and income. (ii) 3 items
inquiring into the educational background of the respondents' and their aspirations with respect to education of children (iii) 6 items contained questions for children, place of work, reason for working and satisfaction with respect to income, clients and conditions (iv) 7 items pertained to marriage, age of marriage of respondent's, their mothers' and aspired age of marriage for daughters; attitude towards inter-caste marriage, role of boy/girl in marriage, arranged marriage and dowry. (v) 2 items were framed for assessment of social participation as members of social groups and visit to place of worship (vi) 2 items evaluated the perception of a woman of her place in society, at home and in the family.

3.4.3.6 SECOND TRY-OUT

The second draft was administered to 25 working women belonging to different educational backgrounds. Test-Retest reliability was calculated by conducting the same test on the subjects after a period of one week. The computed reliability was found to be 0.74.

3.4.3.7 PREPARATION OF FINAL DRAFT

Minor changes were made after second try out and the final draft of 26 items was prepared. The response pattern of the items was also determined. Some items used to study the change along maternal decension contained five alternative responses depending on the item and its
categorisation. The subjects had to place a tickmark for each related context for one of the alternatives. The other items pertained solely to the respondent and the subjects had to indicate their response by placing a tickmark for one of the alternatives.

The questionnaire was translated into Hindi and the correlation coefficient for the two versions was 0.90.

3.4.4 COMPREHENSIVE MODERNIZATION INVENTORY (CMI)

This inventory was developed by S.P. Ahluwalia and A.K. Kalia in 1985. In the inventory are 8 items pertaining to education, 7 items pertaining to politics, 10 to parent-child relationship, 7 items to status of woman, 8 to marriage, 7 to faith in God(religion) and 7 items pertaining to socio-cultural factors.

The reliability of the test measured by test-retest method was found to be 0.82. Three types of validities of modernization inventory were determined namely; face validity, content validity and construct validity.

The scale was translated into English and correlation coefficient for the two versions was 0.88.

3.4.5 DIMENSIONS OF RIGIDITY SCALE (D.R.S.)

This scale was developed by N.K. Chadha in 1986. The following dimensions are included in the scale.
A. Intellectual Rigidity
B. Emotional Rigidity
C. Dispositional Rigidity (with respect to attitudes/habits)
D. Social Rigidity (with respect to society)
E. Behavioural Rigidity (with respect to tradition/custom)
F. Perceptual Rigidity
G. Creative Rigidity

Internal validity was determined with the help of point biserial correlation and 75 items were retained in the final form. Sufficient statistical evidence regarding the independence of dimensions in the present rigidity scale was found as the intercorrelations obtained among the different dimensions of the scale were low or statistically insignificant.

3.5 SELECTION OF THE SAMPLE

3.5.1 POPULATION OF THE STUDY

Selection of the sample is an important aspect of research, if the findings are to be generalised to the entire population.

Married working women of the age group 30 to 45 years, performing different types of occupations were selected as sample for study. Working women with various types, levels of educational attainments from Agra City were considered as population of the study.

3.5.2 SAMPLE AND ITS SELECTION

Out of 550 working women who were randomly approached, 344 were selected after attaining information about age,
educational level, marital status and type of family. The selected women worked full-time, were married, belonged to the age group 30-45 years and lived in nuclear families.

For selecting the occupations and educational levels, purposive sampling technique was used. The basic assumption behind purposive sampling is that with good judgement and an appropriate strategy one can handpick the cases to be included in the samples that are satisfactory to one's needs. The number of units taken from the selected educational levels are -

i) No education/illiterate

ii) Only general education
   a) Upto high school (upto class X)
   b) Upto intermediate (upto class XII)
   c) Graduate/Post-graduate level (B.A./M.A., B.Com./M.Com., B.Sc./M.Sc.)

iii) Professional qualification
   a) After high school or intermediate education (certificate courses/diploma holders)
   b) after graduation (certificate/diploma after B.A./B.Com./B.Sc.)
   c) Undergraduate professional qualification after graduation (B.Ed.) [School teachers]
   d) Graduate/Post-graduate professional degree (M.B.B.S. / M.D., B.E. / M.Tech., specialisation)
3.5.3 JUSTIFICATION OF THE SAMPLE

The questionnaire contained 26 items. In addition to this, the modernization inventory and rigidity scale required the scoring in different areas and subscales. Scoring, tabulation and administration of 344 booklets requires a lot of time. Hence, the sample size is justifiable as well it is adequate also.

Moreover, the sample was delimited to working women between ages 30-45 years. Secondly, it consisted of married women only to control the difference that were found existent in psycho-social factors affecting married working women and those affecting single working women.

Moreover, the educational levels and occupational status were selected to yield data as per the requirements of the study.

3.6 PROCEDURE

Initially, a random pool of 550 married working women from urban areas of Agra City, were approached personally. A personal data sheet was administered to them. This required the subjects to reveal information about her age, educational level, income, occupation, members in the family and whether they live in nuclear/joint families.

Finally, on the basis of the information provided in the personal data sheet, 344 subjects in the age group 30-45
years, belonging to nuclear families were approached. The questionnaire was then administered to the subjects. The subjects had to place a tickmark in the space provided for the alternative most appropriate to them.

This was followed by the administration of CMI. In this, the subjects were instructed to put a tickmark for each statement in the most appropriate response category from the following:

1. Extremely Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree

DRS was used to measure rigidity. The subjects were asked to place a tickmark for YES/NO response, for each statement whichever was most appropriate. The uneducated subjects were asked these questions by the investigator and simultaneously the investigator noted down the respective responses.

After ensuring that the subjects had filled all the tests and questionnaires, the investigator collected the answer sheet and thanked the subject for her co-operation.

3.7 SCORING

First of all, each questionnaire was coded for the educational status and occupational level. A scoring sheet
was then prepared for each of the educational status and occupational levels respectively. The frequencies were noted down for each response and then tabulated. A specimen sheet for 5 items of the questionnaire as shown below:

TABLE 3.7 SPECIMEN SCORING SHEET FOR CONTENT ANALYSIS

<table>
<thead>
<tr>
<th>Educational Qualification-Graduate</th>
<th>Serial No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item No.</td>
<td>Item</td>
</tr>
<tr>
<td>1. CASTE</td>
<td>Brahmin</td>
</tr>
<tr>
<td></td>
<td>Kshetriya</td>
</tr>
<tr>
<td></td>
<td>Vaishya</td>
</tr>
<tr>
<td></td>
<td>Sudra</td>
</tr>
<tr>
<td>2. Monthly Income</td>
<td>Below 500</td>
</tr>
<tr>
<td></td>
<td>501-2000</td>
</tr>
<tr>
<td></td>
<td>2001-3500</td>
</tr>
<tr>
<td></td>
<td>3501-5000</td>
</tr>
<tr>
<td></td>
<td>5000+</td>
</tr>
<tr>
<td>3. PLACE OF ORIGIN</td>
<td>Remote Village</td>
</tr>
<tr>
<td></td>
<td>Village</td>
</tr>
<tr>
<td></td>
<td>Town</td>
</tr>
<tr>
<td></td>
<td>City</td>
</tr>
<tr>
<td></td>
<td>Large City</td>
</tr>
<tr>
<td>4. AGE OF MARRIAGE (SELF)</td>
<td>Below 18 years</td>
</tr>
<tr>
<td></td>
<td>18-19 years</td>
</tr>
<tr>
<td></td>
<td>20-21 years</td>
</tr>
<tr>
<td></td>
<td>22-23 years</td>
</tr>
<tr>
<td></td>
<td>24-25 years</td>
</tr>
<tr>
<td></td>
<td>26+ years</td>
</tr>
<tr>
<td>5. AGE OF MARRIAGE (MOTHER)</td>
<td>Below 18 years</td>
</tr>
<tr>
<td></td>
<td>18-19 years</td>
</tr>
<tr>
<td></td>
<td>20-21 years</td>
</tr>
<tr>
<td></td>
<td>22-23 years</td>
</tr>
<tr>
<td></td>
<td>24-25 years</td>
</tr>
<tr>
<td></td>
<td>26+ years</td>
</tr>
</tbody>
</table>
3.7.1 SCORING OF C.M.I.

The scoring procedure for the Modernization inventory included both positive as well as negative items. The maximum score for a positive item was 5 and least was 1. In case of negative items the scoring procedure was to be reversed.

TABLE 3.7.1.1 DISTRIBUTION OF ITEMS ACCORDING TO RESPONSE

<table>
<thead>
<tr>
<th>Response Category</th>
<th>Positive Items</th>
<th>Negative Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Extremely agree</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>2. Agree</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3. Undecided</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4. Disagree</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>5. Strongly Disagree</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

The area-wise and type-wise distribution of items is presented in table 3.4.

TABLE 3.7.1.2 AREA-WISE AND TYPE-WISE DISTRIBUTION OF ITEMS

<table>
<thead>
<tr>
<th>Area</th>
<th>Type</th>
<th>S.No. of Items</th>
<th>Type</th>
<th>S.No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Education</td>
<td>Positive</td>
<td>1,13,18,32</td>
<td>Negative</td>
<td>3,12,19</td>
</tr>
<tr>
<td>2. Parent-child relations</td>
<td>Positive</td>
<td>2,16,30,31,44</td>
<td>Negative</td>
<td>17,43</td>
</tr>
<tr>
<td>3. Politics</td>
<td>Positive</td>
<td>4,21,33,45</td>
<td>Negative</td>
<td>5,20,26</td>
</tr>
<tr>
<td>4. Status of Woman</td>
<td>Positive</td>
<td>6,22,34</td>
<td>Negative</td>
<td>7,9,23,35</td>
</tr>
<tr>
<td>5. Marriage</td>
<td>Positive</td>
<td>8,35,37,47</td>
<td>Negative</td>
<td>24,36,38</td>
</tr>
<tr>
<td>6. Religion</td>
<td>Positive</td>
<td>10,27,39,49</td>
<td>Negative</td>
<td>11,26,40</td>
</tr>
<tr>
<td>7. Socio-cultural</td>
<td>Positive</td>
<td>15,29,41,42,48</td>
<td>Negative</td>
<td>14,28</td>
</tr>
</tbody>
</table>
The seven dimensions were then scored. Sum of the total score on seven dimensions gives the total modernization score.

<table>
<thead>
<tr>
<th>AREA</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The modernization score for each respondent was thus computed.

3.7.2 SCORING OF D.R.S.

The scoring of Dimensions of Rigidity Scale (DRS) was done in accordance with the scoring key provided in the manual. One score was given zero score. The responses are given in Table 3.7.2.1.
## TABLE 3.7.2.1 SCORING KEY FOR DRS

<table>
<thead>
<tr>
<th>Name of the Dimension</th>
<th>Yes Response (Items-Yes)</th>
<th>No Response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual Rigidity</td>
<td>1,10,11,21,22,28,</td>
<td>32</td>
<td>12</td>
</tr>
<tr>
<td>(A)</td>
<td>47,48,58,59,69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Rigidity</td>
<td>2,3,12,13,23,24,40</td>
<td>33,39,50,60</td>
<td>14</td>
</tr>
<tr>
<td>(B)</td>
<td>49,61,70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispositional Rigidity</td>
<td>5,14,15,25,26,34,</td>
<td>4,62</td>
<td>14</td>
</tr>
<tr>
<td>(C)</td>
<td>41,42,51,52,63,71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Rigidity</td>
<td>6,16,17,27,28,35,</td>
<td>53,65</td>
<td>12</td>
</tr>
<tr>
<td>(D)</td>
<td>43,54,64,72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural Rigidity</td>
<td>7,18,29,36,44,55,</td>
<td>---</td>
<td>7</td>
</tr>
<tr>
<td>(E)</td>
<td>66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptual Rigidity</td>
<td>8,19,30,56,67,74</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>(F)</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creative Rigidity</td>
<td>9,20,37,57,68,73</td>
<td>31,46</td>
<td>8</td>
</tr>
<tr>
<td>(G)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The scores for each dimensions was computed. Total rigidity score was calculated as the sum of scores obtained on each dimension as given in the Table 3.7.2.2.
TABLE 3.7.2.2 SCORING TABLE FOR DRS

<table>
<thead>
<tr>
<th>AREA</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCORE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thus, scoring of questionnaire and the inventory and scale were done as illustrated.

3.8 STATISTICAL TECHNIQUES USED FOR THE ANALYSIS OF DATA

3.8.1 CONTENT ANALYSIS

The statistical analysis applied for analysis of data obtained on the questionnaire was the Chi-square test.

The equation for chi-square \((x^2)\) is stated as follows:

\[ x^2 = \sum \frac{(fo - fe)^2}{fe} \]

(chi-square formula for testing agreement between observed and expected results) in which \(fo\) = frequency of occurrence of observed or experimentally determined facts;

\(fe\) = expected frequency of occurrence on some hypothesis.

The chi-square test was applied for all items in the questionnaire to compare experimentally obtained results with those to be expected theoretically.
3.8.2 ANALYSIS OF DATA OBTAINED ON INVENTORY AND SCALE

The scores on inventory and scale were analysed using following statistical techniques.

3.8.2.1 MEAN

The mean value was computed as a measure of central tendency of distribution of modernization and rigidity scores. The mean was calculated by the formula:-

\[
\text{Mean} = \frac{(\Sigma fx^2)}{N} + AM + \frac{1}{N} x i
\]

where AM = Assumed Mean

\[fx^2\] = correction

\[i\] = size of class interval

3.8.2.2 STANDARD DEVIATION

The standard deviations for each sub-group of modernization and rigidity scores was calculated by the formula -

\[
\text{S.D.} = i \left(\frac{\Sigma fx'^2}{N}\right) - \frac{\Sigma (fx')^2}{N}
\]

where \[i\] = size of class interval

\[\Sigma fx'^2\] = sum of squares of the deviations from assumed mean

\[\Sigma fx'\] = sum of deviations from assumed mean.

3.8.2.3 ANALYSIS OF VARIANCE

The statistical analysis applied was analysis of
variance. The means obtained on the subgroups could be compared by this method and the significance of differences could be demonstrated.

The first step is the breakdown of the total variance ($\sigma^2$) of all the scores into two parts. (1) the variance attributable to the different conditions or the variance among the means of subgroups, and (2) the variance arising from individual differences within the subgroups. The next step is to determine whether the group means differ significantly in view of the variability within the separate groups (individual differences).

### 3.8.2.4 t-TEST

This was calculated to test the separate differences between the means of separate groups. The formula used was:

$$\quad t = \frac{M_1 - M_2 - 0}{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}$$

where $M_1 \sim M_2$ - Mean difference of the two groups

$\sigma_1^2$ - square of the S.D. of group 1

$\sigma_2^2$ - square of the S.D. of group 2

$N_1$ - Number of respondents in group 1

$N_2$ - Number of respondents in group 2