The study was conducted on the technician middle management population of the textile industry. From sixty member mills of ATIRA in Ahmedabad, the study was undertaken in five composite mills. The five mills could be treated as representative of the Ahmedabad textile industry in terms of quantity of production, profitability, quality, counts, personnel policies, etc. These mills were all family managed, having similar and comparable organizational structure (See Figure 4). The sampling of mills ensured that there had been no change in management or ownership in the past five years, as such changes are likely to have considerable impact on a mill's culture, tradition or climate. Further, none of these mills was on the verge of closure due to poor performance or any other reason. The main characteristics of the mills are shown in Table 3.

The study covered technicians in the sample mills from the technical/production departments listed below:

1. Spinning
2. Weaving
3. Bleaching-Finishing
4. Dyeing
5. Printing
6. Engineering
7. Quality Control
8. Laboratory
TABLE 3: MAIN CHARACTERISTICS OF MILLS

<table>
<thead>
<tr>
<th></th>
<th>Number of Spindles</th>
<th>Number of Looms</th>
<th>Average Number of workers employed daily (All shifts)</th>
<th>Paid up Capital Rupees (in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Automatic</td>
<td>Automatic</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Mill A</td>
<td>36868</td>
<td>706</td>
<td>706</td>
<td>2637</td>
</tr>
<tr>
<td>Mill B</td>
<td>31088</td>
<td>504</td>
<td>504</td>
<td>1540</td>
</tr>
<tr>
<td>Mill C</td>
<td>38624</td>
<td>536</td>
<td>228</td>
<td>764</td>
</tr>
<tr>
<td>Mill D</td>
<td>33504</td>
<td>473</td>
<td>180</td>
<td>653</td>
</tr>
<tr>
<td>Mill E</td>
<td>29184</td>
<td>528</td>
<td>528</td>
<td>1767</td>
</tr>
</tbody>
</table>

The term 'technician' is restricted to designations such as laboratory assistant, supervisor, junior assistant, senior assistant and departmental head. Those are the designations found in a traditional mill set-up (See Figure 4). The clerical and operative staff working in these technical/production departments were not included in the study.

Only technicians who had a minimum of one year's experience in the textile industry and a minimum of six months experience in the mill studied were included in the study. Except for a small number of technicians who were on leave during the data collection phase, the study covered all others qualifying for inclusion.

About three hundred technicians were thus covered in the study; however, complete information on all the variables was available from 289 techni-
cians from the five mills. The department-wise and designation-wise dis-
tributions of respondents from each mill are presented in Table 4 and
Table 5, respectively.

**TABLE 4: DISTRIBUTION OF RESPONDENTS BY DEPARTMENT**

<table>
<thead>
<tr>
<th>Department</th>
<th>Spinning</th>
<th>Weaving</th>
<th>Bleaching-Finishing</th>
<th>Dyeing</th>
<th>Printing</th>
<th>Engineering</th>
<th>Quality Control</th>
<th>Laboratory</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mill A</td>
<td>8</td>
<td>9</td>
<td>8</td>
<td>9</td>
<td>1</td>
<td>9</td>
<td>3</td>
<td>5</td>
<td>52</td>
</tr>
<tr>
<td>Mill B</td>
<td>9</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>49</td>
</tr>
<tr>
<td>Mill C</td>
<td>12</td>
<td>18</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Mill D</td>
<td>10</td>
<td>21</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>68</td>
</tr>
<tr>
<td>Mill E</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>65</td>
<td>31</td>
<td>33</td>
<td>22</td>
<td>38</td>
<td>29</td>
<td>24</td>
<td>289</td>
</tr>
</tbody>
</table>

**TABLE 5: DISTRIBUTION OF RESPONDENTS BY DESIGNATION**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Supervisor</th>
<th>Junior Assistant</th>
<th>Senior Assistant</th>
<th>Departmental Head</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mill A</td>
<td>26</td>
<td>13</td>
<td>7</td>
<td>6</td>
<td>52</td>
</tr>
<tr>
<td>Mill B</td>
<td>18</td>
<td>10</td>
<td>13</td>
<td>8</td>
<td>49</td>
</tr>
<tr>
<td>Mill C</td>
<td>20</td>
<td>24</td>
<td>19</td>
<td>8</td>
<td>71</td>
</tr>
<tr>
<td>Mill D</td>
<td>21</td>
<td>21</td>
<td>19</td>
<td>7</td>
<td>68</td>
</tr>
<tr>
<td>Mill E</td>
<td>14</td>
<td>12</td>
<td>16</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>79</td>
<td>74</td>
<td>36</td>
<td>289</td>
</tr>
</tbody>
</table>

The main features of the demographic variables of the sample are
presented in Tables 6 to 8.
<table>
<thead>
<tr>
<th>Age (Yrs)</th>
<th>Mill A (N=52)</th>
<th>Mill B (N=49)</th>
<th>Mill C (N=71)</th>
<th>Mill D (N=68)</th>
<th>Mill E (N=49)</th>
<th>Total (N=289)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>42.58</td>
<td>12.34</td>
<td>39.04</td>
<td>10.70</td>
<td>36.35</td>
<td>9.29</td>
<td>36.93</td>
</tr>
<tr>
<td>Tenure in Present Mill (Yrs.)</td>
<td>14.33</td>
<td>12.48</td>
<td>8.73</td>
<td>7.42</td>
<td>11.66</td>
<td>7.93</td>
</tr>
<tr>
<td>Experience on Present Designation (Yrs.)</td>
<td>11.02</td>
<td>9.15</td>
<td>8.26</td>
<td>7.18</td>
<td>7.75</td>
<td>8.81</td>
</tr>
<tr>
<td>Experience in Textile Industry (Yrs.)</td>
<td>20.15</td>
<td>12.64</td>
<td>15.75</td>
<td>10.33</td>
<td>13.34</td>
<td>8.64</td>
</tr>
<tr>
<td>Monthly Salary (Rs.)</td>
<td>1442.92</td>
<td>671.07</td>
<td>1511.06</td>
<td>659.87</td>
<td>1592.14</td>
<td>884.08</td>
</tr>
</tbody>
</table>
## TABLE 7: EDUCATIONAL LEVEL OF RESPONDENTS*
(HIGHEST QUALIFICATION)

<table>
<thead>
<tr>
<th></th>
<th>Mill A N = 52</th>
<th>Mill B N = 49</th>
<th>Mill C N = 71</th>
<th>Mill D N = 68</th>
<th>Mill E N = 49</th>
<th>Total N=289</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Leaving Certificate</td>
<td>8 (15.38)</td>
<td>2 (4.08)</td>
<td>1 (1.41)</td>
<td>3 (4.41)</td>
<td>3 (6.12)</td>
<td>17 (5.83)</td>
</tr>
<tr>
<td>Technical Certificate</td>
<td>17 (32.69)</td>
<td>14 (28.57)</td>
<td>11 (15.49)</td>
<td>11 (16.18)</td>
<td>13 (26.53)</td>
<td>66 (22.84)</td>
</tr>
<tr>
<td>Technical Diploma</td>
<td>7 (13.46)</td>
<td>7 (14.28)</td>
<td>20 (28.17)</td>
<td>16 (23.53)</td>
<td>14 (28.57)</td>
<td>64 (22.14)</td>
</tr>
<tr>
<td>Graduate</td>
<td>13 (25.00)</td>
<td>19 (38.77)</td>
<td>10 (14.08)</td>
<td>6 (8.82)</td>
<td>7 (14.28)</td>
<td>55 (19.03)</td>
</tr>
<tr>
<td>Graduate + Certificate/Diploma</td>
<td>3 (5.77)</td>
<td>6 (12.24)</td>
<td>8 (11.27)</td>
<td>14 (20.59)</td>
<td>6 (12.24)</td>
<td>37 (12.80)</td>
</tr>
<tr>
<td>Graduate Engineers/Textile Engineers</td>
<td>0</td>
<td>0</td>
<td>16 (22.53)</td>
<td>6 (8.82)</td>
<td>3 (6.12)</td>
<td>25 (8.65)</td>
</tr>
<tr>
<td>Double Graduate/Post-graduate</td>
<td>4 (7.69)</td>
<td>1 (2.04)</td>
<td>5 (7.04)</td>
<td>12 (17.65)</td>
<td>3 (6.12)</td>
<td>25 (8.65)</td>
</tr>
</tbody>
</table>

* Values in brackets are % of mill samples
TABLE 8: NUMBER OF JOBS CHANGED BY RESPONDENTS*

<table>
<thead>
<tr>
<th></th>
<th>Mill A</th>
<th>Mill B</th>
<th>Mill C</th>
<th>Mill D</th>
<th>Mill E</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 52</td>
<td>N = 49</td>
<td>N = 71</td>
<td>N = 68</td>
<td>N = 49</td>
<td>N = 289</td>
</tr>
<tr>
<td>No Change</td>
<td>14 (26.92%)</td>
<td>20 (40.82%)</td>
<td>36 (50.70%)</td>
<td>19 (27.94%)</td>
<td>11 (22.44%)</td>
<td>100 (34.60%)</td>
</tr>
<tr>
<td>One Change</td>
<td>16 (30.77%)</td>
<td>10 (20.40%)</td>
<td>21 (29.58%)</td>
<td>21 (30.88%)</td>
<td>12 (24.49%)</td>
<td>80 (27.68%)</td>
</tr>
<tr>
<td>Two Changes</td>
<td>6 (11.53%)</td>
<td>3 (6.12%)</td>
<td>11 (15.49%)</td>
<td>11 (16.18%)</td>
<td>7 (14.28%)</td>
<td>38 (13.15%)</td>
</tr>
<tr>
<td>Three Changes</td>
<td>8 (15.38%)</td>
<td>4 (8.16%)</td>
<td>2 (2.82%)</td>
<td>7 (10.29%)</td>
<td>12 (24.49%)</td>
<td>33 (11.42%)</td>
</tr>
<tr>
<td>Four Changes</td>
<td>2 (3.84%)</td>
<td>5 (10.20%)</td>
<td>1 (1.41%)</td>
<td>7 (10.29%)</td>
<td>3 (6.12%)</td>
<td>18 (6.22%)</td>
</tr>
<tr>
<td>Five or more</td>
<td>6 (11.53%)</td>
<td>7 (14.28%)</td>
<td>0 (0%)</td>
<td>3 (4.41%)</td>
<td>4 (8.16%)</td>
<td>20 (6.92%)</td>
</tr>
</tbody>
</table>

* Values in bracket are % of mill samples.

DATA COLLECTION

In each mill a preliminary meeting was held with the manager and departmental heads, in which the background of the study, the objectives and the procedural steps were explained to them. Care was taken to clarify doubts and remove misgivings regarding the end uses of the data. The departmental heads were then requested to allow their supervisory staff to take part in the study. This meeting helped greatly in obtaining the required co-operation and in arranging sessions for the administration of the scales.
For the actual data collection, technicians were called in groups at an appointed time (within the mill promises) and requested to respond to the instruments. Generally, the group size was 15 to 20 members at a time. Those who were on duty during the third shift also came at specified times to take part in the study. All respondents took the scales and questionnaires in the presence of the researcher so that difficulties and doubts, if any, could be clarified immediately. The purpose of the study was explained to the group, the confidentiality of their responses was assured, and the required instructions regarding the instruments were provided. The respondents usually took about one hour to complete the task.

ANALYSIS

We may recall the aims, objectives and scope of the study outlined in Chapter V and consider a suitable plan of analysis to serve the stated objectives. With the software packages currently available for analysis in social science research, the project data could be subjected to statistical treatment to an almost infinite degree of detail. Therefore an early task in the design of the study was to conceive a concise plan of analysis with considerable care even before the data collection had commenced. Such a plan had two clear categories of statistical analyses to be carried out.

1. The main thrust
2. Supplementary analyses for explorations around the main thrust
The entire flow chart and the plan of analysis are presented in Figure 6. The rationale of the main thrust may now be considered.

MAIN THRUST

Many researchers have suggested that environmental features would vary from culture to culture, organization to organization and from sample to sample. What then constitutes climate? Or what are the dimensions of climate for technicians in the textile industry? Similarly, how do they perceive their work and what are the relevant dimensions of job design?

Sims and LaFollette (1975) pointed out the dangers of blind acceptance of previously developed climate scales, as a priori dimensions of climate may vary from situation to situation.

Muchinsky (1976) also discussed similarities and differences in findings reported by others regarding the factor structure of the Litwin and Stringer climate scales and concluded that specific factors unique to each study are due to basic discrepancies in organizational values and culture. Following this line of argument Padaki and Gandhi (1981) factor analysed the Litwin and Stringer scales and found four factors, namely, a general climate factor, responsibility, risk and performance standards. In the past some attempts have also been made to examine the job characteristics dimensions of Hackman and Oldham's Job Diagnostic Survey (Dunham, 1976; Dunham, et.al., 1977).
In the light of the given background in climate studies, the main thrust of the present study may be stated in the following terms:

1. We have a set of instruments used widely in climate studies with some consistency of results.

2. What refinements to hypotheses available are possible -
   (a) through a cross-cultural replication in a large, relatively homogeneous sample?
   (b) with alternative procedures in statistical analyses?

3. Retaining the perceptual-phenomenological basis of the interaction model, to explore the factorial structure of perceptions relating to the organizational environment.

4. Following from above, to determine through multiple regression tests which scales/dimensions might constitute -
   (a) the independent variables;
   (b) the intermediate variables;
   (c) the dependent variables;

5. To explore the role of personality in the interaction model.

6. To explore the implications of intra-group variability in climate perceptions.
The plan of analysis given below and the flow chart presented in Figure 5 may thus be seen in the light of the research questions posed above. The researcher had access to an IBM 360/44 computer for all the analyses. A part of the software was available in standard social science packages at the computer centre and a part of it was required to be written as fresh programmes. A small number of statistical tests was carried out at the desk.
PLAN OF ANALYSIS

I. Descriptive Statistics:

1. For each of the variables on which data are gathered, conduct the following routine assessments of central tendencies for the total sample:

   (i) Test normality or otherwise of distributions
   (ii) Means and/or medians
   (iii) Variances/standard deviations

2. Repeat above for alternate groupings:

   (i) Mill-wise
   (ii) Department-wise
   (iii) Designation-wise

3. Identify appropriate parametric or non-parametric tests for inferential statistics according to distributions found in Step 1 above.

II. Inferential Statistics:

1. Preparatory inter-correlations among all of the variables under study:
2. Factor Analysis:

(i) Together
   - 7 scales of Job Characteristics from JDS
   - 9 scales of OC

(ii) Separately - 7 scales of Job Characteristics

(iii) Separately - 9 scales of OC

3. Review Findings:

(i) If factorial structure in line with assumed model,
   go to multiple regression at Step 7

(ii) If factorial structure ambiguous or not in line with
     model, go to factor analysis at Step 4

4. Factor Analysis:

Together - assumed independent variables with assumed intermediate variables; viz.

(a) 7 scales of Job Characteristics
(b) 9 scales of OC
(c) 3 scales of Psychological States/experiences (from JDS)
(d) 7 Job satisfaction scales (from JDS)
Revised assumption: all of the above variables together contribute perceptual states.

5. Review Findings:

(i) If factorial structure discernible, attempt multiple regression at Step 6.

(ii) If factorial structure ambiguous, proceed to Step 10

6. Multiple Regression

- Factors derived from Step 5 as independent variables
- Supervisory Ratings as dependent variables

Proceed to Step 10

7. Multiple Regression:

- Factors derived at Step 2 as independent variables
- Assumed intermediate and dependent variables together as dependent variables; viz.
  
  (a) 3 scales of psychological states/experiences
  (b) 7 job satisfaction scales
  (c) Supervisory Ratings
8. Review Findings:

(i) If all dependent variables accounted for, proceed to Step 10

(ii) If some dependent variables not accounted for, go to Step 9

9. Multiple Regression:

- Scales accounted for as dependent variables in Step 7 as independent variables
- Scales not accounted for as dependent variables in Step 7 as dependent variables

Proceed to Step 10

10. Differences on account of personality:

(i) Preparatory: Separate 2 contrast groups in locus of control from total samples -
- Upper quartile, internal locus of control
- Lower quartile, external locus of control
(ii) Test differences in distribution between the 2 contrast groups on -

(a) Job Characteristics | Factors - if any, as derived at Step 2
(b) OC | Scales - if no factors derived
(c) Motivational Potential Score (from JDS)
(d) Psychological states/experiences - 3 scales
(e) Job satisfaction - 7 scales

(iii) Supplementary Analyses:

1. Analysis of Variance: Test inter-mill differences on -
   (a) Factors, if any, derived at Step 2 of inferential statistics
   (b) Job Characteristics scales
   (c) OC scales
   (d) Job satisfaction - 7 scales
   (e) Psychological states/experiences - 3 scales
   (f) Motivational Potential Score

2. Repeat ANOVA above for inter-department differences.
3. Repeat ANOVA above for inter-designation differences.

4. Test inter-mill differences in variance of -
   (a) distributions in Job Characteristics scales
   (b) distributions in OC scales
   (c) distributions in factors, if any, derived at Step 2 of inferential statistics

NOTES ON THE ANALYSIS

The plan of analysis described above requires explanation on two important points.

Hackman and Oldham (1976) referred to a Job Characteristics Model (See Figure 2) in which the independent, intervening, and dependent variables are all identified from scales within the JDS.

In examining the concept of OC within the framework of an interaction model and, more specifically, in the use of the JDS and OC instruments available for the study of organization related variables, the a priori assumption that immediately suggests itself is that the scales and sub-scales of both the instruments should be regarded as providing subjective assessments of organizational variables. Further, since they are both self reporting
FIGURE 5: FLOW CHART - PLAN OF ANALYSIS*

I. DESCRIPTIVE STATISTICS
   - Step 1: Central tendencies
   - Step 2: Inter Correlations

II. INFERENTIAL STATISTICS
   - Step 3: Factor analysis
     - Job characteristics
     - OC scales
   - Step 4: Multiple regression
     - All JDS Scales
     - OC Scales

III. SUPPLEMENTARY ANALYSIS
   - Step 6: Multiple regression
     - Supervisory ratings as dependent variables
   - Step 7: Multiple regression for intermediate variables
   - Step 9: Multiple regression for dependent variables

Alternative Paths
Path taken

* Review steps omitted in diagram
instruments, it would be legitimate to treat the scales from the two instruments together for a factorial study of the structure of perception. Such a factor analysis would indicate, among other things, the validity of the construct of climate.

Secondly, while the model in Figure 2, depicts the psychological states and experiences from the organizational environment as "intermediate" variables and outcomes (the affective states of satisfaction) as "dependent" variables. In the present study the analysis has treated the two sets of attributes above along with behavioural outcomes (as assessed by supervisory ratings) for a fresh multi-variate explorations of the intermediate and dependent variables.