Chapter 5

The Methodology
5.1 The Problem

Presently information technology is one of the best performing as well as one of the fastest growing sectors of the Indian economy. Information technology jobs are high pressure and demanding ones. Earlier studies done in this sector have highlighted the stressful nature of information technology job. Keeping in view the importance of this sector in the economy of India, there is a need to probe deeper into this problem and understand the nature of stress in information technology sector. The present study aims to find the intensity and nature of stress in this sector. This would help in proposing strategies to tackle stress in this important sector of the Indian economy.

5.2 Objectives

This study aims at understanding the phenomenon of occupational stress among information technology professionals in Indian private sector. Some of the stressors afflicting information technology professionals are common to other professional groups. Still, some stressors are unique to this occupational group. The present study attempts to investigate and understand the true nature of role stress
among information technology professionals. Specifically, the present study seeks to:

1. Investigate the nature and dynamics of role stress among information technology professionals,

2. Identify the specific stressors causing stress in the information technology professionals,

3. Compare and contrast the nature and dynamics of stress among information technology professionals vis-à-vis other occupational groups,

4. Explore differences, if any, in the quantum and nature of stress among the private sector information technology professionals with respect to independent variables like, length of service, age, marital status, working status of the spouse, hierarchical levels, educational level etc.

5. Propose suitable human resource development intervention to help private sector employees cope with stress.

5.3 Hypotheses

Keeping in view the above-mentioned objectives of the study, the following null hypotheses were framed:

Ho 1 there is no difference in the nature and quantum of stress among information technology professionals vis-à-vis other occupational groups
Ho 2 there is no difference in quantum and type of stress among male and female respondents.

Ho 3 there is no difference in quantum and type of stress among respondents having different marital status.

Ho 4 there is no difference in quantum and type of stress among respondents having working and non-working spouses.

Ho 5 there is no difference in quantum and type of stress among professionals having different age.

Ho 6 there is no difference in quantum and type of stress between different hierarchical levels.

Ho 7 there is no difference in the quantum and type of stress among respondents with varying level of education.

5.4 Research Design

The study uses a descriptive research design. Many researches have been conducted in India wherein the intensity of stress as well as the nature of stressors have been identified. Prof. Udai Pareek has developed an instrument for specifically measuring the stressors causing stress. This instrument called Organisational Role Stress Scale (ORS Scale) has been used in this study.
ORS is a widely used instrument in various occupational groups. The advantage of using a standard questionnaire is that it is designed to yield reliable information (Lawrence, 1995, 10). Further it ensures cross-occupational comparisons and provides an opportunity to compare scores of a particular occupational group in different time frames.

### 5.5 Data Collection Instruments

For the purpose of this study, three data collection tools have been used:

#### 5.5.1 Organisational Role Stress Scale

The primary data collection instrument used is the Organisational Role Stress Scale developed by Prof. Udai Pareek (1983a). It is a widely used instrument to measure ten stressors. The scale contains five items for each stressor i.e. a total of 50 statements, and uses a 5-point scale, having a range of 0 to 4. Thus, the total score on each role stress ranges from 0 to 20 and the total ORS score from 0 to 200. To get the total scores for each role stress, the ratings given are totaled horizontally (for five items) and entered on the space given for this purpose.

The ORS scale has high reliability and validity. This instrument gives data about different role stresses experienced by a respondent. Analysis of data collected can help in identifying potent stressors in an occupational group. On the basis of this analysis, strategies can be suggested to manage and reduce stress (Pareek, 1997, 345). To develop the 'ORS Scale', a group
of managers were interviewed to find out the stresses they experienced in their roles. These managers were asked to write down the type of stressors they experienced in their organisational roles. Based on their description, eight role stresses were identified and a list of six items for each role stress was developed. This list was tested on 20 managers and was modified in the light of the responses. The final instrument called ‘Your Feelings About Your Role’ consisted of 40 items, 5 for each of eight types of role stresses. Later, two role stresses were split further. Role ambiguity was split into role ambiguity and role expectation conflict. Role inadequacy was split into resource inadequacy and personal inadequacy. Therefore, ten additional items were included in the scale. This new scale was named the ‘ORS Scale’.

Sen (1981) calculated the test-retest reliability of the scale for a group of 500 bank employees. This reliability is available for seven role stressors and overall role stress.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Level of Significance</th>
</tr>
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<tbody>
<tr>
<td>1. Self role distance</td>
<td>0.45</td>
<td>.001</td>
</tr>
<tr>
<td>2. Inter role distance</td>
<td>0.58</td>
<td>.001</td>
</tr>
<tr>
<td>3. Role stagnation</td>
<td>0.63</td>
<td>.001</td>
</tr>
<tr>
<td>4. Role ambiguity</td>
<td>0.65</td>
<td>.001</td>
</tr>
<tr>
<td>5. Role overload</td>
<td>0.53</td>
<td>.001</td>
</tr>
<tr>
<td>6. Role erosion</td>
<td>0.37</td>
<td>.003</td>
</tr>
<tr>
<td>7. Role inadequacy</td>
<td>0.58</td>
<td>.001</td>
</tr>
<tr>
<td>8. Total role stress</td>
<td>0.73</td>
<td>.001</td>
</tr>
</tbody>
</table>

Source: Pareek, 1983c
The ORS scale is a comprehensive tool to elicit data about different role stressors afflicting a respondent. It covers a range of stressors that may be experienced by an occupational group. Specifically this instrument covers a range of ten role stressors. A brief description of these stressors is given below:

1. **Inter Role Distance (IRD):** Conflict between the organisational and non-organisational roles.

2. **Role Stagnation (RS):** Feeling of being stuck in the same role. It results into perception that there is no opportunity for one's career progression.

3. **Role Expectation Conflict (REC):** Conflicting expectations or demands by the different role senders i.e. the significant others who have expectations from the role.

4. **Role Erosion (RE):** Feeling that functions that should belong to incumbent's role are being transferred / performed or shared by other roles. It is a feeling of responsibility without power.

5. **Role Overload (RO):** Feeling that too much is expected from the role than what the occupant can cope with. It has two aspects - quantitative and qualitative.

6. **Role Isolation (RI):** Lack of linkages of one's role with other roles in the organisation.
7. **Personal Inadequacy (PI):** Lack of knowledge, skills or adequate preparation to be effective in a particular role.

8. **Self-Role Distance (SRD):** Conflicts of one’s values and self-concepts with the requirements of the organisational role.

9. **Role Ambiguity (RA):** Lack of clarity about expectations of others from the role, or lack of feedback on how performance is regarded by others. It may be in relation to the activities, priorities, norms or general expectations.

10. **Resource Inadequacy (RIn):** Non-availability of resources needed for effective role performance.

5.5.2 Checklist

The open ended checklist contained five questions. The five open-ended questions asked were:

*Question #1*: What do you find most bothersome in your job?

It was aimed at eliciting respondent’s opinion on aspects of their job that they find stressful.

*Question #2*: What, in your opinion, is most bothersome for your colleagues at the same level as yours?

The *Question #2* was aimed at corroborating the responses of *Question #1*. At times respondents do not like to share something that causes worry to them.
However, they find it easy to share those stressful factors in the context of others.

While these two questions aimed at assessing respondent's feelings regarding stressful aspects of their jobs generally, the Question # 3 was more specific.

Question # 3: Please describe the last time you felt particularly uncomfortable in your job?

Question # 4 is the reverse of Question # 3.

Question # 4: Please describe the last time you felt particularly happy in your job?

Question # 3 and 4 are based on critical incident method that has been found very useful in understanding the nature of job reality in a specific job context.

Question # 5: Would you like your children to be in the same profession as yours? Yes / No. Specify reasons.

This question aims at assessing respondents overall feeling of satisfaction / dissatisfaction with their job and profession. However, this was asked indirectly in the belief that if the respondents find their job generally satisfying they would like their children also to pursue a career in the same profession. However, if they are dissatisfied they may tolerate the job for themselves but would not like their children to go through the same grind. It was expected that this question would help elicit true feelings of the respondents regarding their profession.
Content analysis was carried out for these responses. After carefully scanning the respondents' opinion, the broad categories were formed and similar responses were put together in the same category. At times respondents use different words to express essentially same feelings. The researcher used his subjective assessment to put a particular response in a particular category.

5.5.3 Bio-data Questionnaire

Besides the Organisational Role Stress Scale and open-ended Checklist, a Biodata questionnaire was also used. The Biodata questionnaire contained questions that yielded personal information about the respondents.

5.6 The Sample

The study initially included 400 IT professionals. The questionnaire was distributed among them. Out of this 294 returned the filled questionnaire. Out of the filled questionnaire, 37 were rejected (were not included in the analysis) because of incomplete information. 257 questionnaires, fully and correctly filled, were finally selected for analysis. Thus, 257 is the sample size of this study. The sample comprised of 138 men and 119 women. Out of these 86 men and 59 women were unmarried i.e. a total of 145 were unmarried. There were 102 married respondents comprising of 52 men and 60 women. The sample for this study was selected from 8 different information technology organisations. A complete list of the organisations from which the sample was drawn is shown in Table 5.2.
Table 5.2: List of Organisations

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NIIT</td>
</tr>
<tr>
<td>2</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>3</td>
<td>ST Microelectronics</td>
</tr>
<tr>
<td>4</td>
<td>Patni Computer Systems</td>
</tr>
<tr>
<td>5</td>
<td>Hughes Software Solutions</td>
</tr>
<tr>
<td>6</td>
<td>HCL Technologies</td>
</tr>
<tr>
<td>7</td>
<td>Parsec Technologies</td>
</tr>
<tr>
<td>8</td>
<td>IGT Solutions</td>
</tr>
</tbody>
</table>

The sample is from and Delhi and National Capital Region (NCR) including Gurgaon and Noida. Ease of conducting survey and ensuring high response rate also guided the decision to restrict the geographical area of the study. However, every possible care has been taken to ensure representation of population in the sample. The method of purposive sampling was adopted to draw the sample. Drawing of sample through random sampling procedure is desirable but even in pure experimental research it is a difficult proposition. According to Broota (1989), "randomisation is necessary to ensure validity of independence assumptions, in practice, it is generally difficult to follow dictates as set forth by the theory of random sampling. Usually we include as subjects those members of the population that are easily accessible to us".

A practical way is to draw subjects at random from those subjects that are easily accessible. In the present research, the sample was drawn in terms of subjects' accessibility but it was ensured that no bias was involved in selection of subjects.
5.7 Data Sources

Both primary and secondary data has been used for the study. As mentioned above, the primary data has been collected from Delhi and National Capital Region, especially Gurgaon and Noida. For secondary data sources various information technology specific studies were scanned in various libraries. Business newspapers like Business Standard, Economic Times, etc. and Business journals such as Business World, Business India, Economic and Political Weekly, etc. were also made use of. Specifically, a major part of data was collected from the central library of Aligarh Muslim University (AMU) i.e. Maulana Azad Library (MAL), the seminar libraries of Department of Business Administration and Department of Psychology, Aligarh Muslim University. Besides the libraries of Tata Institute of Social Sciences (TISS), Mumbai, and International Islamic University (IIU), Selangor, Malaysia were of significant help to the researcher.

5.8 Pattern of Analysis

The study used a standard instrument called ORS, developed by Pareek. Pareek (1997) has also provided the norms of analysis. The analysis of the results was undertaken on the lines suggested by him. ORS is a widely used instrument for measuring stress in earlier researches on various occupational groups. The researcher followed a standard pattern of analysis. The statistical analysis of results was undertaken using mean and standard deviation. Mean is an important measure of central tendency. It is appropriate for present study because it affords comparison among means from several data sets (Levin & Rubin, 1991, 71). Standard deviation
gives additional information about spread in values in the data set. This enables us to judge the reliability of measure of central tendency. Moreover, important lessons can be drawn by comparing dispersions of various samples (Levin & Rubin, 1991, 92).

For finding significant differences among different groups of information technology professionals, the t-test and analysis of variance (ANOVA) were used. For testing the hypothesis, paired sample two test was used. When there were more than two sample means ANOVA was used to test the significance of difference. The statistical analysis was undertaken using SPSS software package. The 10.1 version was used. Use of SPSS expedited the process of data analysis. Further, through this analysis exact level of confidence was also ascertained. Precise probability values helped suggest the confidence with which the inferences were drawn from the data.

For analysis of open-ended questionnaire, content analysis was carried out. Often respondents use different words to convey similar experiences. The researcher used his judgment and similar responses were then put under common heads to have a better understanding of the problem. This helped in isolating factors that are stressful for the information technology professionals.

5.9 Limitations

Survey research study has limitations and shortcomings of their own despite the best efforts of the researcher. There are time and cost constraints as also limitations of methods employed in conducting the research. Although, every possible effort was made to minimise, if not eliminate the limitations,
this study too has its fair share of shortcomings. The major limitations of this study may be summed up as follows:

1. Cooperation of respondents is a very serious problem in a survey-based research. This was so in this study also. It was difficult to get respondent’s full cooperation because of their lack of interest. Also, the respondent’s had doubts about the utility of the study. They were of view that it is not going to help them then why should they waste their time filling up the questionnaire.

2. The computer industry has undergone many business cycles in a very short span of time. The stage of data collection took around one year. In that one year the industry first moved from comfortable growth rate to a phase of immense turmoil. This phase was characterised by large-scale layoffs in the computer industry. Besides the layoffs, a substantial number of employees were put on the benches. Also, those who were lucky enough to keep their jobs were asked to bear pay cuts upto 50 % in some sectors. By the end of the year the situation improved. The trend of the layoffs was not only arrested but organisations were again on recruitment. This general ambience of extreme uncertainty in the beginning and then recovery might have affected the responses. Therefore, there might be slight differences in the response patterns of the earlier respondents as compared to respondents covered at a later date.

3. The geographical scope of the study is restricted to Delhi and National Capital Region only. The sample of 257 was selected on the basis of standard sampling procedures
and scientific method. It would be reasonably safe to conclude that the result represented the population. Still generalisation all over India may not be possible.

4. The basic tool used for data collection was self-reporting instrument, ORS Scale (Pareek, 1983a). Generally self-reporting instruments are considered the weakest form of data collection (Nunnally, 1959). Therefore, external checks, like using a descriptive checklist and informal personal interviews of some of the respondents were conducted.

5. With the questionnaire, the respondents were provided with a sheet explaining in brief the concept of role and also the concept of ten role stressors. Also, every care was taken to administer questionnaire personally so that any doubts can be removed immediately.

6. The study was restricted to the software organisations. The hardware part of the computer industry was not taken up for this study for obvious reasons. Thus, generalisation to the whole computer industry would not be possible.

7. This study covers only the private information technology companies. The results cannot be generalized to the public sector.

India is going through information revolution thus making the information system a subsystem of a larger organisation (De Newfville, 1970). This study does not cover the IT department in the other organisations. Now, almost every company has IT department or MIS department that serves as a service
department to other departments of the organisation. Therefore, the results of this study cannot be generalized to information technology professionals working in such service departments.