Chapter 3

Research Objectives and Methodology
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The chapter states the objectives of the present study. It also describes the methodology used to examine the relationship of employee development practices with perceived employee satisfaction and thereby perceived improvement in job performance in the telecom industry. The following chapter provides a detailed explanation and description of the research design selected for this study. This chapter then describes the data collection and data analysis procedures used.

3.1. Research objectives

The objectives of the study were framed, after the extensive literature study and after learning the gaps in the existing study:

- To study the employee development practices in the two sectors of telecom industry and to make a comparative study, both on the intra-sector and inter-sector basis in the selected units.
- To assess and compare the perception of employees towards the existing employee development practices.
- To find out the perceived impact of employee development practices on employee satisfaction and thereby job performance in telecom industry.
- To find out the shortcomings in the employee development practices and to make suggestions for its improvement in the telecom industry, in general, and in the selected private and public sector telecom companies, in particular.

3.2. Research design

The purpose of the research was to assess employee development practices in the selected companies of the two sectors (private and public) of the telecom industry and to determine the impact of employee development practices. This study employed mixed type of research design. It is of an exploratory nature because there is not a significant amount of material in the literature pertaining to employee development practices with respect to telecom sector in India. The study is also descriptive because there appears to be a dearth of information in the literature regarding
employee development practices and its impact on employee satisfaction and thereby job performance of the employees.

3.3. Sample selection

The population in this study consisted of employees working in the telecom industry. The reason for choosing one industry was to reduce the variance of product, structure and processes. It was considered appropriate to take companies from the same industry so as to provide an equal platform in terms of environment and types of duties rendered in order to explore the relationship between the employee development practices and employee satisfaction and thereby improvement in job performance as perceived by the employees. Thus telecom industry which includes both private and public companies is the universe of the study. The whole public sector which includes BSNL and MTNL only and the two companies, Bharti Airtel and Aircel Ltd. from private sector from the National Capital Region (NCR) were selected for the purpose of analysis. Primary data were collected from the junior, middle and senior level employees working in the selected units of the telecom industry. A combination of purposive sampling and snowball sampling was used.

3.4. Sources of data

Data were collected from both the secondary and primary sources. Data regarding employee development practices were collected from secondary sources such as text books, journals, magazines and publications. Primary data were collected from the respondents through a structured questionnaire with sixty two questions divided in sections of demographic information, employee development practices, significance of existing employee development practices and impact of employee development practices as a whole.

3.5. Questionnaire development

A structured questionnaire was developed for the survey.

3.5.1. Mode of questionnaire development

A structured questionnaire was used to gather the desired information. Closed ended questions were included to determine the context of the research. Multiple choice questions were employed with Likert Scale so that the respondents could indicate the intensity of their perception towards the questions asked.
3.5.2. Structure of questionnaire

The survey consisted of four sections. A copy of the questionnaire is available in Appendix 1.

- Section I of the survey collected demographic data
- In Section II, respondents were asked to indicate the extent of implementation of the selected employee development practices in their respective companies.
- In Section III, respondents had to mention the perceived significance of the existing employee development practices
- Section IV, queried the perceptions about the impact of the employee development practice on employee satisfaction and in that way on job performance of the employees of the telecom industry as a whole.

3.5.3. Instruments used

The instruments used for the present study are:

3.5.3(a). Ist Instrument: Employee development practices

The survey instrument to measure the employee development practices was adapted from the “Employee Development Survey Report, 2005” by Evren Esen and Jessica Collison. According to the instrument employee development was defined as improving employee competencies and skills over the long term, through a variety of methods such as mentoring, coaching, succession planning, identification of high-potential employees, etc. Fifteen employee development practices were included in the instrument. Some of the practices were modified according to the telecom industry after conducting the pilot test on this instrument. The instrument was used to measure the extent of implementation of the selected practices. Several researchers have mentioned that a well planned training program should run all throughout the life of the organization, or it should be an ongoing process (Rabinowitz, 2013; Bean, 2008). There has been no specific explanation for the level of implementation of a particular training and development practice. Different viewpoints explain the level of implementation of a development program. For instance according to the survey results of Becker et al. (2001), organizations with high HRM quality have a higher percentage of employees in a formal plan for development, and both new and experienced employees spend more hours in training each year.
This is supported by Rabinowitz (2013), who stated, 'probably, at minimum, everyone in the organization should have the opportunity for some ongoing training at least once a month. Some organizations may conduct or sponsor ongoing training much more often, sometimes as part of a weekly or biweekly staff meeting'. Adding to this Merriam & Caffarella (1991) in their research have mentioned regarding the participation in a learning program. According to them 'participation in self-directed learning seems almost universal--in fact, an estimated 90 per cent of the population is involved with at least one self-directed learning activity a year'. Thus based on the theory it is put forward, that, a development practice implemented once in a year is considered to be somewhat frequent implementation of the practice. Any practice taking place once in more than 12 months is considered to be happening occasionally, rarely or vary rarely in the order of increasing months and similarly any development practice happening more than once a year is considered to be used frequently or very frequently in order of the decreasing months. Thus based on this respondents were as asked to rate each item on a seven point Likert Scale (1-Never, 2- once in more than 24 months, 3- once in 24 months, 4 - once in 18 months, 5 - once in 12 months, 6 - once in 6 months, and 7- once a month). Cronbach coefficient for this scale was: 0.880. Since the scale is a seven point scale, the average score for the scale is calculated to be four.

With the same instrument, perception of the employees towards the selected employee development practices was measured. For this a five point Likert Scale (1- Not at all significant, 2- Of Little significance, 3- Moderately Significant, 4- Significant, 5- Very Significant) was used. Cronbach coefficient for this scale was: 0.96. Since the scale is a five point scale, the average score for the scale is calculated to be three.

A brief description of the finally used employee development practices is as described below.

i. **Apprenticeship:** It is said to be a work based system for providing initial skills, which facilitates employer investment in employees. In India systematic apprenticeship was introduced by the Indian Railways followed by the defense department (in various ordinance factories). The Apprenticeship model is part of ‘school to work’, employability improvement, and vocational education programs in many countries world over (Report Planning Commission, 2009).
ii. **Cross cultural training:** The term ‘cross-cultural training’ refers to all modes of training and education aimed at developing cultural competence (Bean, 2008). ‘cultural competence’ refers to the awareness, knowledge, skills, practices and processes needed by individuals, professions, organizations and systems to function effectively and appropriately in situations characterized by cultural diversity in general and, in particular, in interactions with people from different cultures (Cross et al., 1989).

iii. **Development appraisal:** Developmental appraisal is an ongoing process for the employee development during the whole year. Basically, it is a compulsory part of the Performance management. This appraisal will determine the weak area of employee where employee development is required in order to improve the employee performance (Kirkpatrick, 2006). According to Bhagwat (2006), from the developmental point of view, appraisal of performance refers to anything to do with enriching employees’ attitudes, knowledge, skills, and effectiveness.

iv. **Coaching and mentoring:** Approaches for employee development include formal education, assessment, job experience, and interpersonal relationships (Noe, 2001). McCauley & Douglas (2004) categorized formal developmental relationships into five types: one-on-one mentoring, peer mentoring, formal coaching, mentoring in groups, and action learning teams (Gibson, 2005). Coaching is defined as a one-on-one relationship of trust aimed at fostering learning and professional growth, where such relationships provide the impetus for “professional breakthroughs (Haynor, 1994; Price, 2009). Increasingly, many large private, public, and voluntary sector organizations (as well as small and medium-sized businesses) use coaching as a stand-alone development solution or juxtapose coaching (Bluckert, 2004). **Formal Mentoring:** It is a company sponsored program in which the mentors are assigned to or matched with mentees (Ragins & Cotton, 1999). Mentoring in organizations has also been defined as a developmental relationship between an individual (mentee) and a more senior and influential manager or professional (mentor) (Cox, 1993). The differences between mentoring and coaching stem from who is providing the support; a mentor is typically someone higher up in the organization, while a coach can be someone in or outside the organization. For the
purposes of this discussion, we assume that the similarities between coaching and mentoring outweigh the differences and will discuss the two as a singular entity (Seidle, 2010).

v. **Career planning:** According to Bruce (1993), career is a series of jobs or positions linked by common elements like training, education etc. Career planning includes identification of career opportunities and potential identification of professional goals and objectives. It also involves determining the required initiatives, such as training and education in order to achieve the identified goals (Bruce, 1993). Herr (2001) has concluded in his research that concept of career development is based on two sets of theories, one explains the development of career behavior across the life span and the other the change of career behavior with the help of interventions.

vi. **Succession planning:** The strategic development of qualified candidates who are groomed for key positions in an organization. Succession-planning programs are an integral part of leadership initiatives that organizations implement to ensure that a cadre of qualified individuals is available to fill these key positions. While many succession-planning programs focus only on filling the positions of upper level managers, some companies also include middle and even non-managerial positions (Romejko, 2008).

vii. **High visibility assignment:** Assignments that lead to great visibility within the organization or the assignments that often lead to awards/ rewards and other forms of recognition are called high visibility assignments (Kreiger, 2013). High visibility assignment is mentioned as challenging work in which an employee can participate. It is considered to be one of the strategies that an organization can offer to employees as a way to be rewarded or recognized (Craig, 2013).

viii. **Job rotation:** Job rotation is used to refer to the planned movement of people between jobs over a period of time and for one or more than one of different purposes (Bennett, 2003). Job rotation can be considered as a variation of staffing management since it is intended to find the optimal work assignments for a given set of employees and jobs (Jaturanonda et al., 2006). From the HRM viewpoint, job rotation is the way to achieve such objectives as staffing jobs, orienting new employees, preventing job boredom, and
training employees and enhancing their career development (Cheraskin & Campion, 1996).

ix. **Job sharing:** In this method two or more people work voluntarily on one job and share the salary and benefits. Each of these people has an independent contract with the manager and their salary and bonus is clear (Gholipour et al., 2010). Job sharing is considered to be a part of flexible working system (Gholipour et al., 2010; Branine, 2004, Survey 2010, CIPD).

x. **Behavioural training:** This is a training program, designed to evaluate a behavior modeling course, related to the improvement of interpersonal skills of managers and whether employees perceived any change in the trained managers overall behavior (Burnaska, 1976). Interpersonal skills are broadly defined as “communication and relationship building competencies, employed in interpersonal interaction episodes” (Klein et. al., 2006). These skills are not specific to the technical knowledge of any particular job domain, making them highly transferrable (Cheng & Ho, 2001; Gilpin-Jackson & Bushe, 2006).

xi. **Leadership training:** This refers to a process by which the individual develops greater self-confidence, motivation, self-expression and other traits of leadership. Leadership training is a course which is designed to develop leadership qualities (McNamara & Moss, 1993).

xii. **Self directed learning:** Under this principle the emphasis is not on expertise but on personal willingness and determination to commit oneself to a process that the individual values and believes in (Burgoyne, 1977; Pedler, 1984). It is defined by Panosh (2010), as a purposeful knowledge or a skill quest designed and managed by an individual for his/her personal benefit. The individual chooses to act, decides what to do and retains implementation responsibility without outside direction though he/she may seek information and advice from others.

xiii. **E-learning:** Electronic learning (E-learning) refers to the process of learning or training online, meaning acquiring knowledge via the Internet and the Web. E-learning is seen as
a future application worldwide as it promotes lifelong learning by enabling learners to learn anytime, anywhere and at the learner’s pace (Iahad et al., 2004).

xiv. **Stretch assignment:** It is defined as an assignment that requires a worker to take a leap beyond his comfort zone and in the process he picks up new skills (Steve, 2004). Stretch assignments permit high performers to take on increased responsibilities and challenges in real-world situations, allowing them to gain incremental experience in complex management styles and structures. Such an assignment can be either a more challenging position in any department or a cross-functional move to a different business area (Brad & McLean 2002).

xv. **Stress training:** When training goes beyond the acquisition of standard, required knowledge and abilities and instead aims to prepare trainees to perform effectively in a stressful environment, it is commonly referred to as stress training or stress exposure training (Driskell & Johnston 1998). Stress exposure training focuses on developing those cognitive skills required to maintain effective performance under stress. The overall goal of training via simulation is to build confidence in staff in their own ability to perform under adverse conditions (Stetz et al. 2006; Tichon & Wallis, 2010).

3.5.3(b) 2nd Instrument: Impact of employee development practices

The seven items for the Employee satisfaction and seven items for Relevance of practices were adapted from existing scales that included the measure of the impact of Training and development on the Satisfaction of the employees as perceived by the employees (Kunder, 1998). One item Six items of Management support and five items of Job performance were adapted from Wan. L.H (2007). Out of 25 items, two items were negatively stated; (i) Employee development practices did not help me develop my skills and knowledge. (ii) I have been provided limited opportunity to move up the ranks. This was done to minimize acquiescent bias and extreme response bias (Sauro, 2011). While coding the statements, the negatively worded

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1 This is happens when users generally go on auto-pilot and agree to all statements. In a 5-point scale these would be all 4's and 5's (Sauro, 2011).
2 Participants who provide all high or all low ratings (all 5's or all 1's on a 5 point scale). This is somewhat related to the acquiescent bias except respondents basically pick the most extreme rating and provide it to many or all items (Sauro, 2011).
statements were reverse coded. Respondents were asked to rate 25 statements on a five point scale (1-Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree, and 5- Strongly Agree). Cronbach coefficient for this scale was 0.89.

3.6. Pilot testing

Once the survey was developed, a pilot testing was done to ensure its usability and validity.

3.6.1. Face validity: The questionnaires were distributed in two private telecom companies for a pilot testing with a sample size of 25 employees. This was engaged to determine if respondents found wordings of the items clear and unambiguous, and whether on the face of it, read as if it measured what it was supposed to measure (Cavana et al., 2001).

3.6.2. Content validity: The questionnaire, along with the details of above analysis was discussed with the guides and four experts and a foreign researcher. They were asked for their comments and feedback. On the basis of their recommendations and pre-testing needful changes were incorporated in the questionnaire. Following changes were there by made:

3.6.2(a). Part A- Demographic information: Changes were made in the 'education level'. Options like 'Matriculation' was found to be redundant as per the responses of the pilot study, hence was removed. Similarly a few options were added in the demographic study for the position in the company. Initially, eight options were given: Senior Manager, Manager, Senior Executive, Executive, Junior Executive, Fresh / Entry Level, Non-executive and others. It was observed the options for responses for positions were not sufficient, therefore a few more designations like: Asstt. Manager, Deputy Manager, Asstt. Vice President, Deputy Vice President, Vice President, Sr. Vice President, and General Manager were included in the options

3.6.2(b). Part B- Employee development practices: Some employee development practices were included depending on the responses of the employees selected for the pilot study. Formal identification of high-potential employees, Leadership Forums and Training other than leadership training were removed as the options. The employees were unfamiliar with these practices. A few practices like: Career planning, E-learning and Stress training were added. It was noted, the technical terms for a few practices were not understood by the respondents, and thus description of some of the practices was made for more clarity. For instance High-visibility assignments was elaborated as: opportunities to work with executives e.g., executive task forces and
Matching employees with stretch assignments/opportunities was simply written as Stretch assignment with an elaboration: working beyond the comfort zone.

3.6.2(c). **Part D Impact of employee development practices:** A few statements were deleted as they were found to be repetitive. For instance, the statement 'In general, feedback is taken after the development program' was overlapping with 'After I receive the development program, I am asked to provide feedback on how much I have learned', hence the later was retained. While coding for the Reverse coding was done for two of the statements.

Subsequently 30 respondents were asked to fill in the improved version of the questionnaire as a part of pilot testing. Thus the final questionnaire was developed with relevance and accuracy.

3.7. **Sample size**

Telecom Industry which includes both private and public companies is the Universe of the study. The whole public sector which includes BSNL and MTNL only and the two companies, Bharti Airtel and Aircel Ltd. from private sector from the NCR region were selected for the purpose of analysis. A combination of convenient sampling and snowball sampling was used. The sample size increases with increase in population variability, degree of confidence and the precision level required of the estimate (Malhotra, 2005). The size of the sample for the quantitative part was determined by using the formula.

\[ n = \left(\frac{z}{e}\right)^2 \times \sigma^2 / \epsilon^2 \]

\( \sigma \) – assumed to be 0.5 – (5 point scale assuming 10% variation)

\( z \) – confidence level of 99%, value of \( z \) is therefore 3

\( e \) – error of 0.1

Sample size \( n = 225 \)
3.8. Data collection

The final questionnaires were distributed to 400 individuals in the selected units of the private and the public sector of the telecom industry. Airtel and Aircel were chosen as the sample units from the private sector. There were 99 valid responses obtained from the employees of Airtel. There were 94 valid responses received from Aircel. Within the public sector 50 valid responses were attained from MTNL and 70 responses were achieved from BSNL. In total 313 valid responses were obtained. The response rate was 71 per cent.

Table 3.1. Summary of organization characteristics and number of respondents

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Organization</th>
<th>Ownership</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>MTNL</td>
<td>Government ownership</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>BSNL</td>
<td>Government ownership</td>
<td>70</td>
</tr>
<tr>
<td>3.</td>
<td>Bharti Airtel</td>
<td>Private ownership</td>
<td>99</td>
</tr>
<tr>
<td>4.</td>
<td>Aircel Ltd.</td>
<td>Private ownership</td>
<td>94</td>
</tr>
</tbody>
</table>

3.9. Hypothesis for testing

On the basis of the literature review, the hypothesis for the study were formed. In order to put these hypotheses for testing null hypothesis for each of these hypotheses was formulated. In upshot, following hypothesis were put to test using SPSS 16 and LISREL 8.52 (Jöreskog & Sörbom, 2002):

1. **H01:** There is no difference in the extent of implementation of the employee development practices in the private and public sectors of telecom industry.

   **H1:** There is a difference in the extent of implementation of the employee development practices in the private and public sectors of telecom industry.
2. **H0.1:** There is no difference in the extent of implementation of the employee development practices in the selected units of the private sector of telecom industry.
   
   **H1.1:** There is a difference in the extent of implementation of the employee development practices in the selected units of the private sector of telecom industry.
   
3. **H0.2:** There is no difference in the extent of implementation of the employee development practices in the selected units of the public sector of telecom industry.
   
   **H1.2:** There is a difference in the extent of implementation of the employee development practices in the selected units of the public sector of telecom industry.
   
4. **H0.2:** There is no difference in the perception of the employees towards the existing employee development practices in the private and public sectors of telecom industry.
   
   **H2.2:** There is a difference in the perception of the employees towards the existing employee development practices in the private and public sectors of telecom industry.
   
5. **H0.2.1:** There is no difference in the perception of the employees towards the existing employee development practices in the selected units of the private sector of telecom industry.
   
   **H2.1:** There is a difference in the perception of the employees towards the existing employee development practices in selected units of the private sector of telecom industry.
   
6. **H0.2.2:** There is no difference in the perception of the employees towards the existing employee development practices in the selected units of the public sector of telecom industry.
   
   **H2.2:** There is a difference in the perception of the employees towards the existing employee development practices in selected units of the public sector of telecom industry.
7. **H03**: The management support for employee development practices has no perceived impact on employee satisfaction and thereby job performance in telecom industry.

   **H3**: The management support for employee development practices has perceived positive impact on employee satisfaction and thereby job performance in telecom industry.

8. **H04**: The relevance of the employee development practices has no perceived impact on employee satisfaction and thereby job performance in telecom industry.

   **H4**: The relevance of the employee development practices has perceived positive impact on employee satisfaction and thereby job performance in telecom industry.

9. **H05**: The employee satisfaction has no perceived impact on improvement in job performance in telecom industry.

   **H5**: The employee satisfaction has perceived positive impact on improvement in job performance in telecom industry.

10. **H06**: The relationship of Management support for employee development practice with Job performance is not mediated by employee satisfaction.

    **H6**: The relationship of Management support for employee development practice with Job performance is mediated by employee satisfaction.

11. **H07**: The relationship of Relevance of employee development practice with Job performance is not mediated by employee satisfaction.

    **H7**: The relationship of Relevance of employee development practice with Job performance is mediated by employee satisfaction.
3.10. Variables

3.10.1. Independent and dependent variables

From the review of literature it was found that the employee development practice was manifested with two independent variables 1. Employee perception towards management support in organizing development program or MSDP and 2. Employee perception towards relevance of the development program for current job or RDP. The impact of these variables was determined on employee satisfaction and thereby on job performance as perceived by the employees. Thus the perceived improvement in job performance (PIJP) was the dependent variable. And the perceived employee satisfaction from development program (PESDP) acted as the mediating variable. The variables and the items within each variable have been identified through literature review.

3.10.2. Control variables

Various demographic factors can affect the impact of employee development practice at work. To make sure that the findings hold irrespective of these variables, some of the demographic variables were incorporated as control variables in the research. The demographic factors like age (in years), gender (male=1, female=2), education (Diploma=1, Bachelor Degree=2, Postgraduate Studies =3, Professional Studies =4, Other = 5), Experience (in years), Position (Fresh / Entry Level =1, Junior Executive =2, Executive =3, Senior Executive =4, Non executive =5, Asstt. Manager =6Deputy Manager =7, Manager =8, Senior Manager =9, Asstt Vice President =10, Deputy Vice President =11, Vice President =12, Sr Vice President =13, General Manager =14, others =15), Sector (Private=1, Public=2).
3.11. Hypothesized model

Figure 3.1 A hypothesized structural model

3.12. Analysis pattern

To analyse the various data set, different techniques have been adopted after considering the suitability of the problem and the objectives to be achieved. More specifically, the analysis patterns adopted in the study are:

i. Firstly, the descriptive statistics were used where the mean score for each of the fifteen employee development practice understudy was calculated for both public and private sector. To present the information for quick understanding, appropriate tables, graphs and diagram have been used in the study.

ii. For making comparison between the sectors and the companies the means were compared by using independent t-test method. The independent sample t test was run using an alpha level of 0.05, to determine if there was a significant difference in the employee development practices in the two sectors of the telecom industry. Leven’s Test was conducted to assess for equality of variances of the items. For those items whose homogeneity of variances were violated Welch Satterthwaite corrections were used.

iii. To study the perceived impact of the employee development construct, hypothesized model was established and the relationship of the independent variables and the
dependent variables was tested, Confirmatory factor analysis, Structure equation model and path analysis approach was used.

3.12.1(a) Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted in order to condense the large number of variables to a more manageable number and explore factor structure of indicators and constructs. EFA was first performed on a preselected set of variables associated with the main constructs. Factor analysis helps reveal underlying factors that can explain the pattern of correlations among a set of observed variables and assist in identifying what the factors represent conceptually. Exploratory factor analysis was performed with Maximum likelihood method. The maximum likelihood method has many advantages in that it allows researchers to compute of a wide range of indexes of the goodness of fit of the model, it allows researchers to test the statistical significance of factor loadings, calculate correlations among factors and compute confidence intervals for these parameters, (Cudeck, R., & O'Dell, L. L. 1994). In general, items with loadings of .40 or above in the exploratory factor analysis were considered for inclusion of a subscale (Hair et al., 1998; Ingersoll, 2001). The extracted factors were rotated with the promax method.

3.12.1(b) Structural Equation Modeling

Structural equation modeling (SEM) can be defined as a class of methodologies that seeks to represent hypotheses about the means, variances, and covariances of observed data in terms of a smaller number of ‘structural’ parameters defined by a hypothesized underlying conceptual or theoretical model. SEM is derived from the hybrid of factor analysis and equation modeling under the name path analysis\(^3\) (Donaldson 2001). The general form of a structural equation model as outlined by Joreskog (1973) consists of two parts: the measurement model and the structural

\(^3\) Path analysis is an extension of the regression model, used to test the fit of the correlation matrix against two or more causal models which are being compared by the researcher. Formerly path analysis was accomplished as a series of multiple linear regressions, one for each endogenous (dependent) variable. This method yielded standardized regression coefficients (beta weights) and a R-square goodness of fit for each endogenous variable, but did not yield an overall goodness of fit for the model. Now path analysis is implemented by structural equation modeling (SEM) programs, which calculate all the paths simultaneously and yield an overall goodness of fit measure for the model (Garson, 2012).
model. The measurement model which is also called the model specification and considered to be the first step in SEM, specifies the relationships among latent variables (unobserved variables or constructs) and their indicators (observed variables or manifest variables), i.e., how the latent variables are measured in terms of the observed variables, including description of the measurement properties (validity and reliability) of the observed variables (Kline, 1998). This is obtained through confirmatory factor analysis.

Given that the data collection technique employed in this study was self-reports, the threat of common method variance is present. To determine the extent of this problem, researcher has used Confirmatory Factor Analysis (CFA) to implement Harman one-factor test (Podsakoff et al. 2003). All the items were included in a one-factor model and estimated using LISREL 8.52 (Jöreskog & Sörbom, 2002). In the next step, CFA was conducted for all the constructs to confirm their dimensionality and then computed correlations among them. This helps in identifying the sources of misspecification and enhances the reliability of parameter estimates (Andrews & Kacmar 2001). To test the hypotheses, the researcher followed structural equation modelling approach using LISREL 8.52. Assessing whether a specified model ‘fits’ the data is one of the most important steps in structural equation modeling (Yuan, 2005). Model fit can be described as the model which best represents the data. There are several indicators that are used to determine the model fit. Hooper et al. (2008) has reported the most widely respected and reported fit indices in his research. According to him the fit indices can be divided into three categories: Absolute fit indices, Incremental fit indices and Parsimonial fit indices.

Absolute fit indices included in this category are the Chi-Squared test, RMSEA, GFI, AGFI, the RMR and the SRMR. The Chi-Square value is the traditional measure for evaluating overall model fit and, ‘assesses the magnitude of discrepancy between the sample and fitted covariances matrices’ (Hu & Bentler, 1999). A good model fit would provide an insignificant result at a 0.05 threshold (Barrett, 2007). It is sensitive to sample size. a statistic that minimises the impact of sample size on the Model Chi-Square is Wheaton et al’s (1977) relative/normed chi-square ($\chi^2/df$). Although there is no consensus regarding an acceptable ratio for this statistic, recommendations range from as high as 5.0 (Wheaton et al., 1977) to as low as 2.0 (Tabachnick & Fidell, 2007). The RMSEA tells us how well the model, with unknown but optimally chosen
parameter estimates would fit the populations covariance matrix (Byrne, 1998). An RMSEA in
the range of 0.05 to 0.10 was considered an indication of fair fit and values above 0.10 indicated
poor fit (MacCallum et al., 1996). Goodness-of-fit statistic (GFI) and the adjusted goodness-of-
fit statistic (AGFI). The Goodness-of-Fit statistic calculates the proportion of variance that is
accounted for by the estimated population covariance (Tabachnick & Fidell, 2007). Related to
the GFI is the AGFI which adjusts the GFI based upon degrees of freedom, with more saturated
models reducing fit (Tabachnick & Fidell, 2007). Both the GFI, values for the AGFI also range
between 0 and 1 and it is generally accepted that values of 0.90 or greater indicate well fitting
models. Root mean square residual (RMR) and standardised root mean square residual (SRMR).
The RMR and the SRMR are the square root of the difference between the residuals of the
sample covariance matrix and the hypothesised covariance model. Values for RMR range from 1
– 5 or sometimes range from 1 – 7. Values for the SRMR range from zero to 1.0 (Hooper et al.,
2008).

**Incremental fit indices** include Normed-fit index (NFI), Non-Normed Fit Index (NNFI, also
known as the Tucker-Lewis index), this statistics assesses the model by comparing the \( \chi^2 \)
value of the model to the \( \chi^2 \) of the null model. Suggested Threshold level for both is \( \geq 0.95 \).
CFI (Comparative fit index) Like the NFI, this statistic assumes that all latent variables are
uncorrelated (null/independence model) and compares the sample covariance matrix with this
null model. A cut-off criterion of CFI \( \geq 0.90 \) is acceptable.

**Parsimony fit indices** include Parsimony Goodness-of-Fit Index (PGFI) and the Parsimonious
Normed Fit Index (PNFI). No threshold levels have been recommended for these indices
(Hooper et al., 2008).

With regards to which indices should be reported, it is not necessary or realistic to include every
index included in the program’s output as it will burden both a reader and a reviewer. Given the
plethora of fit indices, it becomes a temptation to choose those fit indices that indicate the best
fit. In a review by McDonald & Ho (2002) it was found that the most commonly reported fit
indices are the CFI, GFI, NFI and the NNFI. When deciding what indices to report, going by
what is most frequently used is not necessarily good practice as some of these statistics (such as
the GFI discussed above) are often relied on purely for historical reasons, rather than for their sophistication. While there are no golden rules for assessment of model fit, reporting a variety of indices is necessary (Crowley & Fan 1997) because different indices reflect a different aspect of model fit (see Appendix 2 for a summary of some key indices discussed herein). Table 3.2 represents the indices along with their acceptable threshold levels (Hooper et al. 2008; Guilford Kline, 2005) determine the model fit for the present study.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Fit Index</th>
<th>Acceptable Threshold Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Relative/Normed Chi-square or Relative $\chi^2$ ($\chi^2$/df)</td>
<td>Values less than 3</td>
</tr>
<tr>
<td>2</td>
<td>Root mean square error of approximation or RMSEA</td>
<td>Values less than 0.08</td>
</tr>
<tr>
<td>3</td>
<td>Comparative fit index or CFI</td>
<td>Values greater than 0.95</td>
</tr>
<tr>
<td>4</td>
<td>Standardised root mean square residual or SRMR</td>
<td>Values less than 0.08</td>
</tr>
<tr>
<td>5</td>
<td>Non-Normed Fit Index or NNFI</td>
<td>Values greater than 0.95</td>
</tr>
</tbody>
</table>

**3.13. Summary**

The chapter explains the research methodology adopted for the purpose of the analysis. It describes the course of actions that had been used while conducting the study. It presents a discussion on the research design, questionnaire development and sample selection, data collection, independent variables, dependent variables and control variables. The pilot study conducted has also been explained. Various data analysis techniques like average, percentage, independent t-test, factor analysis and path analysis have been employed to perform the analysis.