CHAPTER 3

RESEARCH METHODOLOGY

Research methodology refers to the study of various research methods used in knowledge generation and consists of the general principles used to investigate the subject matter. Research methods deal with specific topics that handle issues like choosing of an appropriate research design, sampling decisions, analysis methods to be used etc. Research methodology and methods however are contingent on research philosophy and paradigms adopted. The words philosophy and paradigms are used together, though they are separate and are like two sides of a coin, inseparable and one defining the other. Research philosophy refers to development of knowledge and the nature of its contents. The most widely used research philosophies are positivism interpretivism and pragmatism. This in turn decides the paradigms of research which is a set of belief that guide action. Paradigm is generally expressed in terms of its three components of ontology, epistemology and methodology. Thus it is imperative that the researcher first decides the research philosophy which in turn leads to the paradigm and then to the methodology.

3.1 Research Philosophy:

The current study adopts a pragmatist philosophy while studying the topic of job satisfaction and turnover intentions among pharmaceutical sales force. Such a philosophy is adopted for it affords the luxury of the conflicting philosophical schools of positivism and interpretivism. It allows the use of both qualitative and quantitative research on a need basis. The emergence of pragmatist school is recent, only in the last decade of twentieth century, and has been fast accepted as a third major approach to research. Roots of pragmatism can be traced to in the works of Campbell & Fiske (1959) [45]. However, the use of the same has existed since the early 20th century among sociologists & Anthropologists (Creswell, 1999) [64]. The use of pragmatist philosophy and resultant mixed method has found varying explanations; including improving of data accuracy, need for avoiding biases inherent in single method, need to overcome the weakness of single method research etc. However pragmatism has come to be associated with being ‘expedient’ and
should not be looked at from the angle of ‘anything goes in research’. Pragmatism offers an ontological paradigm of external multiple views to enable the best answering of the research question. Epistemologically pragmatism provides that, both observable phenomena and subjective meaning can provide dependable knowledge. The use of research methods depends on the research question and mixing of research methods purely depends up on the need to integrate different perspectives. The adopted philosophy, needless to say, offers the choice of mix methods to research the subject matter under investigation. A “sequential confirmatory design” is adopted where a qualitative portion is followed by a quantitative research while interpreting the research subject (Figure 3.1).

The sequential confirmatory design has been used so that a fresh instrument to measure cognitive job satisfaction, affective job satisfaction & turnover intention can be developed for Pharmaceutical sales force. Though there are many instruments to measure job satisfaction and turnover intention, none has been adapted for application among pharmaceutical sales force, that too in Indian context. Considering the context, it can be reasonably argued that a new instrument may be useful in bringing out the differences in job parameters that decide job satisfaction among the research subjects. The development of a sector & function specific instrument & research in to job satisfaction also has its draw back. The research results are more ideographic and less nomothetic in nature. The findings of the research cannot be freely extrapolated in to another context though some generally acceptable findings may emerge. The overall research methodology has been summarised as in the following figure (Figure 3.2). The research objective guides the research philosophy which in turn leads to the research paradigm and design. The research design consists of data design & sampling design.
3.2 Sampling Design:

Most research studies resort to sampling, unless the population is small, of one kind or the other. Unlike census, sampling offer many advantages of reduced cost, greater speed in completion of the study, greater scope in using specialised resources with restricted availability and greater accuracy of the study results. Sampling allows us the luxury of generalising observation to a population by studying a small portion of the population. The current study also extensively uses
sampling in at least three different stages of research investigation. The qualitative research is done on a sample, the instrument is tested on a sample and finally the descriptive study uses a larger sample. While the exploratory research and the pilot testing uses snowballing, the descriptive study uses snowballing & clustered field intercept. The exploratory portion of the study has a sample size of 14 and uses a clustered snowballing. The need for snowballing emanates from the need that the exploratory study needs to be done on Pharmaceutical employees with at least 10 years of experience. This is to ensure adequate knowledge of the profession and ground realities that can help further the research to a larger population. The pilot study was much wider with a sample size of 149 pharmaceutical sales personnel with at least one years of experience. This was a less restrictive sampling criteria and the population was larger. The pilot testing was done using an online version of the instrument and a clustered snowballing technique was used. The final survey used two sampling methods. The non random method of snowballing was mainly used for survey of middle and top-line managers, whose availability in the field is low in comparison to first line sales staff. A multi stage sampling design was used for survey of frontline sales force. A clustered field intercept, at the distributor level, was used to survey the frontline staff.

The sampling was decided on two premises.

1. The type of the firm: there were two types of firms in the industry; Indian & Foreign companies. By sales the Indian companies contributed about 73% of the domestic market of 70000 crores and the foreign firms contributed to the rest of the 27%.

2. The Zone wise sales: The Indian pharmaceutical market is divided in to 4 zones. The sale by zones for 2013-14 is as following. North zone contributed the largest of the volume with 28% sales, followed by west & south zone with 26% each. Eastern zone contributed the lowest volume with 20% of the national sale.

The sampling plan for the three stages of the research was decided based on these two premises of ‘type of company’ and ‘zone wise sales’. The sampling plan and actual sampling achieved for the three stages were as following (Table 3.1).
Table 3.1: Final sampling Plan for the Pilot & Descriptive Survey

<table>
<thead>
<tr>
<th>Stage</th>
<th>Plan</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Indian Companies</td>
</tr>
<tr>
<td>Qualitative survey</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Pilot Survey</td>
<td>140</td>
<td>100</td>
</tr>
<tr>
<td>Descriptive Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North</td>
<td>125</td>
<td>90</td>
</tr>
<tr>
<td>South</td>
<td>125</td>
<td>90</td>
</tr>
<tr>
<td>West</td>
<td>125</td>
<td>90</td>
</tr>
<tr>
<td>East</td>
<td>85</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>460</td>
<td>330</td>
</tr>
</tbody>
</table>

3.2.1 Target Population:
The target population is inferred from the research objective. Based on the research objective the target population of the current study is the pharmaceutical sales and marketing personnel in the country. Though the target population is defined well, their quantification is wanting in many ways. There are no unified records of pharmaceutical sales & marketing personnel with any of the concerned authorities making it difficult to exactly estimate the size of the population. FMSRAI, an association of medical & sales reps in India estimates the size to be at about 150000 though their membership is only about touching 100000 all over India, for financial year 2013.
The consulting and research firm McKinsey [147] puts the numbers at 150000 (FY 2013) and slated to grow to 3, 00,000 by the year 2020. The study for all calculation purpose, assume the population size to be about 150000. Though, belonging to the formal sector, the population had no readily available sampling frame of any kind. Even the list of member of FMSRAI was not centrally collated and controlled and was considered a regional affair making it difficult to apply an unrestricted probability method of sampling.

3.2.2 Sampling Unit:
Sampling unit refers to individual items in a population from which information is collected. The sampling unit from may be a person, household an office etc. for the current study two different types of sampling units were used. For the qualitative portion sampling units consisted of ‘pharmaceutical sales & marketing professional with more than 10 year of experience’. The unit was thus decided for their knowledge of the profession and regarding its various facets based on their experience. Their knowledge was one important source of information based on which the instrument was developed. For the descriptive portion of the study the sampling unit was defined as ‘pharmaceutical sales marketing personally with at least 1 years of experience’. Minimum of one year experience was considered mandatory to be part of the descriptive study for practical reasons. A new entrant in to the industry generally undergoes various trainings (field and classrooms) for first six months. He spends the next six month on probation, but fully independent in his official functioning. Successful candidates are generally made permanent employees at the end of 1st year (though this time may be shortened or extended on a case basis). It is considered that an employee who has completed one successful year has learned the basic tricks of the trade and can work independently and generate profitable business. It is also generally said that employees, with more than one year experience, has made a conscious decision to stay with the profession. They affect most & are affected mostly by the professional parameters.

3.2.3 Sample Size:
Various factors affect the size of the sample needed to scientifically conduct a research study that can be extrapolated to the population. Sample size are affected by factors like variations within the population of study parameters, precision level required for the estimates, the confidence
levels and the population size. The sampling plan was based on two premises viz. the type of company and the zone wise pharmaceutical sales. It was ensured that there was proportionate representation of samples based on these two factors. Indian companies, that were Indian by origin, contributed 73% of the national sales and the rest 27% were contributed by foreign companies. The second premise for sampling was the zone wise sales. North zone contributed about 28% of the national sale followed by west and south with 26% each and east contributing the balance 20%, respectively.

The qualitative portion of the current research had a sample size of 14; four from foreign companies and ten from Indian companies. These fourteen were drawn after stratification based on the position. There were 3 representations each from the three managerial levels of sales, three samples representing marketing and two samples representing Training and Development.

For pilot testing of the instrument a sample of 140 pharmaceutical sales personnel were planned. This included 40 from foreign companied and 100 from Indian companies. A total of 149 usable responses, after rejections, were finally received and consisted of 43 samples from foreign companies and 106 from Indian companies. The Questionnaires were sent to the acquaintances from the industry through email (the survey was hosted in one of the online survey portal (www.freeonlinesurvey.com) and the link was send for the access by e-mails). Filled questionnaires reflected in the data base real time. An online control was built in the survey where by the responses were automatically screened through appropriate control measures. For examples any respondent with less than one year experience was not allowed to proceed with the survey there by minimising data collection errors. A total of 480 mails were sent out and were followed up with a reminder mail after a fortnight and at the end of 4th and 6th week. A total of 152 responses were received of which ‘149’ were selected for further analysis. The response rate was about 31% for the pilot study. The sample size was calculated based on the number of variables to be measured plus additional 30% to account for rejections and exigencies.

For the final survey (the descriptive portion) sample size was calculated using the following formula.

\[ n = \frac{P(1-P)/(A^2/Z^2) + (P(1-P)/N)}{R} \]

Where:

\[ n = \text{Sample size required} \]
N= Population Size  
P= Estimated Variance in population as decimal  
A= Precision desired expressed in decimals  
Z= Confidence interval  
R= Estimated response rate as a decimal  

The Population was considered 150000 as per the McKinsey report [147]. The estimated variance was kept at 50%, the highest. Precision desired was 5% or 0.05 and the Z score at 95% C.I was 1.96. As the descriptive survey was to be done through mostly field intercept a response rate of 50% was assumed possible. There was no data on response rate for such a study by way of previous research. Adding a margin of about 20% for exigencies and exclusion a final sample of 925 was arrived at. This would translate to about 460 responses at 50% response rate. Multiple sampling methods were used. This was necessary to ensure a minimum representation of at least 30 members each from all three levels of sales & marketing professionals in pharmaceutical industry viz. the field level, the second managerial level and the third managerial level (National & Zonal managers). The sampling design of the descriptive study is a represented below (Figure 3.3).

Figure3.3: Descriptive Study Sampling Design

The Online survey was mainly to target the second and third line sales & marketing personnel. This was necessary as finding these managers, especially third line & marketing, in field would
be difficult. So a snowballing technique was used to recruit these sample elements. An online survey format was created through “free online surveys” (www.freeonlinesurveys.com). The link was mailed across to acquaintances with a covering letter indicating the importance of survey. They were also requested to forward the same to their friends & colleagues the survey link. Continuous reminders were sending at the end of 4th, 8th & 12th week. By the end of 12th week a total of 48 responses were received, all of which were usable. The response rates were not exactly known as the threads had been lost during the snowballing. For the paper & pencil survey the country was clustered into 4 geographical zones of south, west, north & east India. One representative city was chosen for each zone and these were the field headquarter cities for most companies. These cities are the base stations from which the zone is covered and administrated.

The paper & pencil format was a self-administered survey and the respondents were recruited through field intercepts. A list of 3 pharmaceutical distributors were chosen for every representative city, that were large and had a large number of Indian and Foreign company distribution, at whose premise the visiting sales & marketing personnel was intercepted with request for the survey. The final tally of usable responses included 125 responses from North, 119 responses from west, 120 responses from south and 86 responses from east. The final sampling plan and achievement for the pilot & descriptive survey is given in Table 3.1.

The number of Responses received accordion the managerial level of the marketing & sales personnel is as following (Table 3.2):

<table>
<thead>
<tr>
<th>Position</th>
<th>Number of Respondents</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Line</td>
<td>317</td>
<td>70.2</td>
</tr>
<tr>
<td>Second line</td>
<td>98</td>
<td>22.0</td>
</tr>
<tr>
<td>Third Line</td>
<td>35</td>
<td>7.8</td>
</tr>
</tbody>
</table>

### 3.3 Data Design

Data design deals with methods of collecting research data. The current study used different data collection tools suited to the stage of the research. The tool has been developed in line with the literature review and proposed theoretical model referred in the previous chapters. The Qualitative portion of the research deals with identification of variables affecting job satisfaction
among the research targets, item development and content validation through an expert panel. The pilot survey established the reliability, establishment of the factor structures and standardization of the scale. The scale thus developed was used for final field survey to study job satisfaction and TOI among the target group.

3.3.1 Need For the Scale:
Job Satisfaction has been one of the most widely studied job attitudes and many scales have been developed. However most of the widely used scales like MSQ and JDI were developed fairly long back. There has been a severe shift in the Socio-Cultural scenario during this time. This probably has led to a difference in the job attributes being considered for evaluation by employees while assessing their satisfaction with the job. For example the monetary reward has probably been pushed down in its importance due to smaller families, dual income households etc. Thus the existing scales, through still very widely used and effective, may not be measuring the appropriate variables. They may have some old variables that may not be relevant in today’s context and may miss some variable that are important in today’s context. An enquiry also revealed that the widely used scales, mentioned above, have not been tried widely in the Indian context and thus no standardized Indian version was available. There were also no special version for sales & marketing people. Considering the difference in professional context, job descriptions, skill and personality requirements it could be argued that a new scale was called for. Also the fact that there has been sea change in the way job satisfaction is seen today meant that a new scale may be useful. The current scales used are mostly developed in a western context and was worded for understanding by an English educated & speaking subjects. This also meant re-writing of items to suit Indian situations like education levels, familiarity with English language and comprehension levels. Thus it was decided that using an existing scale may not be as effective, in handling the research subject, in comparison to a new scale to suit the research topic.

The importance of experience surveys cannot be overstated in developing a new scale. Churchill (1979) [54] defines experience as “a discussion with a judgment sample of persons who can offer some ideas and insights in to the phenomenon”. Slavec and Drnovsek (2012) [272] in their paper titled ‘A Perspective on Scale Development in Entrepreneurship Research’ propose a 10 step
model for scale development. They reiterate the importance of using a systematic process of scale development which the current study adopts (Figure 3.4).

Figure 3.4: 10 step model for scale development
Source: Slavec and Drnovsek (2012)

The tool development process used to develop the satisfaction scale can be summarized as in the following figure (Figure 3.5).

Figure 3.5: The tool development process
3.3.2 Data Collection Instruments

The data collection instruments varied with the stage of the research. The qualitative survey used a semi structured IDI for collection of the data. The IDI used a discussion guide of 6 open ended questions that explore the reasons for employee job dissatisfaction, reasons for turnover and its impact on marketing program. The responses were captured through memoing. Literature review and notes was another tool used for collecting data during the qualitative stage of the survey. Together the data, from the IDI & literature review, were used for development the content for the subsequent surveys.

The pilot survey used a self-administered survey for data collection. The survey had 44 items capturing the job attitude variables and 13 items capturing demographic & organisational data. The job attitude items were scaled on a 5 point agreement type Likert’s scale. The demographics & organisational items captured data through a nominal scale. The survey had only an online version hosted using one of the survey support sites (www.freeonlinesurvey.com). The web link was used for all communication purposes with the research samples. The participants could complete the survey by clicking the web-link that will open the survey page and registering their responses using the appropriate choice.

The descriptive survey used a self-administered questionnaire as the data collection instrument. The instrument had two versions viz. an online version & a paper & pencil version. The two versions were not different except for the physical format. The survey had total of 53 questions. 40 questions captured the job attitude portion of the survey and 13 items measured the demographic & organisational variables. The job attitude portion was scaled on a 5 point, agreement type Likert’s scale. The demographic & organisational portion captured nominal responses.

3.4 Data Analysis

The research data, for the current research, could be basically classified in to three types. There were nominal data describing the various demographic variables, interval data that described the cognitive and affective evaluation of the job and qualitative data in the form of the IDI transcripts. The qualitative data was analysed for its content using grounded theory. The interval
& nominal data analysis was done using two softwares. SPSS was used for primary analysis and the nomological analysis was done using AMOS. Basic analysis like frequency charts and cross tabulations were used for the nominal data. For the interval data commonly used parametric tests were t-test and ANOVA. EFA (exploratory factor analysis), for data reduction, structural discovery and standardization of scale was done using PCA (principal component analysis). The scale reliability & homogeneity was tested using coefficient of Alpha and inter-item correlation. Covariance and correlation matrix was widely used to understand the relation patterns among the variables. The structural validity of the proposed research model was ascertained using CFA (confirmatory factor analysis) using AMOS. A two-step clustering was used to classify the TOI into various categories. In the final analysis chi-square was used to verify the criterion validity of the measured criterion called ‘turnover intention’.