CHAPTER IV

RESEARCH METHODOLOGY
This research study is based on the survey conducted to answer the research objectives pertaining to various facets of employee engagement. Primary and secondary data sources were used by the researcher.

### 4.1 SOURCES OF DATA

Primary and secondary data sources were used to collect information about aspects of employee engagement and their effect on engaging sales professionals and the various strategies used by organizations to engage their workforce and its effect on attrition. Primary data collection tool used was survey.

Survey conducted involved personal face-to-face interviews, telephonic interviews as well as email correspondence with sales / marketing as well as Human Resource (HR) professionals across Mumbai. 500 sales / marketing employees responded to the survey. These included employees who belonged to senior / middle / lower managerial level, having different number of years of experience within organization and were / were not a part of mentoring relationship. To understand the employee engagement strategies used by organizations, professionals from 114 organizations were surveyed out of which 50 were from manufacturing and 64 were from service industry. Classification was also made based on the number of employees working for the organization.
Information collected from secondary data sources included books, magazines, journals, newspaper articles, reports and research databases like EBSCO and Proquest. Reports from consulting houses like Towers Perrin, Mercer, Gallup, Chartered Institute of Personnel and Development (CIPD) were systematically reviewed to understand employee engagement and its various facets existing globally as well as in India. Data from various reports by consulting houses is widely used by organizations and individual researchers (Saunders et. al, 2003). The researcher while accessing the secondary data excluded the data which was not relevant to the researcher’s objectives and questions.

The researcher made a quick assessment of the reliability and validity of the data by looking at the source of the data as outlined by Dochartaigh (2002). It is referred to as assessing the reputation of the source. Although secondary data provides a useful resource with which to compare or set in context the researcher’s own findings, it should not be accepted at face value (Saunders, 2003). The reason is that such data may be erroneous in many respects due to bias, inadequate size of the sample, substitution, errors of definition, arithmetic errors etc. (Gupta,2005). Keeping this in mind, the researcher ensured that the secondary data used was suitable for the research. The suitability of data was judged in the light of the nature and scope of investigation as well as the requirement of the survey.
4.2 SAMPLING

Technique of data collection was sample technique. A sample is defined as the portion of a population that has been selected for analysis. Rather than selecting every item in the population, statistical procedures focus on collecting a small representative group of the larger population. The results of the sample are then used to estimate characteristics of the entire population (Levine et. al, 2009). There are three main reasons for selecting a sample:

a) Selecting a sample is less time consuming than selecting every item in the population.

b) Selecting a sample is less costly than selecting every item in the population.

c) An analysis of a sample is less time cumbersome and more practical than analysis of the entire population. (Levine et. al, 2009).

4.2.1 Sampling Design

Sampling design is a definite plan for obtaining a sample from a given population. It refers to the technique that the researcher adopts in selecting items for the sample (Kumar, 2008).

i) **Outlining the universe and defining the sample unit:** While developing the sample design the first step undertaken by the researcher was to clearly outline and identify the set of objects to be studied. In this case it was the Human Resource professionals or anyone in the organization who is a part of employee engagement initiatives by the company; the second group that
was outlined for the survey was sales / marketing professionals in the city of Mumbai.

ii) **Sample Frame:** It is the actual listing of items that make up the population (Shahjahan, 2005). Frames are data sources such as population lists, directories, or maps. Samples are drawn from frames. Inaccurate or biased results can emerge if a frame excludes certain portions of the population. Using different frames to generate data can lead to opposite conclusions. In this study the sample frame consists of Human Resource professionals in Mumbai or for companies having their branches in Mumbai and sales / marketing professionals working in these organizations.

The researcher took care to ensure that the source list is as representative of the population as possible. Here the source list was prepared by the researcher which was comprehensive, reliable and appropriate. For this purpose, the sample frame was devised after going through the various lists of organizations operating in Mumbai region. The researcher also ensured that the organizations were involved in employee engagement initiatives as was the requirement of the study.

In terms of sales / marketing professionals, the researcher attempted to study their employee engagement as mediated by personal and organizational variables. Care was taken to ensure that responses received only from professionals operating in Mumbai and Navi Mumbai region were included.
It was essential to arrive at an appropriate sampling frame which helped in avoiding systematic bias (Kumar, 2008). The researcher carried out a careful investigation of the frame to be adopted since the defects are not apparent until a detailed investigation has been made.

Kish (1965) (as cited by Kumar, 2008) posited four basic problems of sampling frames:

- **Missing elements**: Some members of the population are not included in the frame.
- **Foreign elements**: The non-members of the population are included in the frame.

Above mentioned errors were avoided as the researcher extensively reviewed and verified the list of organizations operating in Mumbai region. The problem of foreign elements was taken care of as only those organizations operating in Mumbai and involved in employee engagement initiatives were surveyed. Organizations which did not have employee engagement initiatives and were not located in Mumbai were excluded from the study.

- **Duplicate entries**: A member of the population is surveyed more than once. Researcher avoided surveying any member of the population twice and also verified the entries to avoid duplication.
Groups or clusters: The frame lists clusters instead of individuals. Although employees from the same organization were surveyed, they in any way did not form any cluster or group.

iii) Sample Size:
A study that is insufficiently precise or lacks the power to reject a false null hypothesis is a waste of time and money. In contrast a study that collects too much data is also wasteful. Therefore, before collecting data, it is essential to determine the sample size requirements of a study. According to Kumar (2008), sample size is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility for the research work. Care was taken that the sample of organizations and sales / marketing professionals truly and adequately represented the universe / population. The researcher interviewed 500 sales / marketing professionals and 114 human resource professionals as they represented the organization as a unit of study in the city of Mumbai. The size of the sample was considered to be optimum because it fulfilled the requirements of representativeness and reliability as will be discussed further in the chapter.

4.3 PROBABILITY SAMPLING METHODS
The principles of probability help bridge the worlds of descriptive statistics and inferential statistics. Probability is the numeric value representing the chance, likelihood or possibility that a particular event will occur. Probability sampling
is the preferred sampling method as items selected are based on known probabilities. Unbiased inferences are possible based on probability samples. Since it is difficult and often impossible to take probability samples in practice, it is always advised that one work towards achieving it and acknowledge any bias that might exist. (Levine et.al, 2009) The type of probability sampling method used for the study is random sampling and stratified random sampling.

4.3.1 Random Sampling

This technique is the most preferred technique of data collection as every item from the frame has the same chance of selection as every other sample of the same size (Levine et.al, 2009). *To ensure balanced representativeness of sales / marketing professionals, this method was used.* According to Gupta (2005), personal bias of the researcher does not influence the selection of individuals thus eliminating bias due to personal judgment.

4.3.2 Stratified Sampling

In order to answer research questions pertaining to employee engagement strategies and its effect on attrition, organizations were chosen as the unit of study. Stratified sampling method was used. In this method of sampling, the population embraces a number of distinct categories; the frame can be organized by these categories into separate “strata” (Gupta, 2005). This method could be used because of the possibility to partition the population into smaller
Creating strata helped the researcher in forming homogeneous subgroups of the population based on the particular characteristic of interest.

A strata is defined by some common characteristic (Levine et. al, 2009) and the units within each stratum are as homogeneous as possible (Shahjahan, 2005). In this case based on the requirement, the researcher created strata based on industry type i.e. manufacturing and services and number of employees in the organization (i.e. 51-100, 101 – 500, 501 – 1000, more than 1000). Although industry type could be a wide range, in order to avoid confusion and arrive at a broad understanding of distinctive strategies used, the broad classification based on manufacturing and service industry was used. Classification for number of employees reflected the size of the organization and also the varied challenges that organizations would face to deal with their employees.

Stratified sampling is considered to be appropriate for this study because it reduces sampling error and also ensures that variability within strata is minimum while variability between strata is maximum, thus balancing the bias of deliberate selection (Gupta, 2005). It also reduced the possibility of exclusion of any group as the population is first divided into various strata and then the sample is drawn from each stratum, thus ensuring representation of items across entire population. Further, homogeneity of items within each stratum provided greater precision in the estimates of underlying population parameters (Levine et. al, 2009).
4.4 SAMPLE JUSTIFICATION

Mumbai is the most important economic and commercial center. It has been reported as the power center of business in India. The businesses existing in Mumbai and Navi Mumbai region are diversified in terms of industry and size of the organization based on the number of employees which best suited the purpose of this research. Considering the receptivity and cooperation from participants in Mumbai and Navi Mumbai as compared to other cities, survey for the study was conducted in this region.

Larger samples are better than smaller samples (all other things being equal) because larger samples tend to minimize the probability of errors, maximizing the accuracy of population estimates, and increase the generalizability of the results. *Comfrey and Lee (1992)* suggest that sample size of: 50 – very poor; 100 – poor; 200 – fair; 300 – good; 500 – very good; 1000 or more – excellent. They urge researchers to obtain sample sizes of 500 or more observations whenever possible.

*Krejcie & Morgan (1970)* suggested a table for easy referencing of sample size determination. This was based on the formula provided by National Education Association. The formula is given below:

\[ s = \frac{X^2 NP(1-P)}{d^2(N-1)} + X^2P(1-P) \]

Where \( s \) = required sample size

\( X^2 \) = the table value of chi-square for 1 degree of freedom at the desired
confidence level \((1.96 \times 1.96 = 3.84)\)

\(N = \) Population size

\(P = \) Population proportion (assumed to be .50 since this would provide the maximum sample size).

\(d = \) degree of accuracy expressed as a proportion (i.e. .05).

According to Krejcie & Morgan (1970), no calculations are needed to use Table 4.1 and it is applicable to any defined population. They also noted that as the population size increases, the sample size increases at a diminishing rate and remains relatively constant at slightly more than 380 cases. The table has also been cited by International Program for Development Evaluation Training (IPDET, 2007)
Further, a rule of thumb suggested by Nunnally (1978) is that the subject to item ratio should be at least 10:1 (also cited by Everitt 1975). Questionnaire for sales / marketing professionals included 21 items. Thus, based on the ratio suggested by Nunnally, the sample size calculated for sales / marketing professionals was found to be 210.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>210</td>
<td>21</td>
</tr>
</tbody>
</table>

Based on the above mentioned researches on sample size determination and consideration of the fact that the population of sales / marketing professionals in Mumbai region is wide, the sample size for the survey was decided to be 500.

The unit of analysis to understand employee engagement strategies and its effect on attrition were organizations. Care was taken by the researcher to ensure that only organizations which implemented employee engagement practices were surveyed. As the advance of Human Resource activities is not uniform, the population of organizations for the selection of sample was limited, thus justifying the sample size of 114 organizations.

4.5 RESPONSE RATE:

Response rate in survey research refers to the number of people who answered the survey divided by the number of people in the sample. It is usually expressed in the form of a percentage and is also known as completion rate or return rate.

\[
\text{Response Rate} = \frac{\text{Number of individuals who completed the questionnaire}}{\text{Total number of individuals contacted}} \times 100
\]
Response rates are strongly affected by the method of data collection. In general, the more interaction between the potential respondents and the researcher, the higher is the response rate. *The researcher used multiple methods of data collection i.e. face to face interviews, emails, telephonic interviews for both sales / marketing as well as human resource professionals.* Need was felt to use multiple methods considering the convenience of respondents. Many respondents preferred an initial interview where the researcher briefed them about the purpose of the research and ensured them of the confidentiality of responses. This was followed by the respondent sending the completely filled questionnaire via email or through a telephonic interview. This was true in case of respondents from both sales / marketing and human resource professionals.

The researcher approached 160 Human Resource professionals (to study employee engagement strategies implemented by organizations) out of which 125 responded by filling the questionnaire. Responses from 11 HR executives had to be discarded as the questionnaire was not duly completed. Thus, response rate for the questionnaire for HR executives was 71.25%.

\[
\text{Response Rate} = \frac{114 \times 100}{160} = 71.25\%.
\]
A total of 800 respondents were approached to get information from sales / marketing professionals. Out of these 523 respondents completed the questionnaire. Responses from 23 respondents had to be discarded as the questionnaires completed by them had missing information rendering them inappropriate for further analysis. Thus, response rate from sales / marketing professionals was found to be 62.5%.

\[
\text{Response Rate} = \frac{500 \times 100}{800} = 62.5\%
\]

Sufficient response rates are important as a survey that collects very little data may not contain substantial information. Although there is no ‘standard’ acceptable response rate, Reilly & Wrensen (2007) urge researchers to attempt to obtain response rates over 50%, however, the higher the response rates the more valid is the data.

In order to improve response rate, the researcher had a short covering letter which focused on the importance of the study and how the respondent’s reply would be beneficial. Official documents demonstrating the research as an academic work were also presented where required.

The questionnaire was short and easy to complete. The researcher ensured that the items were not ambiguous, had clear instructions and asked only what was required.
4.6 QUESTIONNAIRE DESCRIPTION

The research involved using questionnaires which enabled in getting relevant information to test the hypothesis under consideration. The role of questionnaire is to provide the researcher with standardized information from all respondents. It is important in any survey of more than just a few people that all respondents are asked the same questions in exactly the same way. It is an important element in the success of data collection and facilitates data processing (Hague, 1993). The survey through questionnaire was administered using face-to–face interviews, emails and telephonic interviews.

4.6.1 Theoretical Background

The researcher reviewed a number of existing models which have been discussed in literature review (Section 2.1). The questionnaire developed was based on Robinson’s (2004) model of the drivers of employee engagement. Sample questionnaires from the internet also helped in framing the statements used in the questionnaire.

The statements framed in the questionnaire were related to the following factors: Company Perception, Information / Communication, Working Conditions, Compensation & Benefits, Job Assignment, Development Opportunities and Work – Life Balance. Need was felt to develop a questionnaire as the researcher wanted to include work-life balance as one of
the factors and explore whether it positively contributes to employee engagement.

4.6.2 Questionnaire Description & Reliability Tests (Sales/Marketing)

The questionnaire developed for sales / marketing professionals had 21 statements (Three statements were framed related to each of the factors mentioned above to measure participant responses) which were to be rated on a five point scale ranging from 1 – strongly disagree to 5 – strongly agree. A five-point rating scale typically gives sufficient discrimination and is easily understood by survey participants. This is usually recommended for most survey settings (Brace, 2004). Some statements included were negatively worded so as to remove the effects of response set and rater bias.

The questionnaire was further tested for Cronbach Alpha α reliability with a sample of 500 sales / marketing respondents. This was done to test the internal consistency of items used in the questionnaire. SPSS 15 was used to analyze the data. Cronbach Alpha α reliability coefficient for the questionnaire was found to be 0.741 (See table4.2) which is within the acceptable range (George & Mallory, 2003 and Nunnally & Bernstein, 1994). (Cited by Gliem & Gliem, 2003)

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.731</td>
<td>.741</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 4.2: Cronbach Alpha Reliability for 21 item questionnaire
Table 4.3: Split Half Reliability for 21 item questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>.591</td>
<td>.570</td>
</tr>
<tr>
<td>N of Items</td>
<td>11(a)</td>
<td>10(b)</td>
</tr>
<tr>
<td>Correlation Between Forms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.563</td>
<td></td>
</tr>
<tr>
<td>Spearman-Brown Coefficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal Length</td>
<td>.720</td>
<td></td>
</tr>
<tr>
<td>Unequal Length</td>
<td>.721</td>
<td></td>
</tr>
<tr>
<td>Guttman Split-Half Coefficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.720</td>
<td></td>
</tr>
</tbody>
</table>

Split-half Reliability using Spearman-Brown Formula was found to be 0.721 and by Guttman’s Formula was found to be 0.720 which is also within the acceptable range. (Table 4.3)

4.6.3 Questionnaire Description & Reliability Tests (Organizations)

The second questionnaire was designed to understand employee engagement strategies implemented by organizations and its effect on attrition for which Human Resource professionals were approached. The questionnaire involved the seven factors mentioned above from an organizational perspective to measure employee engagement and additional questions related to attrition in organization. The questionnaire consisted of 37 items out of which five point rating scale was used for 33 statements, two items involved direct response in terms of attrition rate and reduction in attrition rate respectively, four items involved nominal scale and ordinal scale was used for one item.

Cronbach Alpha 𝛼 reliability coefficient for the 33 statements in the questionnaire was found to be 0.947. George and Mallery (2003) provide the
following rules of thumb while interpreting reliability coefficients: “\( \_ > .9 \) –
Excellent, \( \_ > .8 \) – Good, \( \_ > .7 \) – Acceptable, \( \_ > .6 \) – Questionable, \( \_ > .5 \) –
Poor and \( \_ < .5 \) – Unacceptable” Thus the reliability for the scale was found to be excellent.

**Table 4.4: Cronbach Alpha Reliability for 33 item questionnaire**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach’s Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.946</td>
<td>.947</td>
<td>33</td>
</tr>
</tbody>
</table>

Split-half Reliability using Spearman-Brown Formula was found to be 0.932
and by Guttman’s Formula was found to be 0.927 which is excellent reliability
coefficient. (Table 10.4)

**Table 4.5: Split half reliability for 33 item questionnaire**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Part 1 Value</th>
<th>N of Items</th>
<th>Part 2 Value</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>17(a)</td>
<td>.875</td>
<td>16(b)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

Correlation Between Forms .872

<table>
<thead>
<tr>
<th>Spearman-Brown Coefficient</th>
<th>Equal Length</th>
<th>.932</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unequal Length</td>
<td>.932</td>
<td></td>
</tr>
</tbody>
</table>

| Guttman Split-Half Coefficient | .927         |

Reliability tests revealed that both questionnaires were reliable instruments for the survey.

### 4.6.4 Pre-Testing the Questionnaire

Pre-testing the questionnaire with a smaller group helps the researcher in understanding whether the questionnaire designed with a specific purpose actually fulfills it. It is advisable to pretest a questionnaire before using it with
The advantage of pre-testing is that the shortcomings of the questionnaire are avoided (Saunders et.al, 2003). Pretesting allowed the researcher to test the acceptability of the questionnaire to the target sample. The acceptability of the survey in terms of the length of the questionnaire or the time commitment required by the respondents was also tested.

The researcher got an idea about the extent of non-response that was likely to take place. Based on the *response rate expected*, the researcher prepared for data collection with a larger sample.

Comprehension of items, respondent interest and fatigue due to length of questionnaire was also assessed. It was found that some respondents were uneasy answering some statements as they enquired about their attitudes towards organizational practices. This was taken care of by ensuring confidentiality by the researcher. In cases where the respondent was uncomfortable even after reassurance were excluded from the study. There was *no major difficulty in comprehension of items*.

The researcher felt the need to create categories (i.e. senior managerial level, middle managerial level and lower managerial level) for designation of respondents in sales / marketing questionnaire. This was done to enable coding and further analysis for the particular item. In the questionnaire for HR professionals need was felt to include the category of number of employees in
organization and size of the organization which would help in analyzing the research objective in greater detail.

Further Cronbach Alpha reliability of pretesting was also found to be within acceptable limits.

4.7 RELATING THE QUESTIONNAIRE TO RESEARCH OBJECTIVES
The questionnaire was designed keeping in mind the theoretical background of employee engagement and the aspects that were of interest to the researcher for the purpose of the study. Care was taken to include items which would help the researcher in getting relevant information in answering the research objectives at the same time giving minimal scope for error to occur at data collection as well as analysis stage.

4.8 OVERCOMING ERRORS:
Drop out is a function of length of questionnaire, as respondents become bored and fatigued. To overcome the danger of respondents continuing reluctantly till end providing potentially unreliable data, the researcher stuck to relevant questions and kept the length of the questionnaire in mind.

The researcher took care that the inclusion of data from human resources and sales /marketing professionals was from within the population only thereby
reducing the fear of over coverage; it was also ensured that the sampling frame included all the relevant elements of the population thus overcoming the problem of under coverage.

To deal with the problem of non-response error in terms of the refusal of the respondent to answer a particular item or multiple items in the questionnaire, the researcher ensured that questionnaires where a number of responses were left blank were not included in the final analysis of data set. Care was also taken by the researcher to ensure whenever possible that the respondents don’t leave items unanswered.

**Sampling error** reflects the variation or “chance differences”, from sample to sample based on the probability of particular individuals or items being selected in particular samples (Levine et. al, 2009). The researcher ensured adequate representation of the population by taking a large sample. How the researcher arrived at the sample size surveyed has been discussed in the section on sample justification.

In order to overcome the issue of measurement error, the researcher ensured that the questionnaire items were related to the research objectives and also clarified the items to the respondents whenever necessary. Further, data entry was verified and rechecked in order to reduce processing error.
4.9 TIME PERIOD OF STUDY
The researcher designed the questionnaire for sales / marketing respondents and pre-tested it in 2009. In 2010, questionnaire for Human Resource professionals was designed. Researcher completed data collection by October 2011. Recent researches that were relevant for the study were included in literature review.

4.10 STATISTICAL ANALYSIS TECHNIQUES
Statistical Analysis refers to a wide range of techniques to describe, explore, understand, prove and predict based on sample datasets collected from populations, using some sampling strategy. To test the general trend and distribution of the sample surveyed descriptive statistics was used. Inferential statistical tools such as t – test, analysis of variance, correlation, regression and multiple regression were used to test the various hypotheses formulated by the researcher and to enhance understanding of the topic.

4.10.1 Correlation
The coefficient of correlation measures the relative strength of a linear relationship between two numeric variables (Levine et. al, 2009). The values range from -1 for a perfect negative relation to + 1 for a perfect positive relationship with 0 representing a lack of association or relationship. It is important to remember that correlation analysis deals with the association between two or more variables (Gupta, 2005) and cannot prove a causation
effect. Additional analysis is required to establish cause – and – effect relationship.

Correlation was used for statistical analysis as the researcher wanted to know whether a negative relationship existed between employee engagement practices and attrition rate in organization. In case of sales / marketing professionals, the researcher wanted to know whether any association existed between employee engagement scores and work experience within organization.

Pearson’s product moment correlation coefficient method was used by the researcher in both cases. This method was selected as the variables to be tested were measured using an interval scale.

4.10.2 Regression

Once the correlation is established, regression output is obtained to determine statistically significant causal relationships between independent and dependent variables. It enables the researcher in developing a model to predict the values of a numerical variable, based on the value of other variables. Here the value of $r^2$ which is the value of coefficient of determination determines the explainable part of the dependent variable by variation in the independent variable. Any value was accepted as statistically significant only if it has a minimum significance of .05 or 95% confidence level.
According to Levine et. al. (2009) regression analysis attempts to establish the nature of relationship (causal etc.) between variables – that is, to study the functional relationship between the variables and thereby provide a mechanism for prediction, or forecasting. The researcher used regression output to formulate a predictive model using the value of independent variable of employee engagement to predict the value of dependent variable i.e. attrition rate in organization.

**4.10.3 Independent Samples t – test**

This is probably the most widely used statistical test of all time, and certainly the most widely known. It is simple, straightforward, easy to use, and adaptable to a broad range of situations. It is a statistical tool used by researchers to determine whether the means of the two groups of samples are significantly different.

The researcher used the t test to identify whether employee engagement strategies differed significantly across manufacturing and services industry and to determine whether employee engagement scores of sales / marketing professionals who are a part of mentoring relationship is significantly different. Independent samples t-test was chosen as the population from which the sample was chosen in both cases was different for each sample group.
4.10.4 **One Way Analysis of Variance (ANOVA)**

Many instances require researchers to examine differences among more than two groups. One way ANOVA is an extension of t test for the difference between two means. ANOVA is used to simultaneously compare the difference between the means of more than two groups. By analyzing the variation among and within the groups, conclusions can be made about the possible differences in group means.

In the study, one way ANOVA was used to study whether employee engagement strategies differ with number of employees in organizations (the categories were organizations having employees 51-100 / 101 – 500 / 501-1000 / more than 1000). The researcher also used this tool to find whether employee engagement differs significantly across designation of employees (i.e. higher managerial / middle managerial / lower managerial).

4.10.5 **Multiple Regression Analysis**

While simple linear regression uses one numeric independent variable (X) to predict the value of a numeric dependent variable (Y), better predictions can be made using more than one numeric independent variable. Multiple regression models use two or more than two independent variables to predict the value of a dependent variable. The strength of association in multiple regression is measured by the square of the multiple correlation coefficient $r^2$ which is also called the coefficient of multiple determination. $r^2$ is adjusted for the number of
independent variables and the sample size to account for diminishing results. After the first few variables, the additional independent variables do not make much contribution.

The researcher has used step-wise regression method to the data set of 500 sales / marketing respondents. This was done with a view to understand the order of importance of the seven factors of engagement. The purpose of stepwise regression is to select from a large number of predictor variables, a small subset of variables that account for most of the variation in the dependent variable.

4.11 ETHICAL CONSIDERATIONS

Ethical considerations involve issues of confidentiality of the respondents, breach of contract and deception. Researcher ensured that respondents in the survey knew the nature of survey, its purpose and that the respondents participated of their own free will. Nowhere during the data collection process were the respondents forced to answer any item in the questionnaire.

Confidentiality of responses was ensured by the researcher to the respondents by including a short note in the questionnaire regarding anonymity of responses. Considering the sensitive nature of the survey, an additional letter by the guide was presented. This enabled the data collection process. Any queries arising were clarified by the researcher. This encouraged respondent to
give frank and honest responses once they were assured that their identity and the identity of their organization would be protected. The researcher also emphasized that any findings of the survey would be made available in the form of aggregate results, thus making it impossible to identify replies of any individual or firm. In addition to this, the researcher also outlined to what use the findings will be put to.

The researcher tried to give an honest indication of the time commitment involved as this is an important concern of individuals deciding whether to participate or not.