Chapter-3: Research Methodology

3.1 Introduction

The following chapter will detail the research methodology that is used in the study. It will also explain in detail about the research model, research design, sampling design, sampling techniques and the entire research. In addition, the strategies for validating the findings and the ethics that was followed in the research will also be detailed.

3.2 Research philosophy

The term paradigm is obtained from the Greek word paradigm, which means blueprint and was first used by Thomas Kuhn (1962) to symbolize a theoretical framework jointby a group of people of scientists, which offered them with an expedient representation forinvestigating problems and judgment solutions. Kuhn defines the standard as: “an integrated cluster of substantive concepts, variables and problems attached withcorresponding methodological approaches and tools”. According to him, the termstandard refers to investigate civilization with a position of attitude, values, and perceptions which the society of researchers has widespread concern for the natural history and behaviour of the research (Kuhn, 1977). A paradigm hence implies a pattern, arrangement and construction of methodical and educational thoughts, standards and assumptions (Olsen, Lodwick, and Dunlop, 1992:16).

Pervez & Gronhaug (2011) define that research philosophy is nothing but the main and basic research design that is framed as the first step in the research methodology. The research philosophy is the one which gives the basic idea of a research model and how a research has to be preceded. Research model is a systematic search for values, language, existence, knowledge, reason and mind. The research philosophy is divided into two major types. Positivism means systematic and positivist methodologies are probably and advantageous to study social actions in ways that are similar to those used by usual scientists for the study of behaviour in the normal world. Interpretivism is the interpretation method and the understanding or creation of meaning. Interpretivism is concerned with the idea that people study better through engaging with the world around them and study from experiencing the world. Interpretivism is also known as qualitative research. They are Interpretivism and positivism.
3.2.1 Research philosophy

This study follows the positivism research philosophy. Positivism is the general philosophy and it will always generate some positive and expected results. These measurements are done on a statistical and systematic way. Therefore, the major focus is on validity, reliability and generalization of its predictions, measurement of the positivism philosophy is used in the natural science, and it will always be very objective and will be in a basic method. Positivism refers to quantitative research approach and it is done with the help of survey methods. This will be a quantifying one and it will provoke numbers, facts and figures. Positivism is said to be the reinforcement methodology of untried and survey research approaches, though in explaining it, there is a conflation flanked by communal approaches to technical approaches and the detailed positivism position. In attendance it has a lot of positivism versions and despite the fact that all good deed the scientific approach to surveillance, they are not comparable with science and in natural sciences; positivism gone astray as an indispensable location of methodology quite many decades ago. The positivism is a research paradigm that will always focus on the scientific belief of knowledge, and standards. Positivist thinking will always lead to the thought of associates which will be a broader variety of senses. In a pure form, the positivist tradition is a classical positivist tradition. However, it will reveal the modified post positivism. The research will be very positive and it will show the employee engagement towards the organization. The employee engagement will find out using the positivistic approach used in the research (Partington 2008).

3.3 Research approach

The research approach is the standard type of investigation and it defines the path of the research. A research approach can be at variance fundamentally relying on what is to be examined if it is a methodical process it would be appropriate to research widespread processes or additional scientists who encompass and tried the experimentation. Research approach will stay under two basic methods. They are qualitative research approach and quantitative research approach. Creswell (2009) describes a quantitative research approach that is based on some chronological pattern that is previously accessible for the conjecture to be viewed as scientific forecast or amplification. Quantitative research approach is an investigation that uses postpositive claims for developing knowledge, employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data (Frey, Lawrence, Carl, Botan, Gary & Kreps 2000)
Qualitative research is a multi-method with focus involving naturalistic and interpretive approach to its subject matter. This means that the qualitative researchers study things in their natural settings attempting to make sense of or understand the phenomenon in terms of meanings people bring to them (Burman, 1997).

3.3.1 Research approach involved

The study uses quantitative research approach. The study will be revolving the numbers and surveys. It will use close-ended questionnaires in accordance with the study. The researcher adapts this approach since the study uses positivism as the research philosophy. It will use the data that is collected through the survey in the quantifying manner. The basic quantitative approach uses statistical terms like numbers and figures. Quantitative research will always describe, understand and predict the research problem. It is followed with a formal and rigid fashion. This approach is further classified into inferential approach, experimental approach and simulation approach. Inferential approach is to be researched in the form of a database. Experimental approach is controlled by greater variables. It is manipulated and observed by variables to find the effect of the variables. The simulation approach involves the construction of artificial environment within the relevant information and data can be generated. In the study, the researcher follows the quantitative data since the data will be collected through quantity basis. If it is a close-ended survey then obviously the research approach used in the study will be the quantitative. The name will itself imply the meaning.

3.4 Research design

Nandagopal, Rajan&Vivek (2009) define research design as the plan, structure and strategy of investigation conceived to obtain answers to research questions and to control the variance. A research design is an arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. The research design has two basic purposes. First, it is used to provide answers to research questions as validity, objectivity, accurately and economically as possible and second it is used to bring the empirical evidence to bear the research problem by controlling the variance. In addition, the purpose of the research design is to obtain accurate results and it will control the variance. The research design will control and eliminate the extraneous variance and minimize the error variance.
Crowther & Lancaster (2008) clarifies further; it will replicate the study and provide a blue print of the study. The blueprint helps to demonstrate the future research. Research design will facilitate systematic investigation and visualize the potential problems of the research for the proper results and timely effect of the study. The research design is broadly classified into two major types. They are conclusive research design and exploratory research design.

3.4.1 Conclusive research design

This type will give the conclusion and it will give an idea for rationale decision. This is further classified into descriptive research design and causal research design. Descriptive research design will describe the study in detail and the causal research design will develop the cause and effect strategy.

3.4.2 Exploratory research design

Exploring a new idea in the research format is called as the exploratory one. It will give a detailed description of the study and it will always explore the knowledge.

3.4.3 Research design adapted

Descriptive research design is used in this study. Descriptive research design is generally used in the quantitative study but it can be both qualitative as well as quantitative in nature. The term descriptive is used in common parlance to describe something. Nevertheless, this will be superficial and have covered the difference. The idea of this design is to gather data and to develop the knowledge. The detailed review of the study will be enhanced by using this type of research design. Descriptive research designs can be as easy as an individual, brief case or very critical examining a huge number of variables. Descriptive research design is also used for hypothesis testing and theory generation. According to Aggarwal (2008), descriptive research is dedicated to the congregation of data and information about established circumstances or situations for the principle of explanation. This category of making inquiries method is not plainly accretion and tabulating particulars but includes appropriate analyses, elucidation, identification and comparisons of trends and associations. The employee engagement towards the organization will be described very strongly in this type of research and it will help in the generation of the result. Thus, it will be very helpful in the interpretation of the results. The need and the commitment of employees can be found using the descriptive research design (Van Maanen 1983).
3.5 Sampling design
According to Saunders (2009), sampling design is the process of selection of samples and how the population is chosen for the research and survey. Sampling design is a very important term in the research study since it will give an idea in selecting the sample among the entire population and after that only the real data collection will start. Sampling design is termed in general as the probability sampling and the non-probability sampling. Both are used in all the research studies. The probability sampling will be chosen randomly and in this type, the researcher has to give equal chance in selecting the population. In the non-probability sampling technique, the researcher will select the sample according to the convenience and the requirement.

3.5.1 Sampling design chosen for this study

This study makes use of the simple random sampling. The survey method will generally use this type of sampling and it will give chance for all the samples. Each possible sample combination gives an equal chance of being chosen. Simple random sampling is segmented into the lottery method by using random numbers.

3.5.2 Target population

The target population for the investigation is 290 samples that were chosen from the sampling frame. The employees of Eisai Pharmatechnology& Manufacturing Pvt. Ltd. and Eisai Pharmaceuticals India Pvt. Ltd. will be used for the survey.

3.5.3 Sample size

The sample size for the study conducted is 290 from both companies of EISAI Japan in India calledEISAI Pharmatechnology and manufacturing Pvt. Ltd at Visakhapatnam and EISAI Pharmaceutical India Pvt Ltd having presence across the country with HQs at Mumbai.

3.5.4 Sampling plan

The study is based on the quantitative investigation. Sample is of 290 employees, ie, 172 from EISAI Pharmatechnology and Manufacturing Pvt. Ltd and 118 from EISAI Pharmaceutical India Pvt Ltd. Identical close-ended questionnaires were given to both the categories.
3.6 Data collection method

The data collection is the most important task in the research. This process though conducted on line through SurveyMonkey took long time as especially in the case of Mumbai company sample was spread across the country; many reminders had to be given. Those from the factory did not take long time as follow up was easy. Data collection is classified into primary data collection and secondary data collection (Cooper D R and Schindler 2006).

3.6.1 Primary data collection system in this research

Primary data is collected when the secondary data is insufficient in providing detailed information about the research problem (Hooley, et al. 2008). As explained by Churchill and Iacobucci (2005) primary data comprises of data, which has been collected distinctly for the purpose of the investigation that the researcher is conducting. Primary data sources are unpublished and consist of interviews, fieldwork and unpublished documents (Myers, 2009). Such data makes the researchers study more credible, accurate and pertinent to the topic being researched. But it also said that collecting such data is a cumbersome and costly process. Furthermore, as stated by Churchill and Iacobucci (2005), data, which is collected through this approach, is “Raw Data” and has to be analysed and interpreted. This can prove to be arduous if the sample size of a particular research is huge. Hence, it is always suggested that one should start with secondary data and once it is exhausted, proceed towards primary data collection. Rajan & Nandagopal (2009) clarify that the primary data collection method is the basis one for any research study and will help a lot. The primary data will be collected directly by the researcher and will reveal the original situation. An interview is a communication between two people. Nevertheless, it is a communication where one person, the interviewer is seeking answers for a specific need from the other person, the interviewee. This may or may not be of specific advantage of the person being interviewed.

3.6.2 Secondary data collection followed in this study

Kumar (2002) details the secondary data that is the information which previously exists in several forms or other but it might not be collected primarily. Main restriction is that the secondary data has been collected before and now being used for a purpose a bit other than the present research problem. The secondary research approach will signify to bridge the gaps identified after the primary research that has been completed. The information related to primary research approach can be conducted through different channels including
questionnaires, interviews, and surveys, this study chooses to employ only survey questionnaire. The study will use journals, internet and other sources of information that will specify the research information. The secondary data cannot be reframed as like primary data.

3.7 Analysis and interpretation

Analysis and interpretation of data will be quite huge in all the terms and it will make use of the collected data that is both primary and the secondary. The data analysis and data interpretation include numerous closely related operations that are carried out with the intention of summarizing the gathered data and organizing these in such a way that they will provide responses to such research queries or recommend questions or hypothesis if no such queries or hypothesis had started the study (Cooper and Schindler, 2006).

According to Paneerselvam (2009), the data analysis and interpretation will have the following steps:

- Computation of statistics
- Testing of hypothesis
- Designing regression equation for estimating the response
- Performing correlation analysis
- Factor analysis
- Discriminate analysis
- Conjoint analysis.

The validity and reliability of the results must be fully utilized in this area. The collected data must be analysed with some techniques to show the results of the research and to achieve the objective framed.

3.8 Statistical tools involved

The tools used for analysis of the collected data are

i. Graphical method
ii. Simple percentage analysis
iii. Chi-square test
iv. Karl Pearson correlation coefficient
v. Regression
vi. Factor analysis

i. Graphical method

Graphical method will make use of the pictorial representation of the data collected.

ii. Simple percentage method

The examination of simple percentage is used to compare the connection between more than one collection of data. In this method, the percentages are used to symbolize the association percentage and can also be used to contrast the comparable terms.

\[
\text{Percentage} = \frac{\text{No. of responses} \times 100}{\text{Total number of responses}}
\]

iii. Chi-square test

The test will make sure the relationship between the dependent and the independent variables. The formula is

\[
X^2 = \sum \frac{(\text{Observed frequency} - \text{Expected frequency})^2}{\text{Expected frequency}}
\]

iv. Karl Pearson Correlation coefficient

This research makes use of the statistical technique Karl Pearson Correlation test to test the proposed hypothesis. According to (Weiten 2010, p 44) the descriptive research results are often summarized with statistic referred to as correlation coefficient. Since descriptive research design is employed in this study this research makes use of correlation test. Karl Pearson Correlation test gives as a result a variable by name coefficient of correlation which helps in identifying the relationship between quantitative dependent and independent variable. The correlation coefficient is denoted by the symbol “r”. The correlation coefficient “r” is evaluated by applying the below formula:

\[
\text{Correlation coefficient (r) } = \left[ \frac{\Sigma PQ - (\Sigma P)(\Sigma Q)}{Sqrt ((\Sigma P^2 - (\Sigma P)^2) \cdot (\Sigma Q^2 - (\Sigma Q)^2))} \right]
\]

where
N = Number of values or elements
P = First Variable
Q = Second Variable
ΣPQ = Sum of the product of first and second Variables
ΣP = Sum of First Variables
ΣQ = Sum of Second Variables
ΣP^2 = Sum of square of First Variable
ΣQ^2 = Sum of square of Second Variable

The correlation coefficient value varies between -1.0 and +1.0. The closer r is to -1 or +1 the more closely are 2 variables similar to each other.

v. Regression

Regression is the significant interrelation of two variables. Regression in general is the prediction if variables that are not known. It is one of the widely used statistical tools in the quantitative research. Regression is generally refer as the

Regression of Y on X = Regression of X on Y.

vii. Factor analysis

Factor analysis is the method of investigating the relation between variables. That is the number of variables of intersect Y1, Y2, Y3….Yn are linearly related to a smaller number of servable factors F1, F2…..Fn.

3.9 Software techniques employed

The quantitative study will always employ the following terms

i. Microsoft Excel 2007

To produce graphs for the calculated percentages from the gathered primary data, Microsoft Excel 2007 is used.

ii. StatCalc
The Statcalc is a comprehensible tool that makes use of related arithmetical calculations with 22 measures. The Statcalc is used to easily access and make information summing up, substantiate the calculations and increase the intervals of guarantee.

iii. SPSS

SPSS is a package that is used to make the analysis in a different way. SPSS is one of the vast used programs for making statistical analysis in research and social science practices. The most similar area of SPSS uses are product research, marketing research, government research, marketing organizations, medical and health research, companies survey, educational research and so on. The different vastly used and benefited SPSS features are data processing and management, statistical analysis, creating derived data, data documentation, case selection; file reshaping, data compilation and so on. SPSS is a comprehensive system, which is used for analysing the data (Burgess 1989).

3.10 Strategies used for validating findings

Reliability and validity are the two basic criteria taken for quantitative study.

3.10.1 Reliability

In measuring the rightness of the implement used in data, collection is used in reliability (Taylor 2006). The data is gathered by distributing the questionnaires to primary respondents belonging to target Pharma Company in this research. In the research to promise that there is no bias in the gathered material, the researcher has assured that every respondent has responded the entire questions.

3.10.2 Validity

Validity is a method that ensures all necessities of the research and is taken care by the results that are obtained (Coleman, 2007). Validity is maintained by congregation text similar to protection factors touching the structure sites in this study. Validity has been managed in this study by making and framing the questionnaire in such a technique that it emphases the true concepts that are related to research aims, objectives and review of the literature.
3.11 Ethical considerations

The research process must be formulated with ethical considerations and it must be the most important factor in the research part. Researchers need to look forward to the ethical issues that may arise during the studies and research. The ethical issues must be followed in the entire research process. While writing the proposal, it should follow the ethical considerations. Ethics is one that must surely develop the researcher’s honesty towards the study. It must make sure whether the future researches would be supportive and the future researches will make use of the present one. The researcher of this study follows the ethical considerations sincerely. The data collected will be only used for the research purpose. Prior permission will be developed in the first phase.

3.12 Summary

The study is clear and this part states that the research model taken is the positivism and the approach would be quantitative. The technique used for this study is the simple random sampling technique. The data will be collected on both primary and secondary basis. Data will be collected from 290 employees of EISAI India from its both companies in India. The collected data is analysed through excel, SPSS and the StatCalc. The strategies will be used for validating the findings. In addition, the ethical considerations should be taken with utmost care. The data will be collected on line by circulating the questionnaires through SurveyMonkey to the target population.