CHAPTER 3

RESEARCH METHODOLOGY

Research Methodology

Research is an art of scientific investigation. It refers to a search for knowledge. Research methodology is a method to systematically solve the research problem under study. It is the investigation on a particular topic using a variety of reliable, scholarly resources. It is examination on a topic from different points of view. The dictionary definition of research is systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions. It increases the pool of knowledge. It is used to establish or confirm facts, reaffirm the results of previous work, solve new or existing problems, support theorems, or develop new theories or may be an expansion on past work in the field. Research is not merely paying visits to the local library or making some random clicks on the internet, it is diving deep in search of the truth. It is going into new directions which have been least explored. When we talk of research methodology, we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study.

3.1 Research design

It is a sequence of actions planned to be carried out in the process of conducting research. It is a detailed outline of the action plan how investigation will take place. It can be called as the “blueprint” of the research. The design of the study defines whether the study is descriptive, co relational, experimental, quasi-experimental, time-series research etc. In this study titled, “Adversity Quotient in relation to Change Readiness of Executives Working in Telecom Sector”, exploratory research has been done first and then followed the descriptive research for the latter to
be more effective. The latter organizes the data and hypotheses found during the exploratory process. Researchers must spend the necessary time in exploratory research before moving on to the descriptive research as the former provides direction to the latter.

3.2 Scope of the study

The scope of the study defines the area in which the study has been conducted. This study has been restricted to the telecom sector in the states of Punjab, Haryana and Union Territory of Chandigarh. The study covers Network Service Provider Companies and Vendor Companies. The former are business to customer companies and the latter are business to business companies. The list of these companies is presented below:

Table 3.1 List of Network Service Provider Companies and Vendor Companies

Operating in Punjab, Haryana and Chandigarh

<table>
<thead>
<tr>
<th>Network Service Provider Companies</th>
<th>Vendor Companies</th>
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<tbody>
<tr>
<td>1) BSNL</td>
<td>1) Indus Towers Ltd.</td>
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<tr>
<td>2) Idea Cellular Ltd</td>
<td>2) ATC India Tower Corporation Pvt. Ltd.</td>
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<tr>
<td>3) Bharti Airtel</td>
<td>3) Viom Networks</td>
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<td>4) Aircel</td>
<td>4) Erricson India Pvt. Ltd.</td>
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<td>5) Vodafone</td>
<td>5) Nokia</td>
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<td>6) Tata Teleservices</td>
<td>6) GTL</td>
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<tr>
<td>7) Reliance Communications</td>
<td>7) Ascend Telecom Infrastructure Pvt. Ltd.</td>
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<tr>
<td>8) Videocon Telecommunications Ltd.</td>
<td>8) Tower Vision</td>
</tr>
<tr>
<td>9) Himachal Futuristic Communications Ltd.(HFCL)</td>
<td>9) Huawei Telecommunications India Company Pvt. Ltd.</td>
</tr>
<tr>
<td></td>
<td>10) ZTE Telecom India Pvt. Ltd.</td>
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</tbody>
</table>
3.3 Conceptual framework of the study

This study is meant to examine the Adversity Quotient and Change Readiness of the executives working in the telecom sector. The effect of various demographic factors like age, experience, income, gender, qualifications, marital status, department, designation and region of control is also studied vis-à-vis the two constructs. And finally the relationship between Adversity Quotient and the Change Readiness of executives is explored. The conceptual framework of the study is as shown in the figure below:

![Conceptual Framework of the Study](image)

3.4 Objectives

The objectives of the study were as follows:

- To measure the Change Readiness level of executives in the telecom sector.

Keeping in view the magnitude of change that has taken place in the Indian Telecom Sector, measuring the Change Readiness of the executives is both
imperative and helpful in introducing and implementing change processes. It will be measured in terms of Total Change Readiness, Change Readiness for first order organizational changes and Change Readiness for second order organizational changes.

- To measure the Adversity Quotient level of executives in the telecom sector.

Measuring the Adversity Quotient of the executives can provide knowledge regarding their capacity in terms of dealing with adverse situations both in personal lives and professional lives. This information can be used to improve the effectiveness of the executives. Adversity Quotient shall be measured on five dimensions, namely, Control, Ownership, Origin, Reach and Endurance.

- To examine the association between personal characteristics and the Change Readiness of executives, if any.

The personal characteristics of the executives, namely, age, experience, income, gender, qualifications, marital status, department, designation, region of control shall be studied vis-à-vis their Change Readiness to see if these demographics have any effect on their readiness for organizational change.

- To examine the association between personal characteristics and the Adversity Quotient of executives, if any. The personal characteristics of the executives, namely, age, experience, income, gender, qualifications, marital status, department, designation, region of control shall be studied vis-à-vis their Adversity Quotient to see if these demographics have any effect on their Adversity Quotient.
• To find the relationship between the Adversity Quotient and the Change Readiness of the Executives.

The two constructs will be explored to see if there is any relationship between the two. Taking Adversity Quotient as an independent variable, its effect on the Change Readiness of the Executives will be explored. All the dimensions of AQ shall be studied vis-à-vis the Change Readiness of the Executives for first order organizational changes as well as for second order changes.

3.5 Hypotheses

On the basis of the review of literature, the study was advanced on the following hypotheses:

• $H_1$ There will be significant differences in the mean scores of Total Change Readiness, Change Readiness for first order changes and Change Readiness for second order changes for Executives of Network Service Provider and Vendor Companies.

• $H_2$ There will be significant differences in the mean scores of Adversity Quotient and scores on its dimensions, namely, Control, Ownership, Origin, Reach and Endurance for Executives of Network Service Provider and Vendor Companies.

• $H_{3(1)}$ There will be significant difference in the Change Readiness of the Executives in different age categories.

• $H_{3(2)}$ There will be significant difference in the Change Readiness of the Executives in different experience categories.
• $H_3(3)$ There will be significant difference in the Change Readiness of the executives in different income categories.

• $H_3(4)$ There will be significant difference in the Change Readiness of male and female executives.

• $H_3(5)$ There will be significant difference in the Change Readiness of graduate and post graduate executives.

• $H_3(6)$ There will be significant difference in the Change Readiness of married and single executives.

• $H_3(7)$ There will be significant difference in the Change Readiness of the executives from different departments.

• $H_3(8)$ There will be significant difference in the Change Readiness of the executives with different designations.

• $H_3(9)$ There will be significant difference in the Change Readiness of the executives with different region of control.

• $H_4(1)$ There will be significant difference in the Adversity Quotient of the executives in different age categories.

• $H_4(2)$ There will be significant difference in the Adversity Quotient of the executives in different experience categories.

• $H_4(3)$ There will be significant difference in the Adversity Quotient of the executives in different income categories.

• $H_4(4)$ There will be significant difference in the Adversity Quotient of male and female executives.
• H\(_4\) There will be significant difference in the Adversity Quotient of graduate and post graduate executives.

• H\(_4\) There will be significant difference in the Adversity Quotient of the married and single executives.

• H\(_4\) There will be significant difference in the Adversity Quotient of the executives from different departments.

• H\(_4\) There will be significant difference in the Adversity Quotient of the executives with different designations.

• H\(_4\) There will be significant difference in the Adversity Quotient of the executives with different region of control.

• H\(_5\) There will be significant correlation between Adversity Quotient and Change Readiness of the executives.

3.6 Population of the Study

The population in this study consists of all the executives working at lower and middle level in the organizations in telecom sector. An executive is a person who has been given responsibility to manage the affairs of an organization and has the supervisory authority to take decisions in this respect within some boundaries. Though the word ‘executive’ is used most of the times for senior positions in the organizations, these days the designations for the entry level jobs also make use of the word, like, Executive and Senior Executive. The word itself denotes that there is responsibility and authority to take decisions related to one’s job. In this sense, an engineer or a senior engineer, though not part of the management also makes key decisions in his area of work and has been included in this study. In some companies
engineers and senior engineers too are designated as executives and senior executives. Drucker (2006) has defined every knowledge worker in a modern organization to be an "executive" if, by virtue of his position or knowledge, he or she is responsible and capable of making a contribution that materially affects the performance and results of an organization. So, for the purpose of this study, an executive in the telecom sector is one who by virtue of his position is responsible for taking some decisions which are necessary for the accomplishment of his role and duties. There are approximately 5400 employees starting from the level of an executive to that of a senior manager in the telecom sector in Punjab, Haryana and Chandigarh. The implications of this study are of material importance for them.

3.7 Sample Design

The sample in this study has been selected using stratified random sampling technique. Stratified random sampling is a probabilistic sampling method in which the population is split into strata, i.e. sections or segments. The strata are chosen to divide a population into important categories relevant to the research topic. Sample is taken by selecting a certain number of units from each stratum. A more effective sample can be drawn with stratified random sampling method as can be with simple random sampling method. This is so because the random sampling error can be reduced because the groups are internally homogenous and comparatively different amongst themselves. Moreover, a simple random sample may yield a disproportionate number of one group or the other and the representativeness may not be proper. Hence, the representativeness of a stratified random sample is more effective than the representativeness of a simple random sample. In this study, data has been collected from two types of companies, i.e, Network Service Provider companies and Vendor companies. These are considered as two strata for this study. From each stratum,
seven companies were selected randomly. Further from each company, 30 executives were selected randomly. That makes a total sample size of 420 (the sample size is 7.8% of the population). But not all the questionnaires were received back. A total of 401 questionnaires were complete in all respects and were received. The list of the telecom companies included in the survey is as follows:

Table 3.2 List of Companies Included in the Sample

<table>
<thead>
<tr>
<th>Network Service Provider Companies</th>
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3.8 Questionnaire Design

The research tool used for the present study is a self-administered questionnaire. Questionnaire method is one of the widely used tools in field surveys. After a detailed analysis of the objectives of the study, appropriate questions were framed. The questionnaire used in this study consists of two scales.
Change Readiness Scale

First scale which consists of twenty five questions measures the Change Readiness of the executives. These statements represent different change situations in the telecom sector. These statements are categorized into two groups. Group one consists of 12 statements which represent First Order Changes. The second group consists of 13 statements which represent Second Order Changes. This categorization has been done according to the categorization and the definitions of first order organizational change and second order organizational change provided by Burke and Litwin(1992), Palmer and Dunford (1997) and Whittington et al. (1999) and other researchers. A larger set of such statements were prepared and initially shown to academicians, industry experts and concerned executives for the validity of these statements. Twenty five such statements were finalized to measure the Change Readiness, which were accepted by majority of the judges. The readiness on each change situation has been measured on a scale with possible answers, Fully Prepared (5), Quite a Lot Prepared (4), Averagely Prepared (3), Little Prepared (2) and Not at all Prepared (1).

Adversity Quotient Scale

The second scale is used to measure the Adversity Quotient is very similar to the battery developed by Dr. Stoltz, the pioneer of the study of Adversity Quotient. Some statements are same as in the battery; others are similar to the ones in the battery. This section measures five dimensions of Adversity Quotient, namely, Control, Ownership, Origin, Reach and Endurance. Each dimension is measured through five questions. A total of 25 statements have been used to measure the Adversity Quotient of the executives. The ‘Control’ dimension (which tells how much
control a person perceives to have over an adverse event) has been measured on a scale with possible answers, Complete Control (5), Quite a lot of Control (4), Average Control (3), Little Control (2) and No control at all (1). The ‘Ownership’ dimension (which tells how much responsibility and ownership a person takes in an adverse situation) has been measured on a scale with possible answers, I feel completely responsible (5), I feel quite a lot responsible (4), I feel averagely responsible (3), I feel little responsible (2) and I feel not at all responsible (1). The ‘Origin’ dimension (which tells if a person tends to over blame himself in an adverse situation) has been measured on a scale with possible answers, It can be completely because of other factors/people (5), It can be largely because of other factors/people (4), It is partially because of me and partially because of other factors/people (3), Its largely because of me (2) and Its completely because of me (1). The ‘Reach’ dimension (which tells how well a person can limit the effects of an adverse event in his life) has been measured on a scale with possible answers, It is related to this situation only (5), Affects few areas of my life (4), Averagely affects my life (3), affects most of my life (2) and Affects all areas of my life (1). The ‘Endurance’ dimension (which tells about the perception of a person regarding how long the reasons for an adverse event will exist) has been measured on a scale with possible answers, Never exist again (5), Hardly exist again (4), Might or might not exist again (3), Exist mostly (2) and always exist (1).

Reliability and Validity of Scales

The prepared questionnaire has been tested for reliability and validity before using them for data collection. ‘Reliability’ refers to how consistent a measuring device is. A measurement is said to be reliable or consistent if the measurement can produce similar results if used again in similar circumstances. The four methods to
check for the reliability of a test are test-retest method, alternate or parallel forms, split half method and rational equivalence technique. To test the stability of the present scale, the split half method was used first because of some of its advantages over the other methods. One of its main advantages is that all the data for computing its reliability are obtained on one occasion and therefore variance is perfectly avoided. The split-half method is most commonly used to check the internal consistency of the tool. In this method, the test is divided into two halves based on odd-even basis. Then the scores on one half of the test are correlated with scores on the other half of the test. The correlation between the two halves is used in estimating the reliability of the test. This halves reliability estimate is then extended to the full test by using the Spearman–Brown prediction formula. In this study, split-half reliability was checked with thirty respondents. In this tool, this coefficient value has been found out to be 0.74 for ‘Change Readiness’ scale, 0.70 for ‘Adversity Quotient’ scale. The coefficient value is 0.68 for set of statements measuring change readiness for first order changes, 0.72 for the set of statements measuring change readiness for second order changes, 0.73 for the set of statements measuring ‘Control’ dimension, 0.67 for the set of statements measuring ‘Ownership’ dimension, 0.72 for the set of statements measuring ‘Origin’ dimension, 0.69 for the set of statements measuring ‘Reach’ dimension and 0.71 for the set of statements measuring ‘Endurance’ dimension. These values are within an acceptable range. The scales were also tested for reliability using test retest method and similar scores were obtained.

‘Validity’ refers to whether a questionnaire measures or examines what it is intended to measure or examine. Validity is important because it helps to determine what types of tests to use, and helps to determine if the researcher is using a method or tool that is not only ethical, and cost-effective, but also an appropriate one that
truly measures the idea or construct in question. The overall validity of a measurement tool is sometimes referred to as its construct validity. ‘Content Validity’ determines if the tool has items covering all the aspects of the construct to be measured. For this tool, the content validity was checked using the inputs from twenty experts. According to Lawshe (1975) if more than half of the experts agree that the statement/item is essential, it is retained. Therefore, only those statements/items were retained which got a positive nod from ten or more experts. ‘Face validity’ exists when a test ‘appears’ to measure what it is supposed to measure, i.e., it ‘looks valid’. The face validity of the tool was established by editing it again and again and by giving it to several experts for their suggestions.

A Pilot Survey is a preliminary piece of research conducted before a complete survey to test the effectiveness of the research methodology. It is usually carried out on members of the relevant population, but not on those who will form part of the final sample. This is because it may influence the later behavior of the respondents if they have already been involved in the research and their responses may not be true. For this study the pilot survey was conducted with 20 executives who were later kept out from the final sample. In this manner the tool was checked so that there were no problems in the future. Participants gave their feedback and helped in further refining the tool.

3.9 Collection of Data

Data is one of the vital components of any research. It is the basic unit of statistical studies. Data is of two types, primary data, which is collected from firsthand experience using questionnaires, observations, experiments, interviews etc.; secondary data which can be collected from books, journals, government and non-
government agencies, newspapers, earlier studies, papers presented in seminars and conferences, internet etc. Data collection is the process of preparing and collecting data to obtain information that can be useful in decision making. Irrespective of the field of the study, accurate data collection is essential to maintain the integrity of research. Data can be collected using three main types of surveys: censuses, sample surveys, and administrative data. In this study, sample survey method has been used. The respondents of the study were contacted during their office timings. The questionnaire was left with them as it is a self-administered questionnaire and was collected after a day or two. Any doubts were cleared in the second meeting and the questionnaires were completely filled. For secondary data, Punjab University, Chandigarh; Punjabi University, Patiala; Guru Nanak Dev University, Amritsar; Kurukshetra University, Kurukshetra and ICSSR, New Delhi were visited and relevant studies were collected.

3.10 Statistical Techniques Used

The statistical techniques used in the study were:

Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data used in a study. Some of the commonly used measures to describe a set of data are measures of central tendency and measures of variability or dispersion. Measures of central tendency are the mean, median and mode, whereas the measures of dispersion include the standard deviation (or variance), the minimum and maximum values of the variables, kurtosis and skewness. Mean is the average of numbers. It can also be defined as a calculated central value of numbers. Standard deviation shows how much dispersion or deviation or variation from the average exists. A low standard deviation
indicates that the data points are close to the mean whereas a high standard deviation indicates that the data points are spread out over a large range of values. Skewness is the asymmetry in a statistical distribution. It defines the extent to which a distribution differs from a normal distribution. It can be positive or negative. Kurtosis is the measure of the peak of a distribution and it indicates how high the distribution is around the mean. In this study, descriptive statistics, namely, mean, standard deviation, skewness and kurtosis were computed to study the nature of distribution of scores of various individual related variables like age, experience, income of executives; dependent variable, i.e., Change Readiness and the independent variable, Adversity Quotient and its dimensions.

**Pearson Product Moment Correlations**

It is the measure of linear correlation or dependence between two variables. It was developed by Karl Pearson. It is denoted by ‘r’. It can have value between +1 and -1(inclusive). It tries to draw a line of best fit through the data of two variables. Pearson product moment correlations were calculated to study the relationships between individual related variables (age, experience, income of executives) and Change Readiness, Adversity Quotient and its dimensions.

**Analysis of Variance (ANOVA)**

ANOVA is used to find if there is any difference between the means of groups on some variable. This is done by analyzing the variance. The variance is partitioned into two components, one, that is due to true random error, the other, that is due to difference in the means. The latter component is then tested for statistical significance. In this study, ANOVA was used to study the effect of age, experience, income, gender, qualifications, marital status, department, designation, region of
control and company type of the executives on their Change Readiness, Adversity Quotient and its dimensions.

**Multiple Regression Analysis**

Multiple regression is an extension of simple linear regression. It is used to predict the value of a variable based on the value of two or more other variables. The variable whose value is to be predicted is called the dependent variable or criterion variable and the variables used to predict the value of the dependent variable are called the independent variables or explanatory variables. In this study, multiple regression analysis was used to study the relationship between the dependent variable, i.e, Change Readiness of executives and the independent variable, i.e, Adversity Quotient of executives and its dimensions.

**3.11 Delimitations of the Study**

- The study has been restricted to the states of Punjab, Haryana and the U.T. of Chandigarh.
- Sample of the study has been restricted only to telecom companies in the selected regions.
- The sample size of the study was small as compared to the universe.
- Biasness and resistance of the respondents due to their personal reasons could not have been mitigated altogether.
- Lack of published/unpublished literature related to the topic of the study in the country was another limitation.
REFERENCES


