CHAPTER – 3
RESEARCH DESIGN AND METHODOLOGY

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3.1 Need and significance of the study

Difficulties strengthen the mind, as labor does the body - Seneca

In the midst of the current world financial crisis, organizations are exploring new opportunities to survive and thrive. Organizations that respond and enable a transformational change across the value chain are more likely to succeed. The need for action is imminent and compelling in a world where volatility and uncertainty impact organizations in unanticipated ways. “It is not the strongest of the species that survives, or the most intelligent, but the most responsive to change” observed Charles Robert Darwin way back in 1859 in his seminal book *The origin of Species*.

Rajan, (2009) suggested paradoxical as it may seem, in times of adversity, for organizations that respond strategically and decisively with an unrelenting execution focus, opportunities abound.

Welcoming adversities into the work-place is critical to the success of organizations. The changes now affecting the work-place extend far beyond the needs of upgrading production and coping with increased market competition. These profound changes cannot be embraced and integrated without addressing our deepest thoughts and feelings. They require us to open our minds and deal with the adversities.

Singh, (1998) stated that we often tend to ignore the extent of damage caused to one’s performance by adversities. IQ is inherent, EQ can be developed but reacting in the right manner at the right time can prove beneficial to one’s health, relationships and performance. It not only helps to understand and control oneself
but also others. If we are able to channelise our reactions to events in a productive manner, other benefits will follow.

Often questions are raised about the efficacy of HR. The greatest challenge facing the HR professions is to establish in no uncertain terms that sound HR practices make immense contribution to sustainable long term performance of a company. HR contributes positively to the shareholders value. Reddy, (2004)

Hence, the HR process now requires introducing a new parameter in recruitment, training and performance management that provides industry managers the ability to absorb & innovate constantly for business continuity and expansion in the face of any adversity. This measure of managerial competence in the last few years is fast becoming a new mantra for developing a strong managerial workforce and is known as Adversity Quotient® (AQ®). AQ® is fundamental to business and leadership in any country, culture or industry in the global new economy. Stoltz, (1997)

### 3.2 Statement of Problem

This study examines the “Use of Adversity Quotient® in creating strong business leaders of tomorrow” as revealed by the Performance feedback system and also the demographic details of the participants.

### 3.3 Test Hypothesis

Hypothesis is usually considered as the principal instrument in research. It’s main function is to suggest new experiments and observations. When one talks about hypothesis, it simply means a mere assumption or supposition to be proved or disproved. A Research Hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable.
Initially the following set of Prime Hypothesis was considered for testing:

1. $H_a$: “Higher Adversity Quotient® creates Sustainable Optimism leading to strong business leaders of tomorrow.”

2. $H_o$: “Higher Adversity Quotient® does not always have significant and direct contribution in creating strong business leaders.”

To establish the above hypothesis, the following sub-set hypothesis (which evolved from the prime hypothesis) was framed for testing:

1. $H_a$: There is a relationship between Adversity Quotient® and Performance of senior professionals studied in all industries and specific to each industry.

2. $H_o$: There is no relationship between Adversity Quotient® and Performance of senior professionals studied in all industries and specific to each industry.

3. $H_a$: There is a relationship between Control Dimension and Performance of senior professionals studied in all industries and specific to each industry.

4. $H_o$: There is no relationship between Control Dimension and Performance of senior professionals studied in all industries and specific to each industry.

5. $H_a$: There is a relationship between Ownership Dimension and Performance of senior professionals studied in all industries and specific to each industry.

6. $H_o$: There is no relationship between Ownership Dimension and Performance of senior professionals studied in all industries and specific to each industry.

7. $H_a$: There is a relationship between Reach Dimension and Performance of senior professionals studied in all industries and specific to each industry.
8. $H_0$: There is no relationship between Reach Dimension and Performance of senior professionals studied in all industries and specific to each industry.

9. $H_a$: There is a relationship between Endurance Dimension and Performance of senior professionals studied in all industries and specific to each industry.

10. $H_0$: There is no relationship between Endurance Dimension and Performance of senior professionals studied in all industries and specific to each industry.

For testing the above hypotheses, data was collected from a total of 131 respondents from 5 industries and in specific industry $n =$ 38 for IT, 28 for Hotel, 26 for Hospital, 25 for Retail and 14 for ITES/BPO.

### 3.4 Objectives of the study

A genuine attempt has been made to answer the following questions through this study:

1. What is the demographic profile of the senior managers as to age, gender, role, educational qualification, compensation, total years of service etc.?

2. What is the adversity quotient® of senior managers as to the following dimensions: Control, Ownership, Reach and Endurance?

3. What is the performance level of the senior managers as evaluated by their organizational heads in the areas of on-job performance and their strengths?

4. Is there a significant relationship between the respondent’s demographic profile/s and adversity quotient® and it’s four dimensions?

5. Is there a significant relationship between the respondent’s adversity quotient® and performance levels?
Hence, the objectives drawn for the study are as follows:

1. To analyze the demographic variable “Gender” used in the study and examine the mean value on Control, Ownership, Reach and Endurance (CORE®) and Adversity Quotient® (AQ®) for this variable vis-à-vis the global mean value.

2. To analyze the demographic variable “Age” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

3. To analyze the demographic variable “Role” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

4. To analyze the demographic variable “Industry” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

5. To analyze the demographic variable “Qualification” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

6. To analyze the demographic variable “Socio Economic Status” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

7. To analyze the demographic variable “Family Composition” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.
8 To analyze the demographic variable “Number of Family Members” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

9 To analyze the demographic variable “Marital Status” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

10 To analyze the demographic variable “Spouse Role” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

11 To analyze the demographic variable “Number of Children” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

12 To analyze the demographic variable “Total Work Experience” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

13 To analyze the demographic variable “Work Experience in Current Company” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

14 To analyze the demographic variable “Roles Grown Till Date” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

15 To analyze the demographic variable “Roles Grown in Current Company” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.
To analyze the demographic variable “Average Duration in Each Role” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Travel in Role” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Team Size” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Daily Duration at Work” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Travel Comfort” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Pursuing Further Studies” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Performance Band” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.

To analyze the demographic variable “Strengths Band” used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value.
24 To analyze the demographic variable "Citizenship Category" used in the study and examine the mean value on CORE® and AQ® for this variable vis-à-vis the global mean value. To understand the impact of Adversity Quotient® on the overall performance of industry managers/leaders.

25 To study whether there exists or not a relationship between AQ® and Performance of senior professionals in all industries and specific to each industry.

26 To study whether there exists or not a relationship between CORE® and Performance of senior professionals in all industries and specific to each industry.

27 To draw conclusions based on the analysis.

28 To introduce a new parameter in HR processes of recruitment, training, disaster management, counseling, performance management, succession planning and employee reach that provides industry managers the ability to absorb & innovate constantly for business continuity and expansion in the face of any adversity and

29 To build evaluation measures that organizations can use in a practical way for managing their human resources function to ultimately have a strong work-force whose AQ® is optimally matched for creating sustainable optimism leading to successful organizations.

3.5 Research Design and Research Methods

Kothari (1999) brought out that Research is search for knowledge, or any systematic investigation, with an open mind, to establish novel facts, usually using a scientific method. Research covers all kinds of studies designed to find responses to worthwhile questions by means of a systematic and scientific
approach. Some people consider research as a movement from the known to the unknown, a voyage of discovery.

Cooper & Schindler (2002) expressed that Research Design provides the glue that holds the research project together. A design is used to structure the research, to show how all of the major parts of the research project, the samples or groups, measures, treatments or programs, and methods of assignment, work together to try to address the central research questions. Developing an ideal research design involves identifying representative sample and selection of an appropriate statistical tool to understand the research study meaningfully. Thus, systematic collection of data, logical analysis and interpretation of the data using tools which are highly reliable are the key factors for the success of any research design.

The main two methods of carrying out a research are qualitative and quantitative. Qualitative studies concentrate mainly on words and meanings and aim to capture the richness and complexity of human experience. Quantitative studies involve recording information obtained from participants in numerical form so as to enable statistical analysis of the findings and the generalization of those findings to the wider population. The researcher has used both the qualitative and the quantitative methods of carrying out this research.

3.5.1 Techniques of Analysis used in this study

Research techniques is the behaviour and instruments used in performing research operations such as making observations, recording data, techniques of processing data. Research method is the behaviour and instruments used in selecting and constructing research techniques. Kothari, (1999)

The following Research Methods and techniques were used in the AQ® study:
### Table 3.1: List of Research Methods and Research Techniques

<table>
<thead>
<tr>
<th>I. Research Type: Library Research / Desk Research</th>
</tr>
</thead>
</table>

**Research Methods:** Review of existing research literature, Analysis of historical data of AQ®, Analysis of various articles/documents on AQ®

**Research Techniques:** Various notes were recorded. Content analysis was undertaken. Books, reference and abstract guides, magazines, journals were checked to read more on the subject. Internet based desk research was done on AQ®

<table>
<thead>
<tr>
<th>II. Research Type: Field Research</th>
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</table>

**Research Methods:** Mailing of AQ® questionnaires, additional variables Form and Employee Evaluation Form. Personal Interview had with the respondents. Telephonic Interview with respondents who had traveled abroad on official visit.

**Research Techniques:** Identification of the participating companies. Building a databank questionnaire measurement and a model for expressing statistical inferences and undertaking large scale data collection. Seeking the necessary approvals for applying the study on the top management employees through mail and personal meetings. Sending the questionnaires to the respondents. Meeting the respondents, briefing them about the study and influencing them to respond. Speaking with the respondents on telephone and briefing them about the study and soliciting their responses. Following up with some respondents on the telephone for receiving the completed questionnaires from them. Analyzing the data using statistical tools applying model and arriving at results to prove the hypothesis or against.

(Source: Compiled by the Researcher)
3.6 Statistical Tools used in the study:

This study examines the use of Adversity Quotient® in creating strong business leaders of tomorrow as revealed by the performance feedback system and also the demographic details of the participants.

The researcher analyzed AQ® score and CORE® values for each sub group based on demographic and work variables and also different industry type. Descriptive statistics involving Mean & Standard Deviation are used. Primarily Mean values of each sub group were compared with global mean values. Performance data were collected in terms of labels which conform to ordinal scale, therefore non-parametric tools were used. The researcher used confirmatory data analysis methods to analyze the data like mean, standard deviation, bar & graphical representations and has interpreted the findings accordingly. The researcher has also applied Chi-square testing on Performance Variables for hypothesis testing.

3.6.1. Mean (M)

Rees (1985) defined Mean as the arithmetic average. Woodworth (1961) opined that mean is the sum of the separate scores or measures divided by their number.

3.6.2. Standard Deviation (σ)

Standard deviation is a widely used measurement of variability or diversity used in statistics and probability theory. It shows how much variation or dispersion there is from the mean. A low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data is spread out over a large range of values. The standard deviation of a statistical population, data set, or probability distribution is the square root of its variance.
3.6.3. Histograms (Bar and Graphical Representation)

Cooper & Schindler (2002) opined that the histogram is a conventional solution for the display of interval-ratio data. Histograms are used when it is possible to group the variable’s values into intervals. Histograms are constructed with bars that represent data values, where each value occupies an equal amount of area within the enclosed area. The researcher has used bar and graphical representation to present the data in this research study.

3.6.4. Chi-Square

Chi is a Greek letter (χ) and is pronounced like the word kye sound. The chi-square (χ²) test is the most commonly used method for comparing frequencies or proportions. Chi-square statistics use nominal (categorical) or ordinal level data, thus instead of using means and variances, this test uses frequencies.

It is a statistical test used to determine if observed data deviate from those expected under a particular hypothesis. The chi-square test is also referred to as a test of a measure of fit or "goodness of fit" between data. Typically, the hypothesis tested is whether or not two samples are similar or different enough in a particular characteristic to be considered members of the same or different populations.

Chi-square analysis belongs to the family of univariate analysis, i.e., those tests that evaluate the possible effect of one variable (often called the independent variable) upon an outcome (often called the dependent variable).

The chi-square analysis is used to test the null hypothesis (H₀), which is the hypothesis that states there is no significant difference between expected and observed data. Researchers either accept or reject H₀, after comparing the value of chi-square to a probability distribution. Chi-square values with low probability lead to the rejection of H₀ and it is assumed that a factor other than chance creates a large deviation between expected and observed results.
This approach consists of four steps: (1) state the hypotheses, (2) formulate an analysis plan, (3) analyze sample data, and (4) interpret results.

### 3.6.4.1. State the Hypotheses

The first step in applying Chi Square is to state the null hypothesis and an alternate hypothesis. The Researcher was keen to test the 10 sub-set hypothesis framed as brought out under the heading “Hypothesis” in this chapter.

### 3.6.4.2. Formulate an Analysis Plan

The analysis plan describes how to use sample data to accept or reject the null hypothesis. Often, researchers choose significance levels equal to 0.01 or 0.05. For the purpose of this study, the researcher chose significance levels at 0.05 (*) and 0.01 (**).

### 3.6.4.3. Analyze Sample Data

Applying the chi-square test for independence to sample data, the degrees of freedom, the expected frequency counts, and the chi-square test statistic was computed. Based on the chi-square statistic and the degrees of freedom, the P-value was determined.

To test the hypothesis in this case, the alternative formula of calculating the value of $X^2$ from 2 x 2 quadrants has been used. Thus, the cell frequencies and marginal totals in case of a (2 x 2) table were computed as:

\[
\begin{array}{c|c|c|c}
  & a & b & (a + b) \\
  & c & d & (c + d) \\
(a + c) & (b + d) & N \\
\end{array}
\]
The formula for calculating the value of $X^2$ as stated below was applied:

$$X^2 = \frac{(ad - bc)^2 x N}{(a+c)(b+d)(a+b)(c+d)}$$

3.6.4.4. Interpret Results

If the sample findings are unlikely, given the null hypothesis, the researcher rejected null hypothesis. Typically, this involves comparing the P-value to the significance level, and rejecting the null hypothesis when the P-value is less than the significance level.

3.6.4.5. Degree of freedom:

Degree of freedom can be described as the number of scores that are free to vary. In many situations, the degrees of freedom are equal to the number of observations minus one. In Chi-square the degree of freedom is $(r-1)(c-1)$.

3.6.4.6. Chi-square critical value:

The chi-square critical value can be any number between zero and plus infinity. The chi-square calculator computes the probability that a chi-square statistic falls between 0 and the critical value.
3.6.4.7. Cumulative probability:

A cumulative probability is a sum of probabilities. The chi-square calculator computes a cumulative probability. Specifically, it computes the probability that a chi-square statistic falls between 0 and some critical value (CV).

3.6.4.8. Chi-square statistic:

A chi-square statistic is a statistic whose values are given by

\[ X^2 = \left( \frac{(n - 1) \times s^2}{\sigma^2} \right) \]

where \( \sigma \) is the standard deviation of the population, \( s \) is the standard deviation of the sample, and \( n \) is the sample size. The distribution of the chi-square statistic has \( n - 1 \) degree of freedom.

3.6.4.9. Probability:

A probability is a number expressing the chances that a specific event will occur. This number can take on any value from 0 to 1.

3.7 Classification of Variables used in the study:

Variables are things that we measure, control, or manipulate in research. They differ in many respects, most notably in the role they are given in research and in the type of measures that can be applied to them. Independent variables are those that are manipulated whereas dependent variables are only measured or registered.
The variables used in the study are as follows:

**Table 3.2: List of Biographic, Work, AQ® and Performance Variables**

<table>
<thead>
<tr>
<th>Biographic Variables:</th>
<th>5 Duration in roles in current company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gender</td>
<td>6 On job travel</td>
</tr>
<tr>
<td>2 Age</td>
<td>7 Team Size</td>
</tr>
<tr>
<td>3 Role</td>
<td>8 Working hours</td>
</tr>
<tr>
<td>4 Industry</td>
<td>9 Daily travel effort</td>
</tr>
<tr>
<td>5 Education</td>
<td>10 Pursuing further studies</td>
</tr>
<tr>
<td>6 Socio economic status</td>
<td>11 Multi-skilling &amp; multi-tasking</td>
</tr>
<tr>
<td>7 Type of family</td>
<td>AQ® Variables:</td>
</tr>
<tr>
<td>8 Number of family members</td>
<td>1 Control score</td>
</tr>
<tr>
<td>9 Marital status</td>
<td>2 Ownership score</td>
</tr>
<tr>
<td>10 Spouse status</td>
<td>3 Reach score</td>
</tr>
<tr>
<td>11 Number of children</td>
<td>4 Endurance score</td>
</tr>
<tr>
<td>Work Variables:</td>
<td>Performance Variables:</td>
</tr>
<tr>
<td>1 Total working experience</td>
<td>5 Adversity Quotient® score</td>
</tr>
<tr>
<td>2 Experience in current company</td>
<td>1 Performance score</td>
</tr>
<tr>
<td>3 Roles grown till date</td>
<td>2 Strengths score</td>
</tr>
<tr>
<td>4 Roles grown in current company</td>
<td>3 Citizenship category</td>
</tr>
</tbody>
</table>

(Source: Compiled by the Researcher)

### 3.8 Description of variables:

#### 3.8.1 Gender:

The gender variable was considered to check the relationship of Adversity Quotient® and its dimensions with specific genders. The researcher was keen to observe the impact that AQ® had on male and female top management professional’s performances and other variables.
3.8.2 Age:

The age variable was considered to check the relationship of Adversity Quotient® and its dimensions with professionals in specific range of age. The age of respondents were arranged in five bands. This variable was examined to find the relationship of age of a top management professional with AQ® and performances.

3.8.3 Role:

The role variable was considered to check the relationship of Adversity Quotient® and its dimensions with specific roles performed by the top management professionals in the five industries. The roles of the respondents were listed together and it was observed that there was a total of more than 75 roles. In order to study the impact AQ® has on the role of respondents, these various roles were classified under five categories namely, CEO and Director, Vice President and Assistant Vice President, Divisional Head, Manager, Executive Assistants and Medical Professionals.

3.8.4 Industry:

There were five different service industries chosen for application of the AQ® study. The top management employees of companies from Information Technology, Hotel, Hospital, Retail and ITES/BPO industries participated in this study. There were three IT companies, three hotels, two hospitals, two ITES/BPO and two retail companies who supported application of this study in their organizations. This variable was studied to find the relationship of employees AQ® and performances in the varied industries.

3.8.5 Education:

The education variable of respondents was classified in the category of Graduation, Post Graduation and Professional Qualifications. This variable was
studied with the intent of checking it’s relationship on Adversity Quotient®, Performance and also the other independent variables. Did education help a leader in team management, was the leader able to mentor, monitor and motivate in the right manner. Was the leader able to enable self performances and team performances to higher productivity?

3.8.6 Socio Economic Status:

Socio Economic Status was bifurcated into upper middle class and middle class. Respondents who earned an annual salary of more than Rs.20.00 Lakhs were classified under upper middle class. Those respondents who earned an annual salary of less than Rs.20.00 Lakhs were classified under middle class. The benchmark of Rs.20.00 Lakhs was considered based on the opinion of two experts from two renowned Banks. This variable was studied with the view of checking its relationship on Adversity Quotient®, Performance and also other variables. Did the spending capacity of a professional affect his/her AQ® and did it have any effect on the independent variables such as his/her control score, ownership score, reach score, endurance score etc.

3.8.7 Type of Family:

The type of family was classified as Nuclear Family and Joint Family. With more and more professionals having to move out of their home towns to build their career or re-locate from their base locations in order to take up challenging roles in a global organization, the age old joint family composition is weaning out over a period of time. In the current age of global mergers & acquisitions, there has been a trend of nuclear families mushrooming owing to the realistic demands. The researcher felt the need to study this variable too, since both family compositions has its own advantages and dis-advantages for a professional. Incase of having a working spouse, did it help the working professional/respondent to stay in a joint family which eased out the challenges of having to leave his/her child/ren unattended or at a crèche? Incase a role demanded a professional to travel...
frequently on the job, did it give relief to know that his/her spouse/family were staying in a joint family?

3.8.8 Number of Family Members:

The total numbers of family members of the respondents were arranged in five categories. This variable was examined to find the relationship of number of family members of top management professionals with AQ®, performances and other variables. Did a higher number of family members residing together increase or decrease the AQ® of Professionals?

3.8.9 Marital Status:

Marital status was classified as Single, Married, and Divorced. This variable was studied to ascertain the relationship it has on AQ®, performance and other variables of the respondents. Were the stress levels of a single person, a married or divorced person higher and how did it affect one’s AQ®?

3.8.10 Spouse Role:

Spouse role was classified as Home Maker, Working Professional and Passed Away. There were 13 respondents who were single. Hence the spouse status variable was taken from 118 respondents. This variable was studied to ascertain the relationship it has on AQ®, performance and other variables of the respondents. Was the AQ® of a top professional whose spouse is an homemaker or a working professional be the same or were there differences observed?

3.8.11 Number of Children:

The total numbers of children of the respondents were arranged in three categories, those having 1 child, respondents with 2 children and those having no child. There were 13 respondents who were single. Hence the number of children variable was taken from 118 respondents. This variable was examined to find the
relationship of top management professionals with AQ®, performances and other variables. Did having a child or children impact the AQ® of a top professional?

3.8.12 Total Working Experience:

Total Working Experience is the total number of years the respondent has been working as a professional right from the first job till the current one. Incase there were any break in career owing to pursuance of further studies or any other reason, the researcher has not considered such period in the calculation of total working experience. The total working experience of respondents was arranged in four bands. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondent.

3.8.13 Experience in current company:

Experience in current company is the total period which the respondent has been working in the current organization, i.e. period calculated from the date of his joining till the current date. While calculating this variable too, incase there was a break in career owing to pursuance of further studies or any other reason, the researcher has not considered such period in the calculation of experience in current company. The working experience of respondents in their current company was arranged in four bands. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondent.

3.8.14 Roles grown till date:

Roles grown till date imply the total roles that a respondent has performed in his/her working career, as a professional, right from the first job till the current one. The number of roles grown of respondents was arranged in four bands. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondent.
3.8.15 **Roles grown in the current company:**

Roles grown in the current company imply the total roles that a respondent has performed in the current company from the date of his/her joining till the current date. The number of roles grown in the current company of respondents was arranged in four bands. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondent.

3.8.16 **Duration of each role in current company:**

Duration of each role in the current company was arrived by taking an average of the total number roles against the total duration of the professional working in the current company. The duration of each role in the current company of respondents was arranged in five bands. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondent.

3.8.17 **On Job Travel:**

In today’s global world which is full of complexities and where speed & delivery before time is the buzz word, at top management level there is an expectation already set that a leader has to undertake any kind of official travel as per the company’s requirements. This is in-fact one of the assumed responsibility in the role that a leader is expected to perform. Travel duration could be for a short term or a long term travel. The researcher felt the need to study this variable since there are a number of adversities which a leader has to manage while fulfilling his responsibilities in any travel. This variable was classified into two bands of professionals who undertake travel in their role and those who do not have any travel in their job. This variable was studied to ascertain the relationship it has on the performance of the respondents.
3.8.18  Team Size:

It’s said that Leadership is all about “Managing your flock well.” A good leader is able to create more leaders by nurturing, inspiring & mentoring one’s team well. Organizations thrive even in the most adverse environments against tough competitions and come out as Market Leaders solely because of the contributions of their internal leaders who propel their organization towards such growth. The researcher through this variable wanted to study the relationship of AQ® on team size, performances and other variables. Did Leaders with smaller teams have higher AQ® and vice-versa? Was the Control, Ownership, Reach and endurance score of Leaders with larger teams higher or vice-versa?

3.8.19  Working Hours:

During the interview with the respondents, the researcher sought information on the total working hours that they spent daily on the job. The researcher wanted to study the relationship of the total working hours of a top management professional with his/her AQ®, performance and the other variables.

3.8.20  Daily Travel Effort:

As per an article appeared in Times of India dated 14th October, 2010, City commuters, who travel along the main arterial routes to work and back, will be able to cut down on their travel time by over 50% once the new monorail and Metro start plying in the next three years. Dilip Kawathkar, joint project director of Mumbai Metropolitan Region Development Authority (MMRDA), said, "The travel studies show that the average daily travel time in the city is two hours. We are sure that the new modes of transport will reduce the commuting time by half for a large number of commuters." But till such time, with all the infrastructure developments being undertaken at this moment, the road travel time & stress for the working population has increased considerably. The researcher was keen to study the relationship that daily travel efforts of the respondents had on AQ®, performances and other variables.
3.8.21 Pursuing Further Studies:

While interviewing the respondents, the researcher found that there were many who wanted to pursue further studies, however owing to time constraints; they were unable to do so. While a few working professionals were able to manage their time at work, home and also devout some time to pursue further studies. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondents.

3.8.22 Multi-Skilling and Multi-Tasking:

The researcher sought information on whether the respondents were multi-skilling and multi-tasking in their job role. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondents.

3.8.23 Control Score:

There are four dimensions of Adversity Quotient® (AQ®), which are CORE®, which means Control, Ownership, Reach and Endurance. Control measures the degree of control that a person perceives he/she has over adverse situations. High AQ® people perceive they have more control when adversity strikes. Control is a strong gauge of resilience and health. There are two kinds of control: one is to what extent one can influence the situation no matter how impossible it is; the second is response control, or controlling one’s response to the adversity. The Control scores of respondents were arranged in five bands. This variable was examined to find the relationship it has with AQ® and performance and other variables.

3.8.24 Ownership Score:

Ownership measures the extent to which a person holds himself or herself accountable for improving a situation. It is a strong gauge of accountability and
likelihood to take action. High AQ® people take ownership for bettering situations they had nothing to do with causing. The Ownership scores of respondents were arranged in five bands. This variable was studied to ascertain the relationship of ownership of a top management professional with AQ®, performance and other variables.

3.8.25 Reach Score:

Reach is the perception of how large or far-reaching events will be into other parts of one’s life. It is a strong gauge of perspective, burden, and stress level. Low AQ® people allow adversity to affect all aspects of their lives. High AQ® people contain the adversity to the immediate situation. The Reach scores of respondents were arranged in five bands. This variable was examined to find the relationship of Reach of a top management professional with AQ®, performance and other variables.

3.8.26 Endurance Score:

Endurance is the perception of time over which good or bad events and their consequences will last or endure. It is a strong gauge of hope or optimism. For low AQ® people, the adversity lasts forever or at least for indefinite periods. High AQ people limit the time adversity lasts to short periods. The difference is that low AQ people tend to see the adversity as a permanent state, while high AQ people perceive the adversity as a temporary condition. The Endurance scores of respondents were arranged in five bands. This variable was studied to ascertain the relationship of endurance of a top management professional with AQ, performance and other variables.

3.8.27 Adversity Quotient® Score:

Adversity Quotient® (AQ®) is the science of human resilience. It is a valid measure, a tool to ascend and a new theory of effectiveness. For businesses and
corporate organizations, a high-AQ® workforce translates to increased productivity, effectiveness and innovation, as well as lower attrition and higher morale. The Adversity Quotient® scores of respondents were arranged in five bands. This variable was studied to ascertain the relationship it has on the performance and productivity of a top management professional and also with the other variables studied by the researcher.

3.8.28 Performance Scores:

Performance of a respondent indicated his/her direct output on the job viz. timely & successful completion of key deliverables, managing team motivation, mentoring & work-flow monitoring, contributions towards enhancing quality, contributions made by publishing white papers, being a brand ambassador. The performance scores were provided for all respondents by either their Head – Human Resources or the CEO of their organizations in the bands of Platinum, Diamond, Gold, Silver and Bronze. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondents.

3.8.29 Strengths Scores:

Strengths of a respondent indicated his/her behavioural disposition on the job namely, discipline, timeliness, leadership, cost consciousness, perseverance, completion sensitive, being positively charged, walking the talk. The strength scores too were provided for all respondents by either their Head – Human Resources or the CEO of their organizations in the bands of Platinum, Diamond, Gold, Silver and Bronze. This variable was studied to ascertain the relationship it has on the AQ®, performance and other variables of the respondents.

3.8.30 Citizenship Category:

The researcher converted the Performance and Strengths scores provided for all the respondents by either their Head – Human Resources or the CEO by providing
a rating to each band. Platinum was equal to 5, Diamond equal to 4, Gold equal to 3, Silver equal to 2 and Bronze equal to 1. Citizenship category was calculated by adding the scores of Performance and strengths of each respondent. The final scores were used by the researcher to bifurcate the respondents in three Citizenship categories of Climbers, Campers and Quitters. This important variable was studied to ascertain the relationship it has on the AQ® and other variables of the respondents.

3.9 Sampling Techniques:

As per Trochim (2006), Sampling is the process of selecting units (e.g., people, organizations) from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen.

When psychologists do research, they are often interested in developing theories that would hold for all humans. But in most applied social research, interest is in generalizing to specific groups. The group which is generalized is often called the population in a study. This is the group from which sample is selected because this is the group one is interested in generalizing to.

Thus the sampling process involves truly finding answers to the following:

Who do you want to generalize? - The Theoretical population
What population can you get access to? - The Study population
How can you get access to them? - The Sampling frame
Who is in your study? - The Sample

Once the theoretical and accessible populations are identified, one more thing has to be done before actually drawing a sample – getting a list of the members of the accessible population. The listing of the accessible population from which the
sample will be drawn is the Sampling frame. The sample is the group of people who is selected to be in the study.

3.9.1 Types of Sampling:

Sampling can be classified into two broad categories:

**Probability Sampling:** Probability or random sampling gives all members of the population a known chance of being selected for inclusion in the sample and this does not depend upon previous events in the selection process. In other words, the selection of individuals does not affect the chance of anyone else in the population being selected.

**Non-Probability Sampling:** Non-probability sampling does not involve random selection. Non-probability sampling methods are classified into two broad types: accidental or purposive. Most sampling methods are purposive in nature because usually the sampling problem is approached with a specific plan in mind.

The sampling technique applied in this study is Non- Probability Purposive sampling with restricted sampling among carefully chosen response population of top management working professionals from the Information Technology, Hotel, Hospital, ITES/BPO and Retail Industries.

3.10 Selection Criteria:

Twelve commercial organizations from IT, Hotel, Hospital, ITES/BPO and Retail Industry within defined size (roles, work experience, number of people etc.) was chosen. For the purpose of establishing hypothesis, one each from 3 sectors was chosen by the information known of their high performance and higher standards of HR practices. The number of organizations for sampling or data collection was not enhanced since the primary research established the clear trend and the doctoral guide was convinced of the sample size.
For each organization selected in this study the respondents were selected from the Corporate as well as Line Function, involved fully in technical cum operational responsibilities. A total of 131 top management working professionals participated in this study. 38 respondents participated from three Information Technology companies namely Infrasoft Technologies Limited, Goldensource Limited and Hexaware Technologies Limited. 28 respondents participated from three Hotels namely Hotel Taj Lands End, The Orchid Hotel and Renaissance Hotel. 26 respondents participated from two Hospitals namely Hiranandani Hospital and The Lok Group of Hospitals. 25 respondents participated from two Retail companies namely Shoppers Stop Limited and Aditya Birla Retail and 14 respondents participated from two ITES and BPO companies namely Zenta and WNS Global Services. Hence the total sample size of 131 respondents was selected for application of the study.

### 3.11 Data Collection Techniques:

Data-collection techniques allow us to systematically collect information about our objects of study (people, objects, phenomena) and about the settings in which they occur.

In the collection of data we have to be systematic. If data are collected haphazardly, it will be difficult to answer our research questions in a conclusive way.

Various data collection techniques can be used such as:

- Psychometric Tests
- Using available information
- Observing
- Interviewing (face-to-face)
- Administering written questionnaires
- Focus group discussions
- Projective techniques, mapping, scaling
Interviewing and Administering of written questionnaires were the two main data collection techniques used in the AQ® study.

An **Interview** is a data-collection technique that involves oral questioning of respondents, either individually or as a group. Answers to the questions posed during an interview can be recorded by writing them down (either during the interview itself or immediately after the interview) or by tape-recording the responses, or by a combination of both. Interviews can be conducted with varying degrees of flexibility. The unstructured or loosely structured method of asking questions can be used for interviewing individuals as well as groups of key informants.

A **Written Questionnaire**, also referred to as self-administered questionnaire, is a data collection tool in which written questions are presented that are to be answered by the respondents in written form.

A written questionnaire can be administered in different ways, such as by:

- Sending questionnaires by mail with clear instructions on how to answer the questions and asking for mailed responses;
- Gathering all or part of the respondents in one place at one time, giving oral or written instructions, and letting the respondents fill out the questionnaires; or
- Hand-delivering questionnaires to respondents and collecting them later.

The questions can be either open-ended or closed, with pre-categorized answers.

For the purpose of this study there were three questionnaires used namely, the AQ Profiler® - tool used to measure the resilience levels of leaders, the Additional Variables Form – used to capture the additional variables required for the study and the Employee Evaluation Form – used to capture the performance variables of respondents.
3.12 Description of Tools used for Data Collection:

A total of 30 biographic, work, adversity quotient® and Performance variables were considered in this study. The researcher selected the tool already developed by Dr. Paul Stoltz and his team from the Peak Learning Organization to ascertain the Adversity Quotient® of 131 top management professionals. Further in the data collection phase, the researcher also constructed her own questionnaire to obtain additional relevant information and also to solicit the performance ratings of the respondents. All these tools, appropriately designed and applied, helped in getting the data which could be used for testing the hypothesis. The researcher used the following three tools for her study:

I. Adversity Quotient profile® version 8.1 on-line
II. Additional Variables Form and
III. The Employee Evaluation Form

I. The Adversity Quotient profile® version 8.1 on-line:
   (Stoltz, 2008)

The AQ Profile® is the most robust instrument in existence for assessing resilience — the capacity to respond constructively to adversity and challenges of all sorts. Adversity Quotient® (AQ®) is about how one respond to life. At the most basic level, the Adversity Quotient Profile® marries events with responses. It is a gauge or measure of how one respond and deal with everything, from everyday hassles to the big adversities that life can spring up.

The Adversity Quotient Profile® version 8.1 on-line profiler is a tool which has 14 scenarios. Each scenario is followed by four questions to be responded on a 5 point Likert scale. Each of the four questions represents and is scored on a distinction dimension. For each scenario the respondent has to imagine that the event is real and happening right now. The profile captures variables such as gender, age, role, industry and also gives the score of the 4 dimensions of AQ®
which is Core, Ownership, Reach, Endurance and the total AQ® score. Each of these dimensions measures a different facet of AQ®. The score on each dimension of AQ® profile ranges from 10 to 50 and the score of Adversity Quotient® ranges from 40 to 200.

Reliability of the Tool:

The AQ Profile® (8.1) is an oppositional, scale-based, forced-choice questionnaire designed to gauge an individual’s resilience — that is, their capacity to respond constructively to difficulties — by eliciting their hardwired response pattern to a broad range of adverse events (Stoltz, 1997). The AQ® Profile has been tested across respondents from 51 countries, and has demonstrated strong universality and applicability across cultures. The AQ® Profile and each of its CORE® dimensions have shown high reliabilities by the founder of AQ®.

Table 3.3: Coefficient Alpha Reliabilities (N=1743)

<table>
<thead>
<tr>
<th>Scale</th>
<th>α</th>
<th>Global Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0.82</td>
<td>41</td>
</tr>
<tr>
<td>Ownership</td>
<td>0.83</td>
<td>45</td>
</tr>
<tr>
<td>Reach</td>
<td>0.84</td>
<td>32</td>
</tr>
<tr>
<td>Endurance</td>
<td>0.80</td>
<td>36</td>
</tr>
<tr>
<td>Adversity Quotient®</td>
<td>0.91</td>
<td>154</td>
</tr>
</tbody>
</table>

(Source: http://www.peaklearning.com/about_aq-profile_technical-data_stats.php)

Reliability (Cronbach’s alpha) can range from zero to one. In repeated, independent studies conducted by ETS (the producer of the SAT), the AQ® Profile
and each of its CORE® dimensions have been shown to be highly reliable, or consistent. The Profile has an overall reliability of .91, higher than most popularly accepted psychological instruments and achievement tests as stated in the table above.

**Tool Interpretation:**

The scores of the Dimensions of AQ® ranges from 1 to 50 each, with a global mean of 41 for Control, 45 for Ownership, 32 for Reach and 36 for Endurance. AQ® scores range from 40 to 200, with a global mean of 154. Those scoring 178 to 200 was construed to have a High AQ® while those scoring in the range of 161 – 177 had moderately high AQ®. Respondents scoring 135 – 160 were construed to have a moderate AQ® while those scoring in the range of 118 – 134 had moderately low AQ®. Those who score less that 118, are low on their AQ®.

**II. Additional Variables form:**

The Additional Variable Form was used to collect demographic information such as education, socio-economic status, type of family, number of family members, marital status, spouse status, number of children, total working experience, experience in the current company, roles grown till date, roles grown in the current company, duration in each role, travel effort, team size, working hours, further studies and multi-skilling & multi-tasking. All the variables considered are a part & parcel of the daily routine of any top management working professional. Theses variables were obtained to understand and check their relationship with AQ® and Performance. The researcher was also keen to observe the impact that these variables had on the AQ® of the top management professionals who participated in this study.
III. The Employee Evaluation Form:

This Form/questionnaire was designed to seek performance related confidential information about the respondents /employees of the participating companies. Since the data obtained through this form was the performance and strengths rating of employees, it was sought from either the Head – Human Resources or from the CEO of the organization since the target population in this study was top management employees of participating organizations. Feedback was collected through this form in the areas of on-the-job performance and strengths of the senior managers.

On-the-job performance evaluation was undertaken for timely & successful completion of key deliverables, managing team motivation, mentoring & workflow monitoring, resolving conflicts, contributions towards enhancing quality, contributions made by publishing white papers, being a brand ambassador. Strengths demonstrated by the senior managers in their behavioural disposition on the job namely discipline, timeliness, integrity & accountability, leadership, adaptability, cost consciousness, perseverance, completion sensitive, being positively charged, energetic & highly result driven, walking the talk were evaluated. Employee Evaluation was undertaken by the organizational heads by giving their ratings on a 5 point scale of Platinum, Diamond, Gold, Silver and Bronze.

The source of data gathering for the Performance data from the sample was undertaken by a form designed. This form was designed by the researcher and its validity established. For this purpose the Proforma was given to experts, viz. three heads of Human Resources, senior HR stalwarts from corporate organizations. The Proforma was finalized taking into account the observations received from these experts and later sent to the participating companies to solicit responses. The performance review being one sided (by the appraiser) and undertaken subjectively, it may have a restriction owing to the perception of the appraiser.
3.13 Administration Procedure & Data Collection:

The entire administration and data collection of this study was undertaken in the following steps by the researcher:

1. Five Service Sector Industries focused on Customer Orientation, On-Time Delivery, High Service Levels and Continuous Improvement was selected initially for applying the AQ® study.

2. Having selected these five industries, the researcher then choose twelve organizations from these industries, companies who believed that Customer Orientation & relationships are of paramount for the continuity of organizations and also lived the challenges of building employee motivation, productivity and nurturing leaders on a continuous basis.

3. The researcher sent e-mails to the concerned authorities in all the selected organizations about the study, its significance and it’s objectives. The areas in which the researcher required their help in supporting the research was highlighted and the researcher requested & scheduled appointments to meet the concerned authorities.

4. The researcher then had multiple briefings sessions with the CEO’s, Head – Human Resources, Direct Line Managers, Leaders and the Employees themselves in these twelve organizations.

Since there was a major global slowdown in 2009-2010 and the whole world was going through an economic crises; it was a big challenge for the researcher to convince organizations to participate in this study. Most of the organizations felt that the study came at a time, when if applied to their employees, there would be a climate of fear in the minds of their employees about their stability, since many organizations were down sizing their top management professionals to cut costs.
However the researcher could seek the support of twelve organizations for this study as against the forty companies who had initially shown their interest in participating in the study.

5. The researcher obtained permission to collect data from the employees. It was necessary to obtain resources and permission for the study at several levels in the participating organisations. The researcher identified and obtained the resources needed to collect data. The researcher also identified specific types of assistance that will be needed and presented these requests during the briefing sessions.

6. The researcher reviewed the availability of employees of participating companies and organized logistics for data collection. The researcher visited all twelve organizations and met the competent authority in order to understand the physical and manpower limitations, constraints and special circumstances that could influence data collection.

7. The respondents were given the questionnaire containing 14 situations. They were advised to tick their responses and return the completed questionnaire. On receipt the values from each of the respondents; the data collected was uploaded on the on-line AQ Profiler®. The final CORE® and AQ® scores were sent by Dr. Paul Stoltz’s team in an excel spreadsheet which was later incorporated into the main data file.

8. During this phase, the researcher also identified suitable members of the HR Team who committed to help in getting the questionnaires handed over to the target population, collect the completed forms and hand over the complete forms back to the researcher.
9. The researcher refined, pre-tested and revised the research instruments and procedures for data collection. The researcher also finalized and updated the master sheets, including quantitative as well as qualitative data (using key words). She filled in some of the cross-tables. This process helped the researcher to make realistic assessment of the entire data collection and analysis process.

10. The researcher met each respondent either personally or connected with them on telephone or through e-mails and obtained the required data for the additional variables.

11. The researcher met the Head of Human Resources of each organization and obtained their feedback through the Employee Evaluation Form for each of their respondent in the areas of their on-the job performances and their strengths displayed in their overall disposition at work.

12. The researcher processed the completed relevant & valid data collected. After collecting and sorting the data, all data were checked & re-checked for errors. The steps during this process included editing/cleaning of data collected, categorizing and coding the data, summarizing data on data master sheet etc.

13. The researcher provided each respondent a summary of their individual CORE® & AQ® score and its interpretation. The researcher also provided each designated official from the twelve organizations a summary of the CORE® and AQ® scores and its interpretation for all the employees who participated in the AQ® study from their organizations.

14. The researcher finally analyzed the data collected using relevant statistical tools and observed the relationships of variables with AQ®, CORE® and performance to test the set hypothesizes and also achieve the set objectives of the study.
The researcher concluded the study by bringing out her observations through interpretations made based on the data analysis. The researcher brought out the limitations and challenges that she faced in the journey of her research study and also provided her suggestions and recommendations for further research on this subject. The researcher finally brought out her observations by providing a list of how AQ® may be used as an effective tool to help strengthen various HR processes and how it can be viewed as a new dimension for employers.