Chapter III

Research Methodology

This chapter discusses methodology used in this research. It describes in detail the research design, hypotheses, scope, period of study, sample, questionnaire development, questionnaire validation, pilot study, primary data collection and data analysis tools. This chapter discusses the method used to determine whether there is a relationship between self awareness and the four leadership styles (transactional leadership, transformational leadership, servant leadership, and transcendental leadership).

3.1 Research Design

The aim of the research design is to ensure empirical evidence to be obtained which can be interpreted to determine if the research hypotheses set for this study could be confidently accepted or not accepted. The approach, therefore, consists of identifying specific variables, developing hypotheses, and collecting data via a survey through a predetermined questionnaire that will yield data which can be statistically tested in support of the hypotheses or otherwise. The statistical tools and techniques used in the research, which provide empirical evidence, were discussed later in the chapter.
The data for the survey are either cross-sectional in which data are collected at one point in time or longitudinal in which data are collected over a period of time (Creswell, 2003). This study uses a cross-sectional design and uses correlation analysis to determine the strength and direction of the relationship between self awareness and leadership styles.

The three purposes of an exploratory study are to identify variables, discover relationships among the variables, and lay the groundwork for future research which would more systematically and rigorously test the hypothesis (Kerlinger and Lee, 1999). This study does meet all of the three purposes.

3.1.1 Hypotheses

Based on objectives described in section 1.1 of chapter I and also based on gap in literature as discussed in section 2.11 of chapter II the following alternate Hypotheses have been formulated.

\( H_a 1: \) There exists a positive relationship between self awareness and leadership styles.

- \( H_a 1.1: \) There exists a positive correlation between self awareness and transactional leadership.

- \( H_a 1.2: \) There exists a positive correlation between self awareness and transformational leadership.
• $H_a\ 1.3$: There exists a positive correlation between self awareness and servant leadership.

$H_a\ 2$: There exists a positive relationship between self awareness and components of leadership styles.

• $H_a\ 2.1$: There exists a positive correlation between self awareness and components of transactional leadership

• $H_a\ 2.2$: There exists a positive correlation between self awareness and components of transformational leadership

• $H_a\ 2.3$: There exists a positive correlation between self awareness and components of servant leadership

$H_a\ 3$: There exists a relationship between leadership styles and demographic variables.

• $H_a\ 3.1.1$: There exists a relationship between transactional leadership and managerial hierarchy

• $H_a\ 3.1.2$: There exists a relationship between transactional leadership and organization type, gender, age, qualification, work experience, span of control, managerial experience and lines of business

• $H_a\ 3.2.1$: There exists a relationship between transformational leadership and managerial hierarchy & managerial experience
• **Hₐ 3.2.2**: There exists a relationship between transformational leadership and organization type, gender, age, qualification, work experience, span of control, and lines of business.

• **Hₐ 3.3.1**: There exists a relationship between servant leadership and managerial hierarchy & managerial experience.

• **Hₐ 3.3.2**: There exists a relationship between servant leadership and organization type, gender, age, qualification, work experience, span of control, and lines of business.

• **Hₐ 3.4.1**: There exists a relationship between transcendental leadership and managerial hierarchy & managerial experience.

• **Hₐ 3.4.2**: There exists a relationship between transcendental leadership organization type, gender, age, qualification, work experience, span of control, and lines of business.

**Hₐ 4**: There exists a relationship between Self Awareness and demographic variables.

• **Hₐ 4.1**: There exists a relationship between self awareness and managerial experience.

• **Hₐ 4.2**: There exists a relationship between self awareness and managerial hierarchy, organization type, gender, age, qualification, work experience, span of control, and lines of business.

*While analyzing the results, some of the demographic variables are found to have no relationship with the Self awareness / leadership styles.*
In order that the results are presented in a manner that provides clarity, the researcher has split the hypotheses into groups, one which have relationship and another which do not have relationship.

### 3.1.2 Scope

- The scope of the research is limited to a quantitative-oriented research question: “Is there a relationship between Self awareness and leadership?”

- A qualitative-oriented consideration, “Why a relationship does exist between Self awareness and leadership?” is not within the scope of the research.

- The leadership styles measured here are limited to transactional, transformational, servant and transcendental leadership styles only.

- From the Indian literature context (traditional and ancient), self awareness was discussed in many scriptures like, the Vedas and Bhagavad-Gita. Considering these definitions and discussions become out of scope for the present research.

- The scope of the study is limited to 12 organizations representing Information Technology companies in Hyderabad, India.
3.1.3 Research Sample

The target sample is from managers in the software industry who, on a daily basis, are required to exhibit leadership in their work life. Because the goal of this study is to establish a model via empirical study, testing new concept which can be replicated by future studies, a convenience sampling method was used.

The leaders were approached via HR representatives of four Indian Multinational Implementation Partner Companies (TCS, Infosys, Wipro, and Mahindra Satyam), four Foreign Product Development Companies (Oracle, Microsoft, Sum Total, and IBM (Product Division)) and four Foreign Multinational Implementation Partners (Deloitte, Computer Associates, IBM (Consulting Division) and Accenture). These companies provide a fair share of skills across the entire spectrum of the software development life cycle (product design, product development, quality assurance, and implementation (consulting and maintenance). The HR representatives of these targeted companies have shared that there are 4,000 managers in these companies which constitute the population for the study. Based on a research by James et al (2001), a sample of 350 would represent a fair sample size for a population of 4000.

Cochran’s sample size formula is presented here

\[(t)^2 \times (\text{Std. deviation})^2\]

Sample size = -------------------------------

\[(\text{Error rate})^2\]
Sample size formula used values, confidence level alpha at .05, error rate at 5%, and estimated the standard deviation of the scale as 0.5. Where \( t \) is the value for selected alpha level of 0.05 (.025 in each tail) = 1.96. Therefore, for a population of 4,000 the required sample size is 384. However, since this sample size exceeds 5% of the population \((4,000 \times 0.05=200)\), Cochran’s (1977) correction formula should be used to calculate the final sample size. These calculations are as follows:

\[
N_1 = \frac{N_0}{1 + \frac{N_0}{\text{Population}}} = \frac{384}{1 + \frac{384}{4000}} = 350
\]

Where \( N_1 \) = required return sample size because sample is greater than 5% of population. Where \( N_0 \) = Original sample size (384). The sample for the present research 364 is higher than the minimum required 350 hence is adequate for the research and the results from the data can be reasonably relied upon.

Demographic Characteristics of the sample

Table 3.1 indicates that the respondents are spread reasonably across three organization types.
Table 3.1 Sample composition by organization type

<table>
<thead>
<tr>
<th>Organization Type</th>
<th>Foreign Multinational Implementation Partners</th>
<th>Foreign Product Development Companies</th>
<th>Indian Multinational Implementation Partners</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>107</td>
<td>152</td>
<td>105</td>
<td>364</td>
</tr>
<tr>
<td></td>
<td>29.4%</td>
<td>41.8%</td>
<td>28.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 3.2 provides the ratio between males and females.

Table 3.2 Sample composition by gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>121</td>
<td>243</td>
<td>364</td>
</tr>
<tr>
<td></td>
<td>33.20%</td>
<td>66.80%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 3.3 provides the managerial hierarchy level split of the respondents, between junior, middle and senior level managers. As can be expected, the junior level managers out number middle and senior level managers because, in reality, there are more junior managers than middle managers and senior managers in the Industry as any organization would follow the pyramid structure.

Table 3.3 Sample composition by managerial hierarchy

<table>
<thead>
<tr>
<th>Managerial Hierarchy</th>
<th>Junior Level Managers</th>
<th>Middle Level Managers</th>
<th>Senior Level Managers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>183</td>
<td>126</td>
<td>55</td>
<td>364</td>
</tr>
<tr>
<td></td>
<td>50.30%</td>
<td>34.60%</td>
<td>15.10%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Table 3.4 provides data on the work experience of the respondents. The experience pattern indicates that 90% of the respondents have an experience below 20 years. This indicates that managers are young and this is the prevailing norm in the IT industry.

<table>
<thead>
<tr>
<th>Work Experience</th>
<th>1-5 Years</th>
<th>6-10 Years</th>
<th>11-15 Years</th>
<th>16-20 Years</th>
<th>21 Years and Above</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>80</td>
<td>176</td>
<td>64</td>
<td>36</td>
<td>364</td>
</tr>
<tr>
<td>Percent</td>
<td>2.20%</td>
<td>21.98%</td>
<td>48.35%</td>
<td>17.58%</td>
<td>9.89%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 3.5 indicates the age of the respondents. About 90% of the respondents are less than 45 years of age.

<table>
<thead>
<tr>
<th>Respondents Age</th>
<th>Age 25-29 Y</th>
<th>Age 30-34 Y</th>
<th>Age 35-39 Y</th>
<th>Age 40-44 Y</th>
<th>Age above 45 Y</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>106</td>
<td>151</td>
<td>50</td>
<td>37</td>
<td>364</td>
</tr>
<tr>
<td>Percent</td>
<td>5.49%</td>
<td>29.12%</td>
<td>41.48%</td>
<td>13.74%</td>
<td>10.16%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 3.6 indicates the split between educational qualifications of the respondents. About 40% of them have a bachelor’s degree and about 57% of them are post graduates.

<table>
<thead>
<tr>
<th>Educations Qualification</th>
<th>Bachelors Degree</th>
<th>Masters Degree</th>
<th>PhD</th>
<th>Diploma Holders</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>145</td>
<td>206</td>
<td>3</td>
<td>10</td>
<td>364</td>
</tr>
<tr>
<td>Percent</td>
<td>39.80%</td>
<td>56.60%</td>
<td>0.80%</td>
<td>2.70%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Table 3.7 indicates the span of control for the respondents. About 81% of respondents have a span of control equal to or less than 12 employees reporting.

<table>
<thead>
<tr>
<th>Span of Control</th>
<th>1 to 6 Employees</th>
<th>7 to 12 Employees</th>
<th>13 to 18 Employees</th>
<th>18 and above Employees</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>204</td>
<td>92</td>
<td>36</td>
<td>32</td>
<td>364</td>
</tr>
<tr>
<td>Percent</td>
<td>56%</td>
<td>25%</td>
<td>10%</td>
<td>9%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 3.8 indicates the time that the respondents have spent in managerial positions. The data indicates that they are fairly young at management experience, which reflects the prevailing industry norm.

<table>
<thead>
<tr>
<th>Managerial Experience</th>
<th>1 to 6 Years</th>
<th>7 to 12 Years</th>
<th>Above 13 Years</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>210</td>
<td>102</td>
<td>52</td>
<td>364</td>
</tr>
<tr>
<td>Percent</td>
<td>57.69%</td>
<td>28.02%</td>
<td>14.29%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 3.9 indicates the lines of business the respondents are working. This sample indicates that the respondents are from all segments of the software development life cycle.

<table>
<thead>
<tr>
<th>Lines of Business</th>
<th>Consulting</th>
<th>Product Development</th>
<th>Customer Support</th>
<th>Operations</th>
<th>Quality Assurance</th>
<th>Sales and Marketing</th>
<th>Human Resources</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>119</td>
<td>106</td>
<td>43</td>
<td>34</td>
<td>31</td>
<td>20</td>
<td>11</td>
<td>364</td>
</tr>
<tr>
<td>Percent</td>
<td>32.70%</td>
<td>29.10%</td>
<td>11.80%</td>
<td>9.30%</td>
<td>8.50%</td>
<td>5.50%</td>
<td>3.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
The data shown in table 3.1 to table 3.9 gives a picture of the respondents’ demographics.

*Summary on the Sample*

The sample of 364 respondents considered for this research is adequate according to James et al (2001) and represents young managerial sample akin to the IT industry, with a good mix of gender, work experience, managerial experience, qualification and lines of business. The managerial hierarchy and span of control of the sample is again a representative of flat organization structures that are prevalent in the IT industry. The sample has a good representation from all the components of the software development lifecycle across the industry.

**3.1.4 Period of Study**

The present research study was carried out between August 2006 and June 2010.

**3.2 Data Collection**

This section describes how the questionnaire was developed, what were the various existing questionnaires, development of new questionnaire, various validations done, pilot and its results, and discussion on common method variance.
3.2.1 Questionnaire Development

**Review of existing leadership measuring questionnaires**

*Transformational Leadership Measuring Questionnaires*

There are various questionnaires to measure transactional leadership and transformational leadership styles. The most well known tool for these leadership measurements is the Multifactor Leadership Questionnaire, known as the MLQ proposed by Bass and Avolio (1989). The tool consists of 45 statements about the behavior of the leader. There are two forms of the MLQ, the leader form, which is filled by the leader, and the rater form, which is filled by the leaders’ associates. The MLQ has been used in the evaluation of leaders in corporate and public sector organizations, as well as in the military. It has been translated into many languages, including French, German, and Japanese.

There are several other tools in existence, although few as prevalent or as comprehensive as the MLQ. They are:

- Transformational Leadership Behavior Inventory (1990);
- Leader Assessment Inventory (LAI) (1994);
- Global Transformational Leadership scale (GTL) - (2000);
- 15 item rating scale (2004);
- Follower Belief Questionnaire and the Attributes of Leader Behavior Questionnaire (1996);
- Conger and Kanungo scale (1988);
- Leadership Practices Inventory (LPI) (1998);

*Servant Leadership Measuring Questionnaires*
Researchers have successfully developed questionnaires that demonstrate the reliability and validity to measure all attributes or dimensions of the servant leadership model (Barbuto & Wheeler, 2006; Dennis, 2004; Sendjaya et al., 2008). Longbotham (2007) developed the Servant Leadership Inventory (SLI), which proposes to measure all seven virtues of a servant leader as identified by Patterson (2003).

*Transcendental Leadership Measuring Questionnaires*

Caroline H. Liu (2007) attempted to come up with a transcendental leadership construct using Fry's (2003) spirituality leadership index. Caroline has added 6 more variables to Fry’s 17 item questionnaire. Her view was that leader high on spirituality is high on transcendental leadership. She used the leadership components of Vision, Hope, Faith, Altruistic love, and Spiritual development of leader and follower as constituting transcendental leadership. As per the literature review discussed in section 2.6 in chapter II, these components are not adequate in measuring transcendental leadership. The practical applicability of this questionnaire is still to be tested.

*Self Awareness Measuring Questionnaire*

This research is attempting to come up with a questionnaire for self awareness based on the components of self awareness as described by Goleman (1998), which are emotional self awareness, self confidence and self assessment. In the literature reviews done by the researcher
there were no questionnaires that would measure self awareness (as a component of emotional intelligence as measured by Goleman, 1998) as a separate construct.

In order that the researcher achieves the objective of measuring the four leadership styles (transactional, transformational, transcendental and servant) and self awareness through a single questionnaire, there is a necessity to develop a new questionnaire, which would cover all the components of all the four leadership styles and self awareness at the same time.

*Development of new questionnaire*

A questionnaire has been developed based on the literature survey done as described in Chapter II. Table 2.3 describes the components that would be used for measuring the four leadership styles and self awareness. The four leadership styles attempted to measure are transactional leadership, transformational leadership, servant leadership and transcendental leadership and self awareness. The literature review, as per Chapter II, enabled the researcher to ask questions based on a set of components related to the leadership styles that provide evidence of its content validity.

Based on the sub components / attributes / characteristics of each of these components in table 2.3, the researcher generated 108 questions. After eliminating questions not directly related to the subject, the researcher arrived at 10 questions on transactional leadership, 26
questions on transformational leadership, 30 questions on servant leadership, 37 questions on transcendental leadership, and 11 questions on self awareness, a total of 88 questions. There were common questions amongst the three leadership styles of transformational leadership, servant leadership and transcendental leadership. In addition to these questions, there were demographic questions on, managerial hierarchy, organization type, lines of business, age, gender, marital status, educational qualification, span of control, total work experience and managerial experience.

**Validity**

The validity of the questionnaire was examined as described below. Ten managers of a software development organization first validated the questionnaire. There were comments on language and grammar from the respondents in the review. Many respondents said that the questionnaire appears to be measuring leadership relevant to their work environment. Their feedback has been incorporated.

*Review of the questionnaire with industry and faculty experts*

The revised set of 88 questions was reviewed with the researcher’s supervisor from the school of management studies JNTUH, industry experts (senior people at the level of CIO/Vice Presidents) in the software industry, academia in the human resources domain in the Administrative Staff College of India - Hyderabad, and JNTU-Hyderabad and also with the Professor of psychology, National Institute of Rural
Development, Hyderabad. Based on the feedback, the researcher has retained only those questions which are relevant to the study and added questions, which were missing in the domain the study is being conducted.

The expert review resulted in the questionnaire with the following structure - 9 questions on transactional leadership, 28 questions on transformational leadership, 24 questions on servant leadership, 48 questions on transcendental leadership and 6 questions on self awareness, a total of 59 questions. There are common questions, which figure in the three leadership styles of transformational, servant, and transcendental leadership (like transcendental leadership includes self awareness).

**Length of Questionnaire**

In published literature, there have been some studies on the subject of length of questionnaires and their impact on practical utility. Some of the questionnaires have in-depth, detailed, and long questions for which a respondent has to spend quite some time (more than 60 minutes in some cases) to fill up the questionnaire. Time commitment from respondents is a de-motivator for them to fill the questionnaire (Jane T Waddell, 2009). These long questionnaires are useful from academic point of view but achieve little success from the practical applicability (usability in industry) point of view.
Relationship between length of questionnaire and incompletion rate clearly demonstrates how incompletion rate increases with the length of the questionnaire. Growth in incompletion rates is fairly steady for questionnaires up to 30 minutes in time, increasing sharply after this point as more respondents drop out of the survey. (lightspeedresearch, Jan 2008). Longer the length of the questionnaire, fewer is the responses and quality of responses also goes down. In addition, answers to questions positioned later in the questionnaire were faster, shorter, and more uniform than answers to questions positioned near the beginning (Galesic, et al. 2009). One of the primary reasons why Bass’s MLQ 5X questionnaire is popular is that it has only 45 questions and can be completed in a relatively shorter time of 15 to 20 minutes. It is also immensely popular from the usability and applicability point of view.

In this research, an attempt is made to create a questionnaire that is useful to the industry and at the same time covers the academic point of view. Hence, the researcher has made a conscious effort to include industry leaders’ review at every step of finalizing the questionnaire while covering all required components from the academic point of view.

The questionnaire was also reviewed by the Professor of statistics, Osmania University to ensure that the process adopted by the researcher is correct, and the questionnaire is ready for the use. The resultant questionnaire was then ready to undergo a pilot test.
3.2.2 Pilot Study

The questionnaire was piloted on 30 managers in a large multinational software product development organization. The respondents of this pilot were comparable to the larger sample size. In this pilot study, the researcher targeted all levels of managers. The method of data collection was, to distribute hard copies of the questionnaire. The complete questionnaire package had the following items:

- An introduction letter by the researcher on the purpose of this pilot study and an explanation of the research topic.
- Nine demographic variables
- Fifty nine questions relevant to the study to be answered on 5-point Likert scale (1967).

Pilot Sample

A sample of 9 Managers, 14 Senior Managers, 6 Directors and one Senior Director, who come from different departments (18 from Product Development, 5 from Customer Support, 4 from Internal IT, and one each from Consulting, HR and Admin) was surveyed. Their work experience ranges from eight to twenty five years.

The completed questionnaires were collected after a week and the researcher validated the questions with the respondents and also
collected feedback on the questionnaire. It took 15 to 20 minutes for each of the respondents to complete the questionnaire.

The main purpose of this pilot was to make sure that the questionnaire provides data as expected. The second purpose was to find out the reliability of the questionnaire. The third purpose was to pre-empt any problems that could not be envisaged so that data collection via this questionnaire would be failsafe and provide reliable and accurate data. The fourth purpose was to seek and verify completeness of questions from leadership practitioners. The researcher verified all of the above enumerated purposes by interviewing these 30 respondents who took the pilot survey.

**Pilot Results**

The data collected from the 30 leadership practitioners was manually transferred to a spreadsheet in a format that is suitable to be loaded in to SPSS tool version 17 (a statistical tool that is used for data analysis purposes.)

The pilot study indicated a good reliability score (Cronbach’s Alpha = 0.88) for the questionnaire. Nunnally (1978) suggests that researchers should strive for alpha values of 0.70 or higher. With the reliability being good, the questionnaire was ready for final data collection for the research.

Table 3.10 indicates Cronback Alpha values for each of the leadership style and self awareness based on the sample size of 30
respondents. These values indicate that the questionnaire construct is valid and can be used for the purpose of the study in this research.

**Table 3.10 Cronbach alpha values for self awareness / leadership styles in pilot study**

<table>
<thead>
<tr>
<th>Self Awareness / Leadership Style</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Awareness (6 Questions)</td>
<td>0.72</td>
</tr>
<tr>
<td>Transactional Leadership (9 Questions)</td>
<td>0.705</td>
</tr>
<tr>
<td>Transformational Leadership (28 Questions)</td>
<td>0.84</td>
</tr>
<tr>
<td>Servant Leadership (24 Questions)</td>
<td>0.78</td>
</tr>
<tr>
<td>Transcendental Leadership (48 Questions)</td>
<td>0.92</td>
</tr>
</tbody>
</table>

During the questionnaire validation discussion with leadership practitioners, some of them strongly felt that a section on ‘contribution of self awareness on improving the leadership’ must be added. Based on the feedback and working with the research supervisor from JNTUH, four multiple choice questions on how self awareness contributed to the respondents’ leadership development in the past years and any new areas that would help improve leadership (This is a free text field for the respondents to fill in their own words) were added to the questionnaire. Accordingly self awareness questions 61A, B, C, D, and E (free form text) and 62 (free form text) were added to measure this aspect

**3.2.3 Self Rating Questionnaire**

The questionnaire is a self rating questionnaire, with leaders evaluating themselves. Although evaluating a leader by others is more
popular than a self rating questionnaire, self rating questionnaires have been in use and provide useful research data, especially if the evaluation is not a performance appraisal. In a significant study done by David Antonioni and Heejoon Park (2001), following are some of the issues researched empirically, while using the rater questionnaires (a leader rated by others):

- The interaction between the time raters observed ratees and the extent to which they liked the ratees was significant. That is, the more raters observed ratees, the influence of rater affect on ratings increased.

- A rater’s like or dislike of a ratee can influence the ratings and consequently determine that rater’s evaluation of performance.

Park, Sims & Motowidlo, (1986)

- A rater’s interpersonal affect does influence all three sources of 360-degree feedback (downward, upward, and peer)

- Different sources (downward, upward, and peer) in the 360-feedback process were influenced by interpersonal affect unequally.

- The influence of interpersonal affect was stronger in upward and peer ratings than it was in downward feedback.

And so far in research there is no mathematical/statistical way to neutralize this interpersonal affect. Rating incongruence can vary not
only between sources, but also in different performance domains. This is an important finding as it suggests that the same rater may have varying perspectives on different aspects of leaders’ effectiveness (Shahidul Hassan & John Rohrbaugh 2007)

The rating by others is a result of the actions performed by the subject. The subject in turn may not be accurately displaying /acting as per his or her self awareness. The notion that ‘raters may sample different behavior, use different cues, and apply different weighting systems (Borman, 1997) in performance evaluation’ suggests that raters may emphasize different attributes of leadership due to their unique vantage points.

Therefore, it is likely that managers as well as their supervisors, peers, and subordinates, when providing their ratings will focus on the roles they believe are most relevant to complete their work activities. Thus, there will be differences in a 360-degree feedback rating to the extent that they view leadership differently and rely upon different frames of reference in their evaluations (Shahidul Hassan and John Rohrbaugh 2007). The resultant evaluation of a rater provided feedback may not be accurate. Based on the above discussion, the researcher proposed a self rated questionnaire for the purposes of this research.

The final questionnaire is attached in the Appendix I. Table 3.11 provides leadership style and questions against each leadership style and
self awareness. It gives mapping of questions to leadership components and these components were used for testing the hypotheses described in section 3.1.1.

### Table 3.11 Leadership styles and self awareness components and mapping of questions used for measuring them

<table>
<thead>
<tr>
<th>Leadership Style</th>
<th>Components</th>
<th>Question Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactional Leadership</td>
<td>Contingent Reward</td>
<td>5 and 11</td>
</tr>
<tr>
<td></td>
<td>Management By Exception - Active</td>
<td>2,3,4,7,8, and 13</td>
</tr>
<tr>
<td></td>
<td>Management By Exception - Passive</td>
<td>9</td>
</tr>
<tr>
<td>Transformational Leadership</td>
<td>Leading The organization</td>
<td>1,6,10,12,15,19,20,23, and 31</td>
</tr>
<tr>
<td></td>
<td>Leading and Developing Others</td>
<td>21,24,25,26,27,28,36,51, and 52</td>
</tr>
<tr>
<td></td>
<td>Personal Qualities</td>
<td>14,16,17,18,22,30,33,34,35</td>
</tr>
<tr>
<td>Transcendental Leadership</td>
<td>Determined Resolve</td>
<td>1,6,12,14,20,30,31,35 and 39</td>
</tr>
<tr>
<td></td>
<td>Emotional Intelligence</td>
<td>10,19,21,22,29,32,33,33 and 43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>36,37,38,40,42,54,55,56,57,58, and 59</td>
</tr>
<tr>
<td></td>
<td>Others’ Interest</td>
<td>16,17,18,24,25,26,27,28,32,33,34,36,37,38,40,42,54,55,56,57,58, and 59</td>
</tr>
<tr>
<td></td>
<td>Spirituality</td>
<td>46,46,48,49,50,51,52,53,54, and 59</td>
</tr>
<tr>
<td>Servant Leadership</td>
<td>Agapao Love</td>
<td>25,29,36,45,51, and 52</td>
</tr>
<tr>
<td></td>
<td>Humility</td>
<td>37 and 43</td>
</tr>
<tr>
<td></td>
<td>Altruism</td>
<td>41 and 42</td>
</tr>
<tr>
<td></td>
<td>Vision</td>
<td>15,17 and 18</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
<td>28,32 and 33</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>24,26 and 27</td>
</tr>
<tr>
<td></td>
<td>Service</td>
<td>12,16,22,23, and 44</td>
</tr>
<tr>
<td>Self Awareness</td>
<td>Emotional Awareness</td>
<td>55 and 56</td>
</tr>
<tr>
<td></td>
<td>Self Assessment</td>
<td>57 and 58</td>
</tr>
<tr>
<td></td>
<td>Self Confidence</td>
<td>54 and 59</td>
</tr>
</tbody>
</table>

### 3.2.4 Common Method Variance (CMV)

In the current research, self ratings of the leaders are obtained on self awareness and leadership styles. In this section, to what extent common method variance is taken care of and whether one can rely on
the self ratings, is discussed. Philip M. Podaskoff, Scott B. MacKenzie and Nathan P. Podaskoff (2003) carried out a critical review of the literature on common method variances in behavioral research and recommended some remedies. Common method variance (i.e., variance that is attributable to the measurement method rather than to the constructs the measures represent) is a potential problem in behavioral research. Not only can the strength of the bias vary but also can the direction of its effect. Method variance can either inflate or deflate observed relationships between constructs. Common method biases arise from having a common rater, a common measurement context, common item content or from the characteristics of the items themselves.

One of the primary ways that Philip M. Podaskoff et al. (2003) recommend to control method variance was through the design of the questionnaire itself. Sea-jin et al. (2010) recommended that one of the ways to minimize the CMV is by mixing the order of the questions to using different scale types. Accordingly the researcher adopted following measures. 1) Different response format: Leadership style questionnaire use response format of “Not at all, Rarely, Sometimes, Regularly, Almost always”. While self awareness questionnaire uses “Strongly disagree, Disagree, Undecided, Agree and Strongly Agree”. 2) The order of the questions for each leadership style and self awareness were jumbled up and 3) Protecting respondent anonymity and reducing evaluation apprehension; respondents were assured that this data will be used
purely for academic research purpose (see the letters at Appendix I) In view of these measures, it is concluded that results from self ratings may be reasonably relied upon.

3.2.5 Primary Data Collection

Church and Waclawski (2001) emphasized that the anonymity of rater responses is critical to the provision of effective feedback. Bracken (1994) added that without anonymity, raters may be inhibited in their decisions of rating or participation. As part of this effort to ensure confidentiality, the quantitative forms of data were reported only in aggregate form (Best & Kahn, 1993). Eichinger and Lombardo (2003) stated that expressed expectations of confidentiality should be met before and after data collection.

Confidentiality was managed continually throughout the data collection and well into the later stages of the process. The questionnaire was hosted on Internet and a login and a password was provided so that the questionnaire remained secure. This was done to make it easier for Internet savvy IT leaders to enter data. Each respondent has a computer machine and Internet connection at his/her disposal. Research shows that the type and quality of responses one receives with online surveys are comparable with what one receives in paper-based surveys (J. Gordon, R. McNew, 2008).

The researcher has sent the request to fill the survey to about 800 managers. There were 492 responses in all. 128 responses have been
removed where the managers expressed inability to answer questions like “I initiate and direct activities of the team”, where these managers would either initiate or direct the activities of the team and not both at the same time. These questions were not answered and hence the researcher has removed all these 128 responses. In summary, the total valid responses were 364. The responses were collected in a spreadsheet and used directly to upload into SPSS tool. The questionnaire had a covering letter introducing and explaining the purpose of the research.

The data collected from 364 valid responses have been analyzed through SPSS 17 and results of data analysis are presented in chapter IV. After analysis, to validate the data, the researcher went back to some of the respondents and did ‘after the fact’ interviews. During these interviews some of the results were discussed and obtained accurate insights to IT industry.

3.3 Data Analysis Tools

Andy Field (2006) in his book ‘Discovering Statistics using SPSS’ published by ‘Sage’, has discussed specific statistical techniques to be used in research scenarios as encountered in the present research. He has suggested following techniques:

- To determine reliability of questionnaire : Cronbach’s alpha
- To test the normality of the data : Kolmogorov-Smirnov test (Lilliefors Significance Correction)
• To find out internal consistency of the questionnaire: Pearson’s Correlations

• To find out linear relationship between two variables: Bi Variate Correlations, Coefficients of Determination and Regression Coefficients

• Testing equal variance between groups: Levene’s Test for Equality of Variance

• To compare several means of groups and relationship between variables: Analysis of Variance (ANOVA) and ‘Post hoc’ analysis

• To get dominant components / factors of leadership: Factor Analysis (Principal component analysis)

Since this researcher used SPSS tool for analysis, the above suggestions were followed. These suggestions were also validated by Professor of Statistics, Osmania University, Hyderabad.

Jane T Waddell (2009) in her doctoral thesis (Exploratory study of the relationship between servant leadership attribution and the leader’s emotional intelligence) used correlation analysis and regression analysis and determined the strength and direction of the relationship between servant leadership and emotional intelligence. The present research is very similar in nature and hence uses same techniques to infer relationships.
Since the tools and techniques used in this research are suggested by the book mentioned above, the results obtained by using above the techniques can be reasonably relied up on.