Chapter 3

RESEARCH METHODOLOGY
RESEARCH METHODOLOGY

The research methodology followed in pursuit of the accomplishment of the research objectives is detailed in this Chapter. It further discusses and analyses the hypotheses generated and tested, justify the methods selected and analyses the contribution of the thesis as a whole.

This chapter is divided into various sub headings as presented below:
3.1 Research Inputs from previous studies
3.2 Approaches adopted in the present research - Operational definitions, Pilot study, Research design, Research instrument design and Reliability and Sample design.
3.3 Demographic profile

3.1 Research Inputs from previous studies

The literature search has generated important theoretical constructs and researchers’ views that were deemed to be relevant to the postulation of the framework are consolidated below:

Many researchers have examined and established the importance of OC. The accumulated research findings on QWL, OC, and JP to date have improved the construct to various antecedents and outcomes. The scope and extent of previous research approaches and studies were extensively examined which have provided a strong base for the current research.

In recent years, Quality of Work Life (QWL) is increasingly being identified as a progressive indicator related to the function and sustainability of business organisations. As the composition of the workforce continues to change over the years, companies that offer better benefits and supportive working environment are expected to gain leverage in hiring and retaining valuable people. The expansion of QWL
beyond its initial development includes defining features of the workplace can affect employee productivity and satisfaction such as reward systems, work flows, management style and physical work environment.

According to Chan, and Einstein, (1990) people conceive QWL as a set of methods, such as autonomous work groups, job enrichment and high involvement aimed at boosting the satisfaction and productivity of workers. Thus QWL is a comprehensive construct that includes an individual’s job related well being and the extent to which work experience are rewarding, fulfilling and devoid of stress and other negative personal consequences. As pointed out in the literature, QWL reflects a concern for people’s experience at work, their relationship with other people, their work setting and their effectiveness on the job. With the increasing levels of development, the working environment has also become more competitive.

Thomas Wyatt and Chat Yue Wah (2001) examined the perception of QWL with a sample size of 332 managerial executives. Results from Factor analysis suggest four dimensions which are named Favourable Work environment, Personal growth and Autonomy, Nature of job and Stimulating opportunities and Co-workers. The overall findings support the conceptualisations of factors involved in perception of QWL.

The Walton’s (1975) theoretical framework was used to measure QWL which includes elements like- Safe and healthy Working Condition, Opportunity for continuous growth, defining the reward system, Social relationships with organisations, Fair payment, Balance role of work, Social coherence, Decision participation, Restructuring nature of the work, Enhancing the work environment, Regulations and Rule orientation and Developing human capabilities. There are statements pertaining to the elements of Walton’s framework to measure QWL in the present research also.

Employers now demand for more skilled, trained and qualified workforce since the organisational output and productivity is highly dependent on the employees’ performances (Currall et al., 2005). Such
employees in return also look for enabling work environment to ensure best contribution towards achievement of the goals.

The present research has taken organisational commitment as an intervening variable with QWL as an influential factor. The studies organised correspond to the antecedents and related factors of OC are enumerated below.

In order to understand some of the major antecedents that contribute in making employees committed to an organisation, Emanuel Camilleri (2002) appropriately ascertained whether all the dimensions of OC are desirable and which and how the dimensions of OC may be strengthened. The data was checked for reliability and validity using Cronbach Alpha and factor analysis. Multivariate analysis using the Regression method and Analysis of variance were utilised to establish whether there was a significant relationship between the selected antecedents and the three dimensions of OC.

The study examines OC and its relationship with the following antecedents: age, gender, educational standard, position tenure within the organisation, marital status, family life cycle status and personality characterises using the Myers-Briggs type indicator, role states in terms of ambiguity, conflict and overload.

The three dimensional Allen and Meyer (1990) instrument, has provided measures of OC. Using a five point Likert-type format, the response categories for each item ranged from definitely agree to definitely disagree. Each question was given a score ranging from one to five depending on whether the respective question had positive or negative impact on OC. The responses for each item were then summed, and the average was calculated to yield an OC score. OC was measured on three dimensions, namely: Affective, Continuance; and Normative. This instrument is applied in the present research to measure OC.

Age does not seem to be an influencing factor in terms of OC while education level is a significant factor in terms of the level of OC within this organisation. It is significantly stronger for the Continuance and Normative
dimensions of OC. The two antecedents that are strongly related to Normative OC in the field research include the education level and organisational tenure (grade). The study identified distinct dimensions underlying perceptions of the work environment and demonstrated that positive aspects of the work environment explained the differences in scores on the commitment. This was found to be useful in setting the hypotheses for the present research.

Positive work climate was a significant contributor to the prediction of behavioural support for change even after controlling for Affective, Normative, and Continuance commitment to organisational change. It not only provided the instrument for OC but also an opportunity to examine the relationships between the three components of commitment and helped to revise the demographic factors to be considered.

The instrument used in the present research is based on Allen and Meyer (1990) OCQ (Organisational Commitment Questionnaire). Fauziah Noordin, et al., (2008) conducted a research on Teacher Professionalisation which was measured using the 24-item scale developed by Allen and Meyer (1990). This scale measures Affective, Continuance, and Normative commitment. Affective commitment refers to the employees’ emotional commitment to, identification with, and involvement in the organisations; Continuance commitment refers to an awareness of the costs associated with leaving the organisation; and Normative commitment reflects a feeling of obligation to continue employment (Allen and Meyer, 1990).

A set of items on demographics was prepared to establish the profiles of the respondents. In seeking answers to the research questions, descriptive statistics, including means and standard deviations were used. A Spearman’s Rank Coefficient Correlation between variables was computed for all respondents. Internal consistency of the scales was tested using the Cronbach’s alpha coefficient (Cronbach, 1951).

A study of Antecedents and Outcomes of Organisational Commitment among Malaysian Engineers (Rajendran Muthuveloo and
Raduan Che Rose, 2005) explored the major factors contributing to Organisational commitment among engineers in Malaysia. It identifies the effects of certain antecedents on Organisational commitment and evaluates the impact of Organisational commitment on organisational outcomes. A questionnaire survey of Malaysian engineers established that employee perception and attitudinal characteristics have a significant influence on Organisational commitment, while Organisational commitment and behavioural characteristics directly affect organisational outcomes.

The questionnaire contained four sections, all using five-point Likert scales to measure (a) Organisational commitment, (b) employees' perceptions, (c) engineer's behaviour, arising from their Organisational commitment and d) to gather information on personal characteristics of the respondents. The population of this study is estimated to be 40,000 engineers, with a sample size of 380 calculated for this study.

The significance between the dependent variable i.e. organisational commitment and employee perception was determined by using Multiple Regression Analysis. The significance of personal characteristics on Organisational commitment and Organisational outcome is determined by an Analysis of Variance (ANOVA) method, to examine significant mean differences among more than two groups, measured on a Nominal scale, post-hoc analyses using Bonferroni tests were performed, to explain differences between means of various groups.

The research provides evidence that employee perception and personal characteristics are antecedents of Organisational commitment. Perceived job satisfaction and perceived organisational characteristics have a significant influence on Affective and Normative commitment. Only four elements (race, academic background, country of graduation and religion) of the nine personal characteristics, have a strong influence on Organisational commitment. As these four elements are related to the values and beliefs of respondents, they were classified as attitudinal characteristics. Positive employee perception leads to higher
Organisational commitment. Normative commitment, based on an employee having internalised the values and goals of the organisation, is significantly influenced by perceived job satisfaction and perceived organisational characteristics. The findings show that Organisational commitment and personal characteristics have a significant influence on organisational outcomes. Higher Organisational commitment leads to higher loyalty, reduced work stress and a lower intention to leave, but has little influence on self-performance. The present research had considered the personal variables as adopted in this research partially.

A case analysis conducted by Mu'tasim Ab. Rahgman et al., (2006), examined the relationship between Islamic work ethics and Organisational commitment. The study uses a sample of 227 employees from several branches of a local bank. The results of Factor analysis confirm that Organisational commitment is multidimensional and consists of the above-mentioned dimensions. The findings show that there is a direct, positive and significant relationship between these dimensions of commitment and Islamic work ethics.

A self-administered questionnaire was employed for gathering data from bank employees. The questionnaire contained questions on Organisational commitment, Islamic work ethics and a series of demographic questions. Organisational commitment was measured using Meyer and Allen’s (1990) instrument. This instrument consists of 24 items and was designed to capture three dimensions of Organisational commitment, namely: Affective, Continuance and Normative. Eight items measure each sub-scale or dimension of commitment. In order to facilitate the analysis of the statistics generated from the data, this study employed three types of analyses, namely; descriptive analysis, correlation analysis and factor analysis. Factor analysis has been widely employed in past studies on Organisational commitment to confirm the multidimensionality of Organisational commitment.

The statistics generated indicate that the sample and model were adequate (Kaiser-Meyer-Olkin measure of sampling adequacy, 0.884,
Bartlett’s Test of Sphericity with a Chi-square value of 2643.08 significant at p<0.001, df=253). The results confirm that Organisational commitment is multidimensional and has three dimensions, which can be appropriately labelled as Affective commitment (factor 1), Continuance commitment (factor 2) and Normative commitment (factor 3). These dimensions accounted for almost 55% of the total variance. Affective commitment captured the highest percentage of variance (34.52%), while Continuance commitment registered the lowest percentage (8.31%).

The correlation coefficients between variables indicate that the three dimensions of Organisational commitment were relatively independent of each other. The highest intercorrelation recorded was between Affective commitment and Normative commitment (0.568). These findings stretched the thinking and interest of the researcher so as to know how the intercorrelations pattern would be for the employees in ITes Sector.

The study of employee’s Job performance and Organisational commitment is of foremost importance to the top-level management of the organisations. Job performance has been defined as work performance in terms of quantity and quality expected from each employee. Commitment of employees can be an important instrument for improving the performance of the organisations. In most of the organisations the high rate of stress leads to lower satisfaction and in turn produces very low Organisational commitment (Elangovan, 2001). The higher level of communication in organisation led to higher level of commitment and thereby increased performance (Chen, Silverthorne and Hung, 2005). This study primarily focuses on the impacts of low/high commitment towards the employee’s Job performance. The study is conducted on oil and gas sector of Pakistan with a total of 153 samples among employer of the respective organisation participated.

Normala, Daud (2010), investigated the Relationship between Quality of Work Life and Organisational Commitment amongst Employees in Malaysian Firms, considered the Quality of Work Life (QWL) of
employee is an important consideration for employers interested in improving employees’ job satisfaction and commitment. Seven QWL variables were examined namely growth and development, participation, physical environment, supervision, pay and benefits and social relevance were examined to determine their relationship with Organisational commitment. The results showed that there was a relationship between QWL and Organisational commitment. The objective of the article is closely related to the present research which had given a lead to recognize the impact of QWL on OC.

Muhammad Riaz Khan et al., (2010) investigated the impact of Organisational Commitment on employee Job performance from a sample of 153 public and private and public sector employees of oil and gas sector in Pakistan. The results revealed a positive relationship between Organisational commitment and employees’ Job performance. In the comparative analysis of three dimensions of Organisational commitment, Normative commitment has a positive and significant impact on employees’ Job performance. Furthermore, the study explores the employees’ Job performance with four demographic variables and found that male employees are high performer vis-à-vis their female counterparts.

Clarke (2006) studied the commitment and network performance in UK based health care units and found that commitment may play a significant role specifically with performance outcomes. The researcher found that statistically both Affective and Normative forms of commitment have significant impact on performance. Affective commitment was positively related to network performance. The finding that Continuance commitment was negatively related to network performance suggests that the relationship between commitment and performance within networks is certainly not straightforward.

The correlation shows that employees Job performance is positively related with Organisational commitment which supports hypothesis of this research that there is positive relationship between Employees Job
performance and Organisational commitment. It establishes that employees Job performance relationship with Normative commitment was highly significant. Employees Job performance found significant impact on Affective commitment, whereas Employees Job performance has highly significant effect on Continuance commitment. The regression results showed highly significant impact of Organisational commitment on employee Job performance.

The analysis revealed Affective commitment impact on employee’s Job performance. The impact of Normative commitment was found positive on Job performance. The results for overall Organisational commitment were also positive with employee Job performance. All the dimensions of Organisational commitment showed significant effects on Job performance. The findings reflect that the demographic variable, age of the respondents both in public and private sectors has no significant variation in their Job performance. The results also indicate that the males were higher performers’ vis-à-vis Female. This study had given much inputs in deciding the hypotheses based on personal variables and the inter effects between organisational commitment and Job performance was clearly depicted. The study has further assisted to set a strong backing for the assumption that Job performance is related to various forms of commitment.

Ebrahim Kheradmand et al., (2010) in examining the Relation Between Quality of Work Life and Job performance considered following measures of QWL (a) Satisfaction with Fair Payment (b) A Safe and Healthy Working Environment (c) Opportunity for Continuous Growth (d) Social relationships in Organisation (e) Balanced Role of Work (f) Social Coherent in the Work Organisation (g) Regulations and Rule Orientation (h) Developing Human Capacities. The main proposed hypothesis of the present research that positive relation exists between QWL and JP was significantly accepted in this study at the level of 95% confidence. The intensity of this relation, based on Pearson’s Correlation coefficient was 71%. In secondary hypotheses, the effects of QWL’s components on Job
performance were analysed. This paper exhibits optimism concerning the potential of QWL in enhancing the performance of employees and organisations, as QWL is found to significantly reduce absenteeism, minor accidents, grievances and quitting.

The research had used the following measures to identify the performance of the samples. Visweswaran C. et al., (1996) identified 10 dimensions of Job performance: (1) overall Job performance, (2) Job performance or productivity, (3) quality, (4) leadership, (5) communication competence, (6) administrative competence, (7) work effort and responsibility (8) interpersonal competence, (9) job knowledge and (10) compliance with or acceptance of authority. Witt et al., (2002) identified following dimensions: quality of work, planning, Organisational commitment, job knowledge, allocation, interpersonal orientation, self-development and account management.

Beh and Rose (2007) identified 7 dimensions of Job performance: (1) effort (2) consistent, (3) time, (4) work, (5) competent, (6) commitment, (7) excel. This study also obtained performance measures from the 7 dimensions of Job performance developed by Hersey and Goldsmith (1980) - Ability, Clarity, Help, Incentive, Evaluation, Validity and Environment.

Campbell et al., (1990) identified eight major dimensions of performance: (1) job-specific task proficiency, (2) non-job-specific task proficiency, (3) written and oral communication tasks, (4) demonstrating effort, (5) maintaining personal discipline, (6) facilitating peer and team performance, (7) supervision and (8) management and administration. Consolidating the views of various researchers on the dimensions of performance constructs, the present research has developed a multidimensional construct. Knowing QWL in an organisation will clarify weak and strong points in the interface between that organisation and its employees. This recognition will lead to more productivity and higher Job performance. Nowadays, management science considers human resources as the most important resource in the organisation.
development; so the act of motivating them becomes crucial. All in all, it seems that taking care of QWL will reduce mental stress, turn over, absenteeism and increased commitment which in turn will enhance Job performance.

Wasti (2005) concluded that Affective commitment is the primary determinant of positive work outcomes such as change success, although it is uncertain whether this relationship is stronger when low levels of Continuance commitment exist. The various combinations of high/low Affective, high/low Continuance, and high/low Normative commitment to change were formed and the mean scores for the perceived success of an organisational change were compared. The researchers examined the combined influences of each of the three commitment components and constructed separate commitment profiles using combinations of high/low Affective, high/low Continuance, and high/low Normative Commitment to change. The suggestive model had taken a cue from this study to understand the form of commitment of respondents across QWL and Job performance.

In response to the changes in the employment relations and to equip the HR professionals to face the demands of changing environment, International Employment Relations Association (2009) has proposed certain global dimensions of performance. The performance dimensions included are Job specific Task Proficiency, Demonstration of Effort, Personal Discipline, Helping Others and Displaying Organisational Conscientiousness. The key antecedents for each dimension was framed as Knowledge and skills, Motivation, Personality and Self-concept. The framework has gone to greater lengths in determining the performance dimensions of the present research.

Overall, the studies and researches summarised have focussed specifically on QWL, OC and JP to show the strongest positive relations. This enriches the understanding of the researcher to think about future research needs in this area. The conceptual and empirical issues related
to QWL, OC and JP serve to augment the research framework of the current research.

3.2 Approaches adopted in the present research

The research approach adopted for the present research is presented under the following headings:

3.2.1 Operational definitions

It is imperative to understand the terminologies and indicators used in this research are presented below:

ITes

ITes for the purpose of research is defined as the organisations carrying out the operations and responsibilities of specific business functions (or processes) of non-voice nature and registered with the Registrar of Companies, Coimbatore district.

Quality of Work Life

For this research, QWL is defined as the perception of the employees on organisational environment that meets the needs for their well being at work and it is measured across 25 statements adopted from the instrument of Russell Consulting Inc. named Quality of Work Life Assessment survey. It covers broadly: (a) Participative Decision Making (4 statements) (b) Nature of Work (4 statements) (c). Rewards and Recognition (5 statements) (d) Work environment (4 statements) (e) Supervisory relationship (5 statements) (f) Performance enhancements (3 statements).
Organisational Commitment

Commitment is defined as the relative strength of an individual’s identification with, and involvement in a particular organisation. The researcher adopted Meyer and Allen’s (1990) three forms of commitment namely Affective, Continuance and Normative. The explanation as follows:

Affective commitment is based on an individual’s emotional attachment to an organisation formed because that individual identifies with the goals of the organisation and is willing to assist organisation in achieving these goals. There are eight numbers of statements to measure Affective commitment.

Continuance commitment measured across eight statements and is concerned mainly with the process by which employees develop a sense of attachment not to the organisation but to their own actions.

Normative commitment refers to an employee’s feeling of obligation to remain with the organisation (based on the employee having internalised the values and goals of the organisation) and consists of eight statements.

Job performance

Job performance refers to the way employees perform their work. Job performance is defined as level of application of appropriate Knowledge and skills to ensure target completion, Quality output, matching organisational standards and responsibility for individual action (Accountability). The Job performance indicators used are Knowledge and skills (7 statements), Quality (7 statements) and Accountability (7 statements). The statements for each dimension are derived from the instrument developed by the New Hampshire University.
Demographics

The demographic profile of individuals focuses on type of organisation, gender, age, marital status, educational qualification, income, length of service, employment status and tenure in the organisation.

3.2.2 Research Design

The research design is descriptive. The purpose of descriptive research is to collect detailed factual information that describes an already existing phenomenon Ezeeni (1981). The conceptual research framework is depicted below:

![Research framework](image)

3.2.3 Research instrument

The questionnaire is intricately designed which consisted of four parts - Demographic details, Quality of Work Life (QWL), Organisational Commitment (OC), Job performance (JP). The statements related to OC is derived from OCQ (Organisational Commitment Questionnaire) developed by Allen and Meyer (1990). OC was measured using 24 item scale which comprises of Affective commitment (8 items), Continuance Commitment (8 items), Normative commitment (8 items). QWL assessment based on the survey instrument of Russell Consulting Inc., (2005) which widely covers the QWL components of Walton (1975). In order to measure the Job performance the instrument developed by the University of New Hampshire is used.
The respondents are asked the extent to which they agreed or disagreed on each item, the 5 point Likert scale is employed in the measurement of all the scales. On getting quite meritorious results of the validity, the instrument was floated for data collection (Refer Annexure 1).

### 3.2.4 Pilot study

Dane (1990) has stated that a pilot study is “an abbreviated version of research project in which the researcher practices or tests procedures to be used in the subsequent full scale project”. Since the measures of the research are either new or reconfigured from their original sources, a pilot study would ensure psychometric cleaning of the items so that only appropriate items chosen through proper analysis would be used. A systematic pilot study was carried out on 50 samples who didn’t participate in the final research. The research instrument tested to ascertain the reliability and validity of the instrument used. Recommendations found to be valid were incorporated into the survey design to the actual research.

### 3.2.5 Content validity and Reliability

Content validity is the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose in psychological assessment. The importance of content validity for the validation of the target construct varies depending on how precisely the construct is defined and the degree to which “experts” agree about the domain and facets of the construct.

Content validation is a multi-method, quantitative and qualitative process that is applicable to all elements of the assessment instrument. During initial instrument purpose of content validation is to minimise and to increase the probability of obtaining supportive construct validity indices in later studies. Because sources of error vary with the targeted construct, the method of assessment, and the function of assessment, the methods of content validation will also vary across these dimensions. In this
research, data was analysed using Lawshe (1975) content validity technique.

The optimal number of judges will vary with the element under consideration, the internal consistency of the ratings, and practical considerations (Crocker, Liabre and Miller, Lynn 1986). In the present research, twenty panellists were asked to indicate whether or not the measurement item was “essential” to the operationalisation of the theoretical context.

The panellist’s inputs were then used to compute the CVR for each i:\textsuperscript{th} candidate item in the questionnaire (CVR\textsubscript{i}) as follows:

\[
\text{CVR} = \frac{n_e \cdot N/2}{N/2}
\]

Where

\(N\) = The total number of panellists
\(n_e\) = The number of panellists indicating “essential”

It is inferred from the CVR equation that the content validity ratio takes on values between -1.00 and +1.00 where CVR=0.00 means that 50% of the panellists of size N believe that a measurement item is “essential”. A CVR>0.00 would, therefore believe that a measurement item is “essential” and thereby valid. Lawshe (1975) has further established minimum CVR’s for different panel sizes based on a one-tailed test at the 0.05 significance level as 0.5, this was used for the research too.

Content validity ratios were thus calculated for the questions which could measure QWL and JP (Refer Annexure 2 for the Content Validity Ratio Table). All the statements in QWL and JP were considered after the calculation of content validity ratio. Only statements which have a score of 0.50 or above have been included in the survey instrument.

After the content validation and reliability check, the final version of the questionnaire was arrived at.
In order to evaluate the reliability level of the data, Cronbach alpha test is conducted. Only elements with alpha value of 0.70 or above are considered (Nunnally, 1978). For all the variables of QWL, OC and JP, alpha value is above 0.70 which shows the internal consistency of the scales (Cronbach, 1981).

3.2.6 Sample Design

There are 82 ITes organisations registered with the Registrar of Companies in Coimbatore district. Of which, 36 organisations involve in non-voice process. All 36 organisations were approached and only 20 organisations were willing to participate. The employees at the operational level from these 20 organisations constitute the universe for the research. A total of 1125 employees are functioning at the operational level in these 20 organisations. The sample size was primarily designed to be 50% that is 563 employees. In order to tackle the non response, 900 employees were selected using non-probability purposive sampling and questionnaires were issued. Out of which 608 employees responded to the questionnaire. After cases with missing data were eliminated, the final sample consisted of 561 useable responses which yielded a response rate of 62%.

3.2.7 Data Analysis

The statistical procedures used are selected based on the suitability to examine the objectives of the research using SPSS statistical package. The various statistical tools adopted are presented as framework for analysis.
Table 3.2.7
Framework for analysis

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Objectives</th>
<th>Tools applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data Validity and Reliability</td>
<td>- Content Validity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cronbach Alpha Reliability Test</td>
</tr>
<tr>
<td>2</td>
<td>Demographic profile</td>
<td>Descriptive statistics – Percentage analysis</td>
</tr>
<tr>
<td>3</td>
<td>Determinants of QWL, OC and JP</td>
<td>Overall Mean and Standard Deviation</td>
</tr>
<tr>
<td>4</td>
<td>Extraction of QWL factors</td>
<td>- Factor Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- PCA with Varimax rotation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Item Analysis using Pearson Correlation for extracted factors of QWL</td>
</tr>
<tr>
<td>5</td>
<td>Relationship between QWL, OC JP as well between different forms of commitment</td>
<td>Pearson Product moment Correlation</td>
</tr>
<tr>
<td>6</td>
<td>Combined correlation among QWL, OC and JP</td>
<td>Canonical Correlation</td>
</tr>
<tr>
<td>7</td>
<td>Demographic factors</td>
<td>Simple percentage</td>
</tr>
<tr>
<td>8</td>
<td>Relationship of demographics with QWL, OC and JP</td>
<td>- Mean and Standard Deviation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ANOVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- t-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Scheffe’s Post Hoc Test</td>
</tr>
<tr>
<td>9</td>
<td>Impact of QWL on OC</td>
<td>Multiple Regression using Enter Method</td>
</tr>
<tr>
<td>10</td>
<td>Influence of JP on OC</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Inter effects of QWL, OC and JP</td>
<td>Simple Path Analysis</td>
</tr>
<tr>
<td>12</td>
<td>Integrated model of QWL, OC and JP</td>
<td>MANCOVA</td>
</tr>
</tbody>
</table>
The important statistical techniques applied are discussed in detail below:

**FACTOR ANALYSIS**

**PRINCIPAL COMPONENT ANALYSIS USING VARIMAX ROTATION**

The main applications of factor analytic techniques are: (1) to *reduce* the number of variables and (2) to *detect structure* in the relationships between variables, that is to *classify variables*. Therefore, factor analysis is applied as a data reduction or structure detection method. The Principal component analysis is appropriate when researcher obtained measures on a number of observed variables and wishes to develop a smaller number of artificial variables (called Principal components) that will account for most of the variance in the observed variables. The principal components may then be used as predictor or criterion variables in subsequent analyses.

The Principal Component Analysis with Varimax rotation for QWL was done to investigate the underlying relationships of a large number of items and to determine whether they can be reduced to a smaller set of factors. This analysis has a high potential to inflate the component loadings. Thus a higher rule-of-thumb, a cut off value of 0.40 is adopted (Nunnally and Berstein, 1994). The Kaiser-Meyer-Olkin measure of Sampling Adequacy and Bartlett’s test of Sphericity were used to determine the appropriateness of factor analysis. The four dimensions of QWL were identified and labelled as Reward system, Managerial style, Organisational support and Job itself. The factor loadings in the four factors range from 0.50 to 0.77. The total variance of QWL explained is 60.426%. The Principal Component Analysis is employed for extracting factors. The Varimax rotation was used as it is centered on simplifying the columns of the factor matrix. The latent root criterion is used for the extraction of factors. As per the criterion only factors having latent roots or Eigen values greater than one are considered significant by means of item analysis based on Pearson correlation (Refer Annexure 3). The figure 3.2.7 depicts the four factors extracted.
Figure 3.2.7 Extraction of QWL Dimensions

REWARD SYSTEM
- Good and Hard work is rewarded
- Interesting Job
- Information Sharing
- Pride and sense of accomplishment in job
- Recognition by supervisor
- Opportunity to improve skills
- Changes in work environment to stay competitive
- Encouragement to use new ideas and approaches.

ORGANIZATIONAL SUPPORT
- Updation of Job related skills
- Clear goals to guide
- Enabling physical environment
- Skilled supervisors to lead
- Training to accomplish task
- Compatible time frame for completion of the task.
- Service quality as evaluation criteria.

MANAGERIAL STYLE
- Participative Decision making
- Authority to make Decisions
- Easy accessibility to supervisor
- Ideas and suggestions valued by peers
- Supervisor’s encouragement to implement risk prone decisions
- Good communication in work area

JOB ITSELF
- Challenging Job
- Skills and abilities match the job
- Adequate information
- Task significance
- Participative Decision making

Extracted statements
CORRELATION ANALYSES

PEARSON PRODUCT MOMENT CORRELATION AND CANONICAL CORRELATION

The present research attempts to find the relationship between QWL, OC and JP using Pearson Product-Moment Correlation and Canonical correlation.

The correlation based on the Pearson product-moment correlation is performed to understand the relationship between all factors of the research. The correlation coefficient $r$ is a measure of the linear relationship between two attributes or columns of data. The value of $r$ can range from -1 to +1 and is independent of the units of measurement. A value of $r$ near 0 indicates little correlation between attributes; a value near +1 or -1 indicates a high level of correlation. When two attributes have a positive correlation coefficient, an increase in the value of one attribute indicates a likely increase in the value of the second attribute.

In statistics, **Canonical correlation analysis**, introduced by Harold Hotelling, is a way of making sense of cross-covariance matrices. Canonical correlation analysis is one of the multivariate analysis techniques that focus on the simultaneous analysis of relationships between multiple independent and dependent variables. If there are two sets of variables, and there are correlations among the variables, then Canonical correlation analysis will enable to find linear combinations of the x's and the y's which have maximum correlation with each other. A typical use for Canonical correlation in the experimental context is to take two sets of variables and see what is common amongst the two sets. Following Pedhazur’s (1982) recommendation, interpretation is based on variables correlating 0.30 or greater with the Canonical variate. This technique is employed to investigate the percent of variance of one set of variables explained by Canonical variate for the other set along the dimension represented by the Canonical correlation.
MULTIPLE REGRESSION

Regression models are created to understand the impact of QWL on OC and OC on JP. Multiple Regression is a statistical method used to examine the relationship between one dependent variable $Y$ and one or more independent variables $X_i$. The regression parameters or coefficients $b_i$ in the regression equation are the coefficients of the independent variable.

$$ Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + \ldots + b_k X_k $$

The coefficient of determination $R^2$ is the proportion of the variation in the dependent variable explained by the regression model. The enter method which is a default standard method in SPSS and also a straightforward method is used.

Before proceeding with Regression Analysis the assumptions of Regression analysis have to be fulfilled. None of the multivariate analysis may yield reliable results if the assumptions are not satisfied. The various assumptions to be examined and the tests used for analysing the same are dealt herewith.

1. Linearity
2. Test of homogeneity of Variances
3. Normality
4. Multi Collinearity Analysis

1. Linearity

For testing the linearity of the variables, the initial test was through the correlation analysis. If the correlation is found to be significant then the variables are said to be linearly related. To confirm the same, the data was tested for linearity using scatter plots as well as using the test of linearity. If the significance of the linearity test was small less than 0.05 it indicates that the linear relationship exists. If the value exceeds 0.05 there exists a non linear relationship. The dependent variables were tested against the independent variables and the existence of linear relationship was ensured.
2. **Test of Homogeneity of Variances**

One of the most common assumption violations is unequal variances or heteroscedasticity. One way ANOVA assumes that the variance of the groups are equal. Hence the assumption of Homogeneity of variances has already been tested and fulfilled while working of ANOVA itself. Levene test of Homogeneity was used for this purpose. The significance value of the Levene statistic should exceed 0.05 if the variances are equal. Thus the assumption of equal variances is justified.

3. **Normality**

Most statistical tests assume that the data are normally distributed hence there is a necessity to check the distribution. The Kolmogorov-Smirnov Statistic tests the hypothesis that the data normally distributed. A low significance value less than 0.05 indicates that the distribution of the data differs significantly from a normal distribution. After conducting this test, it was found that the assumption holds good for the data.

4. **Multi Collinearity Analysis**

Collinearity is the next to be addressed before proceeding with any method of Regression. There are statistics that can determine if there are any problems with Collinearity. Collinearity or Multi Collinearity is the undesirable situation where the correlations among the independent variables are linearly related to one another (multi collinear). Tolerance is the proportion of a variable’s variance not accounted for by other independent variables in the model. A variable with very low tolerance (less than 0.1) contributes little information to a model, and can cause computational problems. VIF or the variance inflation factor is the reciprocal of the tolerance. As the variance inflation factor increases, so does the variance of the regression coefficient, making it an unstable estimate. Large VIF values are an indicator of Multi Collinearity.

Using the VIF and tolerance, it was found that none of the variables were collinear though they had high correlation.
Detecting and Removing Influential Observations

To increase the efficiency of the models, further analysis of individual cases using Collinearity diagnosis was carried out. The first step was to find out the variables having a condition index greater than 15 as it indicates a possible problem. A condition index greater than 30 suggests a serious problem with Collinearity. The variance proportions are then analysed, when a component associated with a high condition index contributes substantially to the variance of two or more variables it indicates problem with Collinearity.

Though some variables had a condition index above 15, none of them had condition index above 30. The variance proportions for such indices were less than 0.7 so there was no indication of Collinearity.

The next step was to analyse the standardised residuals and studentised residuals so as to remove influential observations to improve the efficiency of the model. If the standardised residuals were greater than ±1.96 then the observation has to be removed as it is considered an outlier. Such variables which had a high influence on the regression were only minimal and they were removed.

SIMPLE PATH ANALYSIS

Path analysis was developed as a method of decomposing correlations into different pieces for interpretation of effects. A path coefficient indicates the direct effect of a variable assumed to be a cause on another variable assumed to be an effect. Path coefficients are standardized because they are estimated from correlations. The primary rule of path analysis states that the correlation between an independent and a dependent variable is the sum of the direct effect and all indirect effects. The chief advantage of path analysis is seen when there are two or more dependent variables. The standardized regression coefficients are referred to as path coefficients. This analysis is used to create path models to understand the significant paths between QWL, OC and JP.
MANCOVA

Multivariate analysis of covariance (MANCOVA) is an extension of analysis of covariance (ANCOVA) methods to cover cases where there is more than one dependent variable and where the dependent variables cannot simply be combined. Multiple analysis of covariance (MANCOVA) is similar to multiple analyses of variance (MANOVA), but allows to control the effects of supplementary continuous independent variables – covariates. This technique is employed to find the inter effects caused between the variables and design an integrated model. Quality of Work Life (QWL) entered the MANCOVA model as fixed factors, organisational commitment as covariates and Job performance as dependent variables.

There are four different test statistics namely, Pillai’s trace, Wilk’s Lambda λ, Hotelling-Lawley’s trace, Roy’s Greatest Root, each with its own associated F statistic. Pillai’s Trace is the most robust of the four tests since it is least sensitive to departures, from the assumptions (Olson, 1976; Johnson and Wichern, 2002) and Hotelling’s Trace is the most common and traditional test, where the fixed factor is formed of two groups. Wilk’s Lambda is the most common and traditional test when there are more than two groups formed by the fixed variables and Roy’s Largest Root is seldom used. A perfect fit model will generate all the four test statistics giving identical F values. In this model all four statistics have produced same F values for the factors considered.

Quality of Work Life (QWL) entered the MANCOVA model as fixed factors, organisational commitment as covariates and Job performance as dependent variables. In this research, QWL was measured as a construct that constitutes Reward system, Managerial style, Organisational support and the Job itself; organisational commitment constitutes Affective commitment, Continuance commitment and Normative commitment and Job performance measured as a construct that includes Knowledge and skills, Quality and Accountability. Organisational commitment and Job performance entered the MANCOVA model as mean of the individual items that captured each variable in the construct and QWL entered the
model as a dichotomous variables. QWL was dichotomized using cluster analysis. Cluster analysis was used to extract the dichotomous homogenous groups that characterize high QWL and low QWL.

The researcher has performed further follow-up tests such as the tests of between-subject effects since the results of the MANCOVA are significant. One such test is the ‘Tests of Between Subjects Effects’ (univariate results) conducted to examine whether the independent variables are significant for each of the Job performance variables.

3.3 Demographic profile

The personal variables included in the research are Type of organisation, Age, Gender, Marital Status, Highest educational qualification, Income, Length of service, Employment status and Tenure in the current organisation.

The following table depicts the demographic profile of the respondents.

Table 3.3
Demographic profile

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kinds of Organisation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fin BPO</td>
<td>105</td>
<td>18.7</td>
</tr>
<tr>
<td>BPO</td>
<td>33</td>
<td>5.9</td>
</tr>
<tr>
<td>MR</td>
<td>34</td>
<td>6.1</td>
</tr>
<tr>
<td>MT</td>
<td>176</td>
<td>31.4</td>
</tr>
<tr>
<td>Design</td>
<td>37</td>
<td>6.6</td>
</tr>
<tr>
<td>Operations</td>
<td>96</td>
<td>17.1</td>
</tr>
<tr>
<td>Online education</td>
<td>28</td>
<td>5.0</td>
</tr>
<tr>
<td>R and D</td>
<td>52</td>
<td>9.3</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>292</td>
<td>52.0</td>
</tr>
<tr>
<td>Female</td>
<td>269</td>
<td>48.0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25 years</td>
<td>219</td>
<td>39.0</td>
</tr>
<tr>
<td>25-30 years</td>
<td>206</td>
<td>36.7</td>
</tr>
<tr>
<td>30-35 years</td>
<td>89</td>
<td>15.9</td>
</tr>
<tr>
<td>Descriptions</td>
<td>No. of respondents</td>
<td>Percentage</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------</td>
<td>------------</td>
</tr>
<tr>
<td>35-40 years</td>
<td>32</td>
<td>5.7</td>
</tr>
<tr>
<td>40-45 years</td>
<td>11</td>
<td>2.0</td>
</tr>
<tr>
<td>Above 45 years</td>
<td>4</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Marital status**

<table>
<thead>
<tr>
<th></th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>254</td>
<td>45.3</td>
</tr>
<tr>
<td>Not married</td>
<td>307</td>
<td>54.7</td>
</tr>
</tbody>
</table>

**Educational qualification**

<table>
<thead>
<tr>
<th></th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG</td>
<td>261</td>
<td>46.5</td>
</tr>
<tr>
<td>PG</td>
<td>198</td>
<td>35.3</td>
</tr>
<tr>
<td>Professional</td>
<td>84</td>
<td>15.0</td>
</tr>
<tr>
<td>Diploma</td>
<td>18</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**Income**

<table>
<thead>
<tr>
<th>Income</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs .5000- Rs 10000</td>
<td>248</td>
<td>44.2</td>
</tr>
<tr>
<td>Rs 10000-Rs15000</td>
<td>142</td>
<td>25.3</td>
</tr>
<tr>
<td>Rs 15000-Rs20000</td>
<td>114</td>
<td>20.3</td>
</tr>
<tr>
<td>Rs 20000-Rs25000</td>
<td>23</td>
<td>4.1</td>
</tr>
<tr>
<td>Above Rs 25000</td>
<td>34</td>
<td>6.1</td>
</tr>
</tbody>
</table>

**Length of service**

<table>
<thead>
<tr>
<th>Length of service</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 years</td>
<td>191</td>
<td>34.0</td>
</tr>
<tr>
<td>2-4 years</td>
<td>176</td>
<td>31.4</td>
</tr>
<tr>
<td>4-6 years</td>
<td>100</td>
<td>17.8</td>
</tr>
<tr>
<td>6-8 years</td>
<td>62</td>
<td>11.1</td>
</tr>
<tr>
<td>Above 8 years</td>
<td>32</td>
<td>5.7</td>
</tr>
</tbody>
</table>

**Employment status**

<table>
<thead>
<tr>
<th>Employment status</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent</td>
<td>390</td>
<td>69.5</td>
</tr>
<tr>
<td>Temporary</td>
<td>171</td>
<td>30.5</td>
</tr>
</tbody>
</table>

**Tenure in the current organisation**

<table>
<thead>
<tr>
<th>Tenure in the current organisation</th>
<th>No. of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>134</td>
<td>23.9</td>
</tr>
<tr>
<td>1 year- 2 year</td>
<td>165</td>
<td>29.4</td>
</tr>
<tr>
<td>2 year- 4 years</td>
<td>164</td>
<td>29.2</td>
</tr>
<tr>
<td>4 years-6 years</td>
<td>63</td>
<td>11.2</td>
</tr>
<tr>
<td>6 years- 8 years</td>
<td>22</td>
<td>3.9</td>
</tr>
<tr>
<td>Above 8 years</td>
<td>13</td>
<td>2.3</td>
</tr>
</tbody>
</table>

This chapter has given the total spectrum of the research endeavour.