CHAPTER – I
INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

In this age of globalization and cut throat competition, companies around the world are looking for that one thing that could give them the edge. And over the period of time they have come to realize that the advantage that they were looking for are their employees. The human factor in companies is way beyond important now as the companies have come to realize that a fighting fit, skilled, competent work force with the correct amount of motivation would do the wonders that could not even be done by plain miracles. It is a critical requirement for a corporate world to train and shapeup their work force to best fit to their role to be played. Hence, the organizations have begun and are continuing to impart training, and this has in turn developed the Competency among the individuals. In the contemporary world of work, characterized by rapid and dramatic change, the attainment of competence has become an integral component of individual, organizational and national strategies.

Considering that there are several traits involved in competency, there has been a varied view on the same. McLagan1(1997) has stated that an Organization’s market value and financial success rely increasingly on competence, as well as intangibles: knowledge, loyal customers and other manifestations of human capital. In the global context, Ulrich2 (1998) stated that all organizations face positive critical competitive challenges: globalization, profitability through growth, technology, intellectual capital and change. He suggested that these all provide a valuable opportunity for the human resource practitioner to play a leading role in facing these challenges. The more knowledge and skills people possess, the more elective they will be, and the better they will be able to think, be innovative, exhibit creativity in the job situation, and align their competencies with Organizational strategies and goals.

According to Meyer and Semark3 (1996), competency, its nature, acquisition, and maintenance, is emerging as the central dimension of human resource development
today. It is however, a concept still surrounded by misunderstanding and debate. The definition of the concept of competency has been approached in a number of ways:

a) As a set of behaviour patterns  
b) High Performance competencies  
c) Interpretative approach to competencies  
d) As a process of learning  
e) A time based approach to competencies

Competency is a combination of several such traits as discussed above.

At the organizational level, the following are the types of competencies:

Managerial: Competencies which are considered essential for staff with managerial or supervisory responsibility in any service or program area, including directors and senior posts. Some managerial competencies could be more relevant for specific occupations, however they are applied horizontally across the Organization, i.e. analysis and decision-making, team leadership, change management, etc.

Generic: Competencies which are considered essential for all staff, regardless of their function or level, i.e. communication, program execution, processing tools, linguistic, etc.

Technical/Functional: Specific competencies which are considered essential to perform any job in the Organization within a defined technical or functional area of work, i.e. environmental management, industrial process sectors, investment management, finance and administration, human resource management, etc.

1.2 IMPORTANCE OF THE STUDY AT COIMBATORE:

Coimbatore is the second largest city and urban agglomeration in the Indian state of Tamil Nadu, and the sixteenth largest urban agglomeration of India. It is one of the fastest growing tier-II cities in India and a major textile, industrial, commercial, educational, information technology, healthcare and manufacturing hub of Tamil Nadu. It was the capital city of the historical Kongu Nadu and is often referred to as the Manchester of South India. Coimbatore is the fourth largest metropolis in South India.
and the administrative capital of Coimbatore district. Coimbatore has been ranked 4th among Indian cities in investment climate by CII\textsuperscript{8} and ranked 17th among the top global outsourcing cities by Tholons\textsuperscript{9}.

With more than 25,000 small, medium and large industries, the city's primary industries are engineering and textiles. Coimbatore is called the "Manchester of South India" due to its extensive textile industry, fed by the surrounding cotton fields\textsuperscript{10,11}. The city has two special economic zones (SEZ), the Coimbatore Hi-Tech Infrastructure (CHIL) SEZ at Saravanampatti and the TIDEL Park near Peelamedu, and at least five more SEZs are in the pipeline. In 2010, Coimbatore ranked 15th in the list of most competitive (by business environment) Indian cities\textsuperscript{12}.

Coimbatore houses a large number of medium and large textile mills and enjoys the status of being referred to as the Manchester of South India. It also has central textile research institutes like the Central Institute for Cotton Research (CICR) and Sardar Vallabhai Patel International School of Textiles and Management. The South Indian Textiles Research Association (SITRA) is also based in Coimbatore. The city also houses two of the Centers of Excellences (COE) for technical textiles proposed by Government of India, namely Meditech, a medical textile research centre based at SITRA, and InduTech based in PSG College of Engineering and Technology.

All the above points about Coimbatore, makes it imperative to study various aspects of the textile industries in this great city. The current study is focused on the textile sector, which is the back bone of all the industrial economy of Coimbatore. In the textile sector, the employee’s role, their need and job roles are changing day by day. However, it is essential to maintain competency among the employees based on the leadership development and succession planning. Hence the spinning mills hugely dependable on the roles of Supervisors and Managers in their respective organizations. Based on this concept, this study aims to analyze and discuss the competency level of Managers, Supervisors and Administrative members and their level of perception in the spinning mills of Coimbatore District.
1.3. STATEMENT OF THE PROBLEM

In the textile sector the higher cadre employees (managerial, supervisory and administration categories), needs and job roles becoming a challenge day by day. With their profile to manage their subordinates / employees and to improve the efficiency levels they have to focus on leadership development and succession planning to achieve the productivity to maintain the required competence levels. Therefore, it is absolutely essential for the organizations to adapt to the situation and these employees’ role and responsibility also taken for a task. It appears necessary to investigate the difference in job competency and the level of expectations in the spinning mills in Coimbatore District. It is essential to obtain information about the awareness level of competency that is in practice and the communication about competency reached the employees of the spinning mills are taken for the study. This study is conducted considering only employees of higher cadre of the spinning mills in Coimbatore to find the level of their competency and the insistence of achieving competence that may indirectly elevate the level of stress among employees. It becomes necessary to unearth the perception level of competency among employees who are considered to be the backbone of the corporate. The perception includes different aspects like adaptability, initiative, judgement, Problem solving, Planning and Organisation, Leadership Quality, Productivity and Use of Technology. All these aspects are analysed and the survey discovers the weak area that needs to be strengthened in the textile spinning mills taken for the study in Coimbatore District.

- It is necessary to understand, whether the perception level of competence are fit in line with the dimensions taken for the study?
- It is necessary to understand, whether there is a need for customizing the present dimensions based on the findings of the results?
- Whether the research suggests / recommends overcoming the bottlenecks to achieve the level of competence already in practice or needed to be strengthened among employees in the textile spinning mills?

Hence it becomes appropriate to conduct the research to find out the basis of the study and to ascertain the results.
1.4 OBJECTIVES OF THE STUDY

The following are the major objectives of the present study:

- to evaluate the demographic factors and overall perception towards competency mapping among employees working in spinning mills,

- to identify the level of influence of employees demographic with the individual dimensions of competency mapping in the textile spinning mills,

- to find out the insistence of management competency among employees in the textile spinning mills that have indirect impact in elevating their stress level,

- to analyse the factors and model to measure the employees perception on competency mapping that has significant effect on employees of textile spinning mills and

- to contribute suggestions and to improve the level of competence of employees in the textile spinning mills in Coimbatore.

1.5 HYPOTHESES

H₀₁ : There is no significant relationship between demographics of the respondents and their perception towards competency mapping.

H₀₂ : There is no significant difference between demographics of the respondents and their level of perception towards competency mapping based on individual dimensions.

H₀₃ : There is no significant variance between demographic variables and perception of the employees towards stress due to managing competencies

H₀₄ : There is no significant difference between the factors contributing to achieve competency mapping and the existence of effectiveness in competency mapping in textile spinning mills in Coimbatore.
H05 : There is no significant difference between the overall perception of the respondents measured in the model and the impact on the employees towards competency mapping

1.6 SIGNIFICANCE OF THE STUDY

Competency mapping is excessively used in the organization to determine the crucial elements and activities. The basic reasons due to which the mapping of the competencies is done are as follows:

- Once the competencies are determined, proper training can be provided to the individuals to work more efficiently on the processes.
- Individuals get a broader perspective of how they are perceived by others than previously possible.
- Encouraging more open feedback — new insights.
- Clarity to the employees regarding the critical performance aspects.
- Key performance areas can be improved by understanding the fields where there is a gap between the actual and the desired results.
- If the competencies are determined for the given job, then the person whose career planning phase is taking place can consider those competencies and can be ready for the same.
- Through competency mapping, the individual is preparing himself for the next set of responsibilities.
- With the help of the competency mapping the individual can alter the style of work and fill in the gaps in their performance.
- By overcoming the differences in the desired level and the actual status of performance the individual can feel the increase in the self-confidence and the motivation level.
- Helps the individual to determine the areas where the development is required and thus leads the individual to develop a realistic and objective self development plan.
- It plays a crucial role in career planning of the individual in the organization, to both the employee and the employer.
- A rounded view of the individual's/teams/organization's performance and what the strengths and weaknesses are.
- Raised the self-awareness of people managers of how they personally impact upon others — positively and negatively.
- Supporting a climate of continuous improvement.
- Starting to improve the climate/morale, as measured through the survey.
- Focused agenda for development. Forced line managers to discuss development issues.
- Perception of feedback as more valid and objective, leading to acceptance of results and actions required.

The study has focused on the following areas namely adaptability, initiative, judgment, problem solving, planning and development, Leadership Quality, Productivity and Use of Technology.

1.7 METHODOLOGY OF THE STUDY

1.7.1 RESEARCH DESIGN:

This study adopts a research method in view of the objectives and the focus of the study. The researcher used descriptive type of research. This research design deals with describing the characteristics of a particular individual or of groups. Descriptive research describes the state of affairs as it exists at present moment, in reality for everyone to see/perceive. In this study the research is analyzing the perception of Competency Mapping among employees working in spinning mills at Coimbatore District.

For effective data collection, the researcher had adopted simple random sampling technique and the study was focused on 4 NTC (National Textile Corporation) mills and 40 Private Mills in Coimbatore district. From the empirical findings, the study shows the needs for development in the areas and the perception about level of competency skills needed to be developed among the Supervisors and Managers in Textile sector. The study has focused on the following areas namely Adaptability, Initiative, Judgment, Problem Solving, Planning and Development, Leadership Quality, Productivity and Use
of Technology and has also focused on the various factors that influence the competency. To analyse the level of perception towards mapping was ascertained using Structural Equation Model. Based on these dimensions the analysis has been conducted taking the Managers, Supervisors and Administrative members and their perception towards the competency skills.

1.7.2 DATA COLLECTION:

- **Primary Data:**

  The major source of the data used to carry out the analysis is primary data. In order to fulfill the objectives set out, a sample study was undertaken by the use of well framed questionnaire and got them duly filled in. The first step in the collection of primary data is to identify the sample respondents working in textile spinning mills in Coimbatore district.

  Classifying the geographical areas in Coimbatore into East, West, North and South, the samples were selected randomly. The total number of people sampled constitute approximately around two third of the total population from the total number of sample respondents working in textile industries of Coimbatore district. The selection of samples would help the researcher to carry out a reliable analysis.

- **Secondary Data:**

  The sources of secondary data includes the publications and reports of textile industries in India, various other unpublished reports of non-governmental organizations, unpublished research reports, doctoral thesis of various institutions, Books, Journals, articles, etc.

1.7.3 INSTRUMENTATION:

  Research instruments are prepared on the basis of the objectives set for the study. Questionnaire was prepared for the collection of primary data. Competency scale was developed after reviewing the similar work done earlier. This was pretested for face validity by sending it to HR professionals; and based on the pre-test feedback, some modification were made in the content of the questionnaire and positioning of the
questions to make it easier to answer. The final questionnaire was then framed based on the inputs from the initial survey.

A structured questionnaire was administered to the respondents for collection of primary data and was ascertained on a five point grading scale such as Strongly Agree (5), Agree (4), Neither Agree nor Disagree (3), Disagree (2), and Strongly Disagree (1). The responses were well recorded and systematically analyzed to draw a clear picture on the study.

The instrument consisted of 43 items to be rated on a Likert type response format relating to eight domains of general competencies namely Adaptability, Initiative, Judgment, Problem Solving, Planning and Development, Leadership Quality, Productivity and Use of Technology

- **Validity of the Instruments**

  Validity of the questionnaire was established by the initial survey. Several HR Managers’ were asked to scrutinize each item in the inventory and on the basis of the feedback, modifications were made in the content of the questionnaire and wordings of certain items. The initial survey and the feedback were consistent with the available literature and thus the instrument was validated.

1.7.4 **PILOT STUDY**

Before conducting the data collection, it is necessary to ascertain the applicability of the research instruments to the study population. Edwin R. Van Teijlingen and Vanora Hundley\(^\text{13}\) (2001) discusses in his paper "The importance of pilot studies" and states that one of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. After finalizing the number of items in the research instrument, the questionnaire were pilot tested using a group of 60 employees (Supervisors, Managers and Administrative Staff members) representing the targeted population. The purpose of the pilot study is to estimate the expected response rate, calibrate the chosen statistical
methods, and to lend credence to instrument validation. Based on the responses of these groups, suitable modification was made to the statements included in the scales prepared. The pilot study is also an evaluation of the scale before it is administrated to the selected population. It helped to verify the applicability of the instruments and to know the feasibility of the procedure adopted in the data collection.

1.7.5 RELIABILITY TEST

The data collected during the pilot study are subjected to reliability test using Cronbach’s Alpha test. There are two general categories of reliability co-efficient: (1) those based on longitudinal data (e.g. the test–retest reliability co-efficient) and (2) those based on cross sectional data (e.g. internal consistency reliability co-efficient and equivalence reliability co-efficient). By far, the most commonly used reliability co-efficient is co-efficient alpha. An estimator of internal consistency co-efficient alpha was developed by Cronbach\(^{14}\) (1951) as a generalized measure of the internal consistency of a multi-item scale.

In order to find out the internal reliability of the 43 competency perception variables, the measure of Cronbach’s Alpha was utilized. The result of the Cronbach’s Alpha suggested the overall reliability of the test.

Table No.1.1
CRONBACH’S ALPHA FOR ALL THE FACTORS

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Factors</th>
<th>Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Adaptability</td>
<td>6</td>
<td>0.711</td>
</tr>
<tr>
<td>2.</td>
<td>Initiative</td>
<td>6</td>
<td>0.814</td>
</tr>
<tr>
<td>3.</td>
<td>Judgement</td>
<td>5</td>
<td>0.806</td>
</tr>
<tr>
<td>4.</td>
<td>Planning and Organization</td>
<td>6</td>
<td>0.711</td>
</tr>
<tr>
<td>5.</td>
<td>Problem Solving</td>
<td>6</td>
<td>0.807</td>
</tr>
<tr>
<td>6.</td>
<td>Leadership Quality</td>
<td>5</td>
<td>0.611</td>
</tr>
<tr>
<td>7.</td>
<td>Productivity</td>
<td>4</td>
<td>0.706</td>
</tr>
<tr>
<td>8.</td>
<td>Use of Technology</td>
<td>5</td>
<td>0.773</td>
</tr>
<tr>
<td>9.</td>
<td>Stress due to Competence</td>
<td>9</td>
<td>0.714</td>
</tr>
</tbody>
</table>
It is evident from the study that the employees’ competency in the textile spinning mills is highly reliable and greater than recommended level (0.7) and has achieved the internal reliability (O.T., Nunnally\textsuperscript{15}, 1978). Similarly, the researcher has also verified the reliability under eight different dimensions to analyze the competency scale and the stress due to managing competencies is taken as a separate variable which also considered for the study is shown in the table below:

- **Variables**

On the basis of the earlier work done in this area, the researcher has identified a set of independent and dependent variables in the study. Dependent variables are related to the measurable outcomes of research. The Competency levels of Supervisors, Managers and Administrative staff are shown within the category of dependent variables. Variables such as Adaptability, Initiative Judgement, Planning and Organization, Problem Solving, Leadership Quality, Productivity and Use of Technology have been added to the dependent variable category.

Variables such as Age, Gender, Marital Status, Level of Education, Designation and Responsibility, Monthly Family Income, Earlier Experience in the job etc., are included in the category of independent variables.

1.7.6 **SAMPLING DESIGN**

Researcher has adopted simple random sampling method for selecting the samples. The universe of the present study is the employees working in higher cadre or supervisory cadre working in the textile spinning mills registered under South Indian Mills Association (SIMA). Before selecting the sample mills, the mills were stratified into private and public sectors. There were 134 textile mills registered under SIMA, out of which 4 belonged to National Textile Corporation (NTC) and 130 belonged to private limited. The researcher selected 44 mills in total that is, all the 4 NTC Mills (Public) and 40 mills out of 130 Private Ltd mills respectively (i.e., in the ratio of 1:10) using random technique. The average number of workers in each textile mills is estimated at 20 higher cadre employees per 275 employees in an organization. The selection of sample is based only on higher cadre of employees and it works out be about 70% of the total number of
employees (Total = 880 members), which is about 610 employees. However, on a random selection basis it is estimated at majority (70%) of the total population which works out to be 610 respondents. It is assumed that 70% would be significant to represent the opinion of the total respondents engaged in the selected spinning mills. The samples were selected at random from the name lists provided by the administrative departments of the concerned mills that were sampled.

1.7.7 TOOLS AND TECHNIQUES USED

The objectives framed for the present study formed the basis of the identification of the relevant statistical techniques.

- Score value Analysis
- Cronbach’s Alpha
- Chi-Square Test
- ANOVA (Analysis of Variance)
- Multiple Correlation
- Multiple Regression
- Garrett Ranking
- Factor Analysis
- Structural Equation Modeling.

- Simple Percentage

In a research various percentages are to be used for analysis. The data observed will be converted into percentage for easy understanding. Simple percentage analysis refers to a special kind of ratio. With the help of absolute figures it will be difficult to interpret any meaning from the collected data, but when the figures are represented as percentages, it becomes easy to find the relative difference between two or more attributes.

\[
\text{Percentage} = \left( \frac{\text{No. of Respondents}}{\text{Total Number of Respondents}} \right) \times 100
\]

- Mean Score Analysis

Mean is the simplest measurement of central tendency and is a widely used measure. Its chief use consists in summarizing the essential features of a series and in
enabling data to be compared. A team score for a particular characteristic can also be measured by taking the average, or mean, of all team member scores. Using this method, the amount of each trait for individual members is combined to form a group-level measurement of that trait (Barrick, et al., 1998). Calculating means is much more quantitative and reliable than using simple averages, especially in economic and social studies where direct quantitative measurements are possible.

Thus we have basic statistical formula

\[ \bar{X} = \frac{\sum X}{N} \]

Where \( \sum X = \) Summation of the value of the \( i^{th} \) item \( X, i = 1, 2, 3, \ldots, N \)

\( N = \) Total number of items

- **Perception Ranking**

  This technique is used to know the perception of the employees towards various factors determining perception towards competency mapping. Statements are framed on Likert Scale accordingly ‘Strongly Agree’, ‘Agree’, ‘Neutral’, ‘Disagree’ and ‘Strongly Disagree’. And they were scored as 5, 4, 3, 2 and 1 for the responses respectively. Mean score is worked out for each factors. Based on Score, perception rating is calculated by using the following formula.

  \[ \text{Mean score of Self perceived dimensions} = \frac{\text{Sum of Score of the statement in a dimensions}}{\text{Total number of respondents}} \]

- **One Way Analysis of Variance**

  The basic principle of ANOVA is to test for differences among the means of the populations by examining the amount of variation within each of these samples, relative to the amount of variance made viz., one based on between samples variance and the other based on within samples variance.

  \[ F = \frac{\text{Estimate of population variance based on between samples variance}}{\text{Estimate of population variance based on within sample variance}} \]
i) Sum of the squares of variations amongst the columns: \( SSC = \) It is the sum of the squares of deviation between the columns or group means and grand means.

\[
SSC = r \sum (x_j - x)^2,
\]

Where

\( x_j = \) mean of the \( j \)th samples;
\( x = \) mean of the sample (column) means;
\( r = \) number of rows or size of each sample.

Variance amongst columns: \( MSC = SSC/c-1 \), where \( c \) is the number of columns.

The variance amongst the columns \( MSC \) indicates the degree of Explained variables due to sampling variations.

ii) Sum of square of variations within columns: \( SSE = \) It is the sum of the squares of variations between individual items and column means.

\[
SSE = \sum_i \sum_j ((x_j - x)^2,
\]

Where

\( x_i = \) \( i \)th observation in the column;
\( x_j = \) Mean of \( j \)th column.

Mean of the square of Column Errors: \( MSE = SSE / c(r-1) \)

Where \( c = \) number of columns; \( r = \) number of rows.

This is also called Un-explained variance because it indicates only the chance variation which cannot be explained in terms of variation in population.

iii) Total Sum of Squares of Variation : \( SST = \) the total sum of squares is given by

\[
SST = \sum_j \sum_i x_{ij} - C,
\]

Where

\( T = \) grand total of the values in all the samples
\( r = \) number of rows;
\( c = \) number of columns
It is the sum of the squares of observation between the individual values and grand mean \( \bar{x} \).

Also

\[
\text{SST} = \text{SSC} + \text{SSE}. 
\]

Total variance comprise of the both the explained and the unexplained variance and is defined as

\[
\text{Total Variance} = \frac{\text{SST}}{\text{n}-1}
\]

Where \( n = r \times c = \text{total number of observation in all the samples} \) and \( \text{(n-1)} \) is the degree of freedom.

➢ **Tukey’s HSD Test**

Tukey's test, also known as the Tukey range test, Tukey method, Tukey's honest significance test, Tukey's HSD (honest significant difference) test, or the Tukey–Kramer method\(^{17}\), is a single-step multiple comparison procedure and statistical test. It is used in conjunction with an ANOVA to find means that are significantly different from each other. Named after John Tukey, it compares all possible pairs of means, and is based on a studentized range distribution (\( q \)) (this distribution is similar to the distribution of \( t \) from the t-test)\(^{18}\). Tukey HSD (Honestly Significant Difference) test is to identify statistically differences between pairs of groups. Tukey’s HSD was designed for a situation with equal sample sizes per group, but can be adapted to unequal sample sizes as well (the simplest adaptation uses the harmonic mean of n-sizes as \( n^* \)). The formula for Tukey’s is

\[
\text{HSD} = q \sqrt{\frac{\text{MSE}}{n^*}}
\]

where \( q = \text{the relevant critical value of the studentized range statistic} \) and \( n^* \) is the number of scores used in calculating the group means of interest.
➢ Multiple Correlation Analysis

Correlation is the study of relationship between two or more variables. In statistics, the coefficient of multiple correlation\(^9\) is a measure of how well a given variable can be predicted using a linear function of a set of other variables. It is measured by the square root of the coefficient of determination, but under the particular assumptions that an intercept is included and that the best possible linear predictors are used, whereas the coefficient of determination is defined for more general cases, including those of nonlinear prediction and those in which the predicted values have not been derived from a model-fitting procedure. The coefficient of multiple correlation takes values between zero and one; a higher value indicates a better predictability of the dependent variable from the independent variables, with a value of one indicating that the predictions are exactly correct and a value of zero indicating that no linear combination of the independent variables is a better predictor than is the fixed mean of the dependent variable.

➢ Chi-Square Test

A chi-squared\(^{20,21}\) test, also referred to as chi-square test or \(\chi^2\) test, is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Also considered a chi-squared test is a test in which this is asymptotically true, meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-squared distribution as closely as desired by making the sample size large enough. The value of the test statistic is calculated using the following formula.

\[
\chi^2 = \sum \frac{(O - E)^2}{E}
\]

With Degree of Freedom (D.F.) = (c-1) (r-1) where,

\[
\begin{align*}
O & = \text{Observed frequency}, \\
E & = \text{Expected frequency}, \\
c & = \text{Number of Columns}, \\
r & = \text{Number of Rows}.
\end{align*}
\]
➢ **Weighted Mean**

The Weighted mean is a mean where there is some variation in the relative contribution of individual data values to the mean. Each data value \((X_i)\) has a weight assigned to it \((W_i)\). Data values with larger weights contribute more to the weighted mean and data values with smaller weights contribute less to the weighted mean. The formula is

\[
\bar{X}_w = \frac{\sum W_i X_i}{\sum W_i}
\]

There are several reasons why one might want to use a weighted mean.

- Each individual data value might actually represent a value that is used by multiple people in the sample. The weight, then, is the number of people associated with that particular value.
- The sample might deliberately over represent or under represent certain segments of the population. To restore balance, one would place less weight on the over represented segments of the population and greater weight on the represented segments of the population.
- Some values in the data sample might be known to be more variable (less precise) than other values. One would place greater weight on those data values know to have greater precision.

➢ **Multiple Regression Analysis**

In statistics, regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed. Most commonly, regression analysis estimates the conditional expectation of the dependent variable given the independent variables – that is, the average value of the dependent variable when the independent variables are fixed. Less
commonly, the focus is on a quantile, or other location parameter of the conditional distribution of the dependent variable given the independent variables. In all cases, the estimation target is a function of the independent variables called the regression function. In regression analysis, it is also of interest to characterize the variation of the dependent variable around the regression function which can be described by a probability distribution.

Regression analysis is widely used for prediction and forecasting, where its use has substantial overlap with the field of machine learning. Regression analysis is also used to understand which among the independent variables are related to the dependent variable, and to explore the forms of these relationships. In restricted circumstances, regression analysis can be used to infer causal relationships between the independent and dependent variables. However this can lead to illusions or false relationships, so caution is advisable, for example, correlation does not imply causation.

Multiple regressions is mainly based on equation wherein the predictor variables coefficients are found out. The general multiple Linear Regression equation is.

\[ Y = a_1x_1 + a_2x_2 + \ldots + a_nx_n + K \]

Where \( Y \) is the dependent variable

\( K \) is constant.

\( a_1, a_2 \ldots a_n \) are the regression coefficients for the independent variables \( x_1, x_2 \ldots \) \( x_n \) respectively.

- **Confirmatory Factor Analysis**

  **Confirmatory Factor Analysis (CFA)** is a special form of factor analysis, most commonly used in social research. It is used to test whether measures of a construct are consistent with a researcher's understanding of the nature of that construct (or factor). As such, the objective of confirmatory factor analysis is to test whether the data fit a hypothesized measurement model. This hypothesized model is based on theory and/or
previous analytic research. CFA was first developed by Joreskog\textsuperscript{23} and has built upon and replaced older methods of analyzing construct validity.

In confirmatory factor analysis, the researcher first develops a hypothesis about what factors s/he believes are underlying the measures and this study is conducted to find out the underlying factors to find out the perception of employees towards competency mapping in Textile sector, Coimbatore. The constraints may be imposed on the model based on these priori hypotheses. By imposing these constraints, the study is verified and forcing the model to be consistent with the theory.

\section*{Henry Garrett Ranking Technique}

This technique was used to rank the problems faced by the respondents in the area of competency mapping. As per this method, respondents have been asked to assign the rank for all factors and the outcome of such ranking was converted into score value. In other words, respondents were asked to rank according to the magnitude of the problems. The order of merit given by the respondents was converted into ranks by using the following formula.

\[ \text{Percentage Position} = \frac{100(R_{ij} - 0.5)}{N_j} \]

The percentage position of each rank thus obtained was converted into scores by referring to the table given by Henry Garrett. Then for each factor the scores of individual respondents were added together and were divided by the total number of respondents for whom the scores were added. These mean scores for all the factors were arranged in the order of ranks and consequently inferences were drawn on the basis of scores of these factors.

\section*{Structural Equation Modeling}

Structural Equation Modeling has its roots in path analysis, was invented by the geneticist Sewall Wright\textsuperscript{24} (Wright, 1921). It is still customary to start a SEM analysis by drawing a path diagram. A path diagram consists of boxes and circles, which are connected by arrows. In Wright’s notation, observed (or measured) variables are
represented by a rectangle box, and latent (or unmeasured) factors by a circle or ellipse or square box. Single headed arrows or ‘paths’ are used to define causal relationships in the model, with the variable at the tail of the arrow causing the variable at the point. Double headed arrows indicate covariances or correlations, without a causal interpretation. Statistically, the single headed arrows or paths represent regression coefficients, and double-headed arrows covariances.

Structural Equation Modeling is a very general statistical modeling technique, which is widely used in the behavioural sciences. It can be viewed as a combination of factor analysis and regression or path analysis. The interest in SEM is often on theoretical constructs, which are represented by the latent factors. The relationships between the theoretical constructs are represented by regression or path coefficients between the factors. The structural equation model implies a structure for the covariances between the observed variables, which provides the alternative name covariance structure modeling. However, the model can be extended to include means of observed variables or factors in the model, which makes covariance structure modeling a less accurate name.

1.8 OPERATIONAL DEFINITIONS

1.8.1 TEXTILE

- A material made mainly of natural or synthetic fibers. Modern textile products may be prepared from a number of combinations of fibers, yards, films, sheets, foams, furs, or leather. They are found in apparel, household and commercial furnishings, vehicles, and industrial products. The textile spinning mills in Coimbatore producing yarn from cotton are mainly considered for the study.

1.8.2 EMPLOYEE

- An employee is an individual who works part-time or full-time under a contract of employment, either oral or written, expressed or implied and has recognized with rights and duties. Here, the employess holding different designations such as managers, supervisors and administrative staff members in textile industries, coimbatore are considered as employees for the study.
1.8.3 PERCEPTION

- Perception is the process of attaining awareness or understanding of informations. It comes from the latin word perceptio which means receiving, collecting and action of taking possession with the mind or senses. Here the level of competency mapping among employees taken into considered based on the individual perception.

1.8.4 COMPETENCY MAPPING

- Competency is identifying an individual's strengths and weaknesses. The actual mapping of employees can be a self-done exercise or done by others like superiors. It can also be done by using the 360-degree method where peers, first reports and customers also rate the employee. The aim is to enable the person to better understand himself or herself and to point out where career development efforts need to be directed. The present study concentrates with eight dimensions and perception of the managers / supervisors and administrative staff members are gathered and measured with different parameters such as, adaptability, initiative, judgement, planning and organisation, problem solving, leadership quality, productivity and use of technology.

In a nutshell, the parameters can be defined in the following manner.

- **Adaptability** is the capability of the individual to quickly get in line with the circumstances as they are and then yield out of it the best results possible. The individual should have the physical and mental flexibility in order to be able to adapt to the conditions and work in them.

- **Initiative skill** is defined as the set of human attributes required to identify and act upon new opportunities to enhance business results without being asked or delegated.

- **Judgement** can be explained as the capability of the individual to judge the situation at hand correctly so as to come down to a Leadership Quality decision.
- **Problem Solving** is defined as the set of human attributes required to quickly identify and understand the key issues, evaluate the alternatives, pros and cons and then take an effective decision to impact the organization in a positive manner.

- **Planning and Organization** is deciding in advance what to do, how to do it, when to do it, and who should do it. This bridges the gap from where the organization is to where it wants to be. The planning function involves establishing goals and arranging them in logical order.

- **Leadership Quality** is the capability of the individual to take the lead and take the whole group towards the goals already agreed upon by the group. This needs to happen irrespective of the trying situations at hand.

- **Productivity** is the measure of the results or the output that gets produced per unit time. The more the results produced per unit time, more productive the individual is and so would be the organization.

- **Use of Technology** is a necessary skill in this era of technology. It can be defined to find how quickly an employee is willing and getting skilled in using the technology, to his/her benefits and to the collective benefit of the organization.

**1.9 SCOPE OF THE STUDY**

The study is mainly conducted to know about the perception of competency mapping for the employees in the spinning mills in Coimbatore District and also to ascertain the benefits to the organization using competency mapping. In this regard, the researcher opines to conduct the study to find out the positives and negatives existing in the textile sector and contribute necessary innovative suggestions/ recommendations to the management for the benefit of the employees and organizations as well.
1.10 LIMITATIONS OF THE STUDY

- The major limitation of this study is, of course the period of time.

- Our study was limited within few textile spinning mills in Coimbatore, hence it lacks universal applicability, that means this analysis cannot be applied to similar type of industry or situation in any other geographical location.

- Limited discussion with employees of the textile spinning mills was done due to paucity of time.

1.11 CHAPTER SCHEME

The study has been presented in five chapters.

- First chapter deals with Introduction and Design of the Study, Statement of the Problem, Objectives of the Study, Scope of the Study, Research Methodology, Limitations of the Study and Chapter Scheme.

- In the second chapter the review of previous studies are discussed.

- In the third chapter the theoretical perspectives and profile of the Textile Spinning Mills in Coimbatore are discussed

- Data Analysis and Interpretation are presented in the fourth chapter.

- Fifth chapter summarizes the findings, discussion and suggestions, Scope for further research and conclusion.
1.12 REFERENCES


7. Nick Names of India Places Manchester of India Ahmedabad Cochin Queen of Arabian Sea - General Knowledge in India

8. www.cityscapeintelligence.com/document


