

CHAPTER:THREE

RESEARCH

METHODOLOGY

CHAPTER-THREE
AN OVERVIEW OF RESEARCH METHODOLOGY-
DETAILED CONTENTS AT GLANCE

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CHAPTER:THREE

RESEARCH METHODOLOGY

EXECUTIVE SUMMARY OF CHAPTER NUMBER THREE:

The third chapter of the Ph.D. Thesis provides an account of information and explanations on several research methodological procedural features that the researcher has used in the conduct of this research study. It includes essential information on many methodological and procedural processes and conceptual facets that the researcher needs to consider in the execution and implementation of the research techniques used in conduct of this research study. It has primarily included research steps such as the basic terms of the research study, the rationale of the research study, scope and coverage of the research study, research design of the research study, objectives of the research study, research questions of the research study, hypotheses of the research study, the conceptual model developed and used in this research study, secondary data sources, sampling design, analysis and interpretation of the primary data. This chapter has also discussed the composition of the structured questionnaire, including information on the scale used, the number of questions drafted, and the usage of a review of literature in the drafting of the questionnaire. It has computed and verified the reliability and validity of the structured questionnaire used to collect primary data in the pilot study, as well as the technique, and procedure used to estimate and compute an appropriate sample size in this research study. In addition to this, the normality test was used to determine the distribution of the primary data gathered for this research study. The chapter has also given details regarding the statistical tools used for analysis of the primary data and factual information about the associations, linkages, and relationships tested of chosen variables for this research study.

3.0 INTRODUCTION:

Human Resources are essential in today's competitive Business Environment, But, the most important and valuable asset is the Talented Human Resources of an organization. Human Resources, rather than supporting administrative functions, works as a strategic partner to the organisation. Every organization's ultimate goal is to achieve its objectives and fulfill its responsibilities on time and to the best of its abilities. People, especially competent ones, are very important to accomplishing stated goals and for achieving desired workplace efficiency. These types of employees are essential in carrying out the organization's strategy and meeting its financial objectives. To be successful, the organisation must pay more attention to its people, focus on thorough and systematic work with them, and establish an internal Talent Management System. The concept of 'Talent' is highly valued now-a-days. A person who lacks talent is of little use and will not succeed if s/he lacks creativity, competence, and new thinking. Talent is a limited resource available to a tiny number of individuals, but organizations cannot afford to disregard it so companies must take considerable caution when hunting for potential applicants. Each individual has a distinct set of skills and s/he contribute to achieve one of the goals of an organization to successfully manage its employees. (DAVE, 2012)

"Talent management" has become a term regarding Human Resources and Training in the industry. In the late 1990s, a group of researchers from the McKinsey & Company conducted a research study/survey that popularized the term "Talent Management," indicating that the "Best" method separating high-performing firms was not Talent Management but rather a ubiquitous Talent Management attitude (McKensey, 2015). Talent management is defined as the process by which new employees are trained and integrated into the firm's workforce, existing employees are trained and retained, and top-tier candidates are recruited to work for the organisation. Since its inception in the 1990s, it has been adopted by many businesses as they recognize that their Employees' Talents and Competencies are the driving force behind success of the Organizations. (Bhatt, 2015)

3.1 KEY TERMS OF THE RESEARCH STUDY:

The basic terms of the research studies have been defined as follows:

3.1.1: Competency:

An underlying characteristic of an individual is casually related to criterion-referenced effective and/or superior performance in a job or situation". (Lyle M. Spencer, Jr., 1993)

3.1.2: Competency Management:

Human Resource Actions targeted at maximizing the development and application of staff competencies are referred to as "Competency Management," which is an integrated collection of activities aimed at increasing individual effectiveness and improving organizational effectiveness. (Vleuten, 2006)

3.1.3: Talent:

Individuals with exceptional talent can have an immediate impact on the success of their organizations, either via their direct contributions or their demonstration of long-term potential.(Tansley, 2011)

3.1.4: Talent Management:

"Talent management" refers to the use of effective and integrated strategies of Human Resource Management to find and hire the best people at the appropriate time for the right jobs;(Axelrod, B., Handfield-Jones, H. and Michaels, 2002). Talent management is defined as the process by which new employees are trained and integrated into the firm's workforce, existing employees are trained and retained, and top-tier candidates are recruited to work for the organisation.(Campbell & Hirsh, 2012)

3.1.5. Managerial Competencies

Managerial competencies are the ability of a leader or manager to direct what needs to be done to achieve the organization's objective and communicate the expected outcome of those efforts.(Manxhari et al., 2017)

3.1.6. Behavioral Competencies:

Behavioural competencies are the collective knowledge, attitude, and action an individual possesses in a business setting across all job levels.(Mercer, 2016) A behavioural competency framework is an inventory of anticipated skills, knowledge, and behaviour that lead to excellence on the job. It describes competencies in behavioural terms, using indicators to help recognize the competencies when individually demonstrated.(Federal Government, 2016)

3.1.7. Technical Competencies:

Technical competencies are those specific competencies that are usually required to perform a given job within a job family.(OECD, 2004) The technical or professional competencies tend to be specific to roles or jobs within the Job Family and include the specific skills and knowledge (Know-How) to perform effectively (e.g. Ability to use particular software; knowledge in particular professional areas such as Finance, Biochemistry, etc.). These competencies could be generic to a Job Family as a whole or be specific to roles, levels, or jobs within the family.(Federal Government, 2016).

3.1.8. Talent Acquisition:

Talent acquisition is more than just posting a requisition and extending an offer. It is a strategic approach to identifying, attracting, and onboarding top talent to efficiently and effectively meet dynamic business needs.(Recruiter.com Group, 2019).

3.1.9 Talent Development:

Talent development focuses on the planning, selection, and implementation of development strategies for the entire talent pool to ensure that the organisation has both the current and future supply of talent to meet strategic objectives and that development activities are aligned with organizational talent management processes.(Garavan et al., 2012).

3.1.10 Talent Retention:

Talent retention is all those activities and practices that are used by an organization to prevent the departure of talent. There are costs associated with losing talent, which include direct costs like hiring and training, and indirect costs like the loss of specialized skills, organizational knowledge, and employees' networks when they leave. As a result, it is difficult for organizations to gain and maintain their competitive advantage without retaining their talent.(Ott et al., 2018)

3.2 THE RATIONALE OF THE RESEARCH STUDY:

The study of existing literature in the relevant field and interviews of CEOs of big Companies & HR Managers, showed the top challenges being faced by HR Departments that are Attracting Talent, Employee Retention & Skilling & Reskilling of Employees. This problem leads to ambiguity in the applications of HR Functions in organizations and raised the need for research to solve it. This research study is an attempt to contribute to solving these types of issues being faced by HR Managers & Policy Makers by giving a Conceptual & Empirical Model based on the relationship between Competencies, Competency-Based HR functions & Talent Management. To get accurate results, the researcher has attempted to study various competencies viz, Managerial, Technical, Professional & Behavioural among the top, middle & lower levels employees of 04 key sectors of the manufacturing industry of Gujarat State Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical Industry. (Indian Brand Equity Foundation (IBEF), 2019).

An attempt was also made to examine Competencies Based HR Functions that affect functions of the Talent Management viz Talent Acquisition, Talent Development & Talent Retention amongst the employees of 19 companies of 4 selected sectors of manufacturing industries of the Gujarat State. The results of the research study unique in nature as many research studies were conducted separately on Talent Management & Competency Management respectively. But, very few research studies' results have showcased the linkage between these two major practices that is Talent Management & Competency Management in the organizations. This research study has provided empirical evidence and support through the development of the Conceptual Model, which was tested further by Statistical Software & Tools for getting better results & prediction power of it. The results of the research study have also checked the mediating effects of Competency-Based HR functions between Competency Management & Talent Management which was not seen by earlier research studies. Overall, the results of this research study have provided 02 types of Implications viz; First, Theoretical implications, which make an advancement in the Theory of Organization Behaviour & Human Resource Management, and Second, Managerial implications, that provides directions to Managers, Leaders & Policymakers to apply efficient & effective Talent Management practices in their respective organizations.

3.3 SCOPE AND COVERAGE OF THE RESEARCH STUDY:

The scope of this research study was to know the linkage between selected competencies Viz, Technical, Managerial & Behavioural Competencies of employees and their use in Competency-Based HR Practices Viz Recruitment, Selection, Training, Performance Appraisal, Compensation & Succession Planning. The applications of aforesaid competencies were used in demonstrating their relationships with practices of Talent Management Viz. Talent Acquisition, Talent Development, & Talent Retention amongst selected employees from 19 companies of 04 key sectors of the manufacturing industry Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry of the Gujarat State.

3.4 OBJECTIVES OF THE RESEARCH STUDY:

The key objective of this research study is to examine the Competency-Based HR Functions leading towards Talent Management amongst selected employees of 04 key sectors of the manufacturing industry Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry of the Gujarat State.

The other objectives of research study were as follows.

1. To know the individual employees' awareness of the Competency-Based HR Function and its applications in the selected companies of the manufacturing industry of the Gujarat State.
2. To identify different competencies which help the organization to establish Talent Management in the organisation.
3. To identify the different Human Resource Functions where the Competency-Based tools are used amongst the selected employees from the selected companies of the manufacturing industry of the Gujarat State.
4. To study the relationship between Competencies and Talent Management amongst the selected employees amongst the selected employees from the selected companies of the manufacturing industry of the Gujarat State.
5. To study the relationship between Competency-Based HR Functions and Functions of the Talent Management amongst the selected employees from the selected companies of the manufacturing industry of the Gujarat State.
6. To analyse the Importance & Performance of Competencies, Competency-Based HR Functions & Talent Acquisition, Talent Development & Talent amongst the selected employees amongst the selected employees from the selected companies of the manufacturing industry of the Gujarat State.

3.5 RESEARCH QUESTIONS OF THE PROPOSED RESEARCH STUDY:

The researcher had proposed to seek answers mainly of the following research questions in this research study.

(Research Question. 01).

What is the level of awareness about competency and its applications amongst selected employees in the selected companies of the manufacturing industry of the Gujarat State.

(Research Question. 02).

What is the role of competencies at the various levels of organizations?

(Research Question. 03).

How does the Competency-Based HR Function benefit the organizations?

(Research Question. 04).

Which Human Resource Functions can support the Identification, Development & retention of talent in the organizations?

(Research Question. 05).

How do Competencies will lead to a competency-based HR Function?

(Research Question. 06).

How do the Competency-Based HR Function will lead to Talent Management in the organizations?

3.6 RESEARCH DESIGN OF THE RESEARCH STUDY:

The research design of the research study considering its objectives, scope, and coverage, was exploratory and descriptive in nature.

3.7 SOURCES OF INFORMATION:

3.7.1: Primary Source of Information:

The required primary data were collected in this research study using a structured non-disguised questionnaire in electronic form from the selected employees from 19 companies of 04 key sectors of the manufacturing industry Viz. Agro& Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry of Gujarat State.

3.7.2:Secondary Source of Information:

An attempt was made by the researcher to undertake a comprehensive and critical review of earlier published & unpublished research papers that were gathered using diverse sources of secondary data, viz., Newspapers; Research Journals; as well as Unpublished Reports; and visits to Websites and Search Engines were made. The researcher has also used different databases such as Scopus, Web of Science, WEBSITES, and Search Engines available on the Internet.

3.8 RESEARCH INSTRUMENT USED IN THE RESEARCH STUDY:

The structured non-disguised questionnaire was constructed considering the various objectives of the research study with the help of the review of literature. The structured non-disguised questionnaire consists of neutrally worded questions. The selected employees were asked to rate their opinion regarding Competencies, Competency-Based HR Functions, and Talent Management on a Likert scale.

The structured non-disguised questionnaire was constructed considering the main objective and the various other research objectives with the help of identifying the gaps in the review of literature available in the chosen field of study. The structured non-disguised questionnaire consisted of neutrally worded questions, and the selected employee was asked to rate his/her perception of factors such as Competencies, Competency-Based HR Functions, Talent Acquisition, Talent Development, and Talent Retention using the Likert scale. The demographic background variables of the selected employees considered under this research study were included viz., Age, Gender, Marital Status, Educational Qualifications, and Department. The researcher had drafted the structured non-disguised questionnaire based on the review of available literature as given in Table Number 3.2: "List of References of Selected Criteria Used in Drafting of Structured Questionnaire"

[Please Refer the Annexure 01, pp. 01 for the questionnaire]. The structured questionnaire was pre-tested with the help of a pilot study. The reliability of the structured non-disguised questionnaire has been presented in Table Number: 3.3.

A pre-test was performed for the 120 employees of GACL [write full name and location] whose feedback was incorporated to improve and finalize the draft of the structured, non-disguised questionnaire that was used to collect the primary data of this research study.

3.9 SAMPLING DECISIONS:

The major sampling decisions applied in this research study have been described as follows.

3.9.1: A Representative Sample of the Research Study:

The representative samples of this research study were working Employees, 'Other Than Workers', who were working in selected companies that have employed more than 100 employees and belong to the 04 key sectors of the manufacturing industry of Gujarat State Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry of the Gujarat State.

3.9.2: Sampling Design:

The researcher has used a Non-Probability Sampling Design for this research study.

3.9.3: Sampling Method:

A Convenient and Judgmental Sampling method was followed to draw representative samples of this research study.

3.9.4: A Sampling Frame of the Research Study:

Percentage Distribution of operating factories by the size of employment for each State in absolute and percentage terms, respectively, for selected manufacturing sectors in Gujarat were drawn from summary result for factory sector- ASI-2019-2020(INDIA, 2019), and Estimate of Employees other than a worker(Supervisory & Managerial & Other Employee) in the factory sector by their type for each 3-Digit Industry Group(NIC-2008) for Gujarat State (GOVERNMENT OF INDIA et al., 2019) were considered for drawing representative sampling units that were hired as employees in the manufacturing industry of selected 04 Companies of the Gujarat State. Viz. Agro& Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology a, and Chemical & Petrochemical industry that had employed more than 100 employees at the time of collection of the primary data.

3.9.5: Sample Size Determination:

For the purpose of the collection of the primary data, the sample size of a total number of 548employees was computed and drawn from the manufacturing industry of selected 04 Companies located in the State of Gujarat. Viz. Agro& Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology a, and Chemical & Petrochemical industry that had employed more than 100 employees at the time of collection of the primary data. The total number of employees drawn from the Agro& Food Processing Industry were 161; 147 Employees were selected from Oil & Gaswhereas 145 Employees were drawn fromPharmaceuticals&Biotechnology,and95 Employees were drawn from the Chemical & Petrochemical Industryrespectively.

The growing demand for research has necessitated the development of a quick method for calculating the sample size required to be representative of a given population.

The formula for calculating sample size can be found below.

3.9.5.1: The formula for determining Sample Size:

$$n = \pi (1 - \pi) z^2 \div D^2$$

Where

n = required sample size.

π = According to the *Summary Results for Factory Sector: ASI 2019-20*, table 14B-"Percentage Distribution of Factories in Operation by Size of Employment for each State/UT- (Only for Selected Manufacturing Sector) absolute and percentage for the total person engaged in Gujarat for the selected manufacturing sector is 12.52% (INDIA, 2019)

z = If the degree of confidence is 95%, the corresponding z value is 1.96.

D = The permissible interval is established as $D = p$ (sample proportion) – (population proportion) = + or – 0.05, depending on the level of precision and desired precision.

This formula was obtained from a book written by Naresh K. Malhotra and Satyabhushan Dash (2017). (Malhotra, 2017)

Calculation of Sample Size:

$$n = \frac{\pi (1 - \pi) z^2}{D^2}$$

$$n = \frac{0.1252 (1 - 0.1252) (1.96)^2}{(0.05)^2}$$

$$s = \frac{0.1252 (0.8748) (3.8416)}{}$$

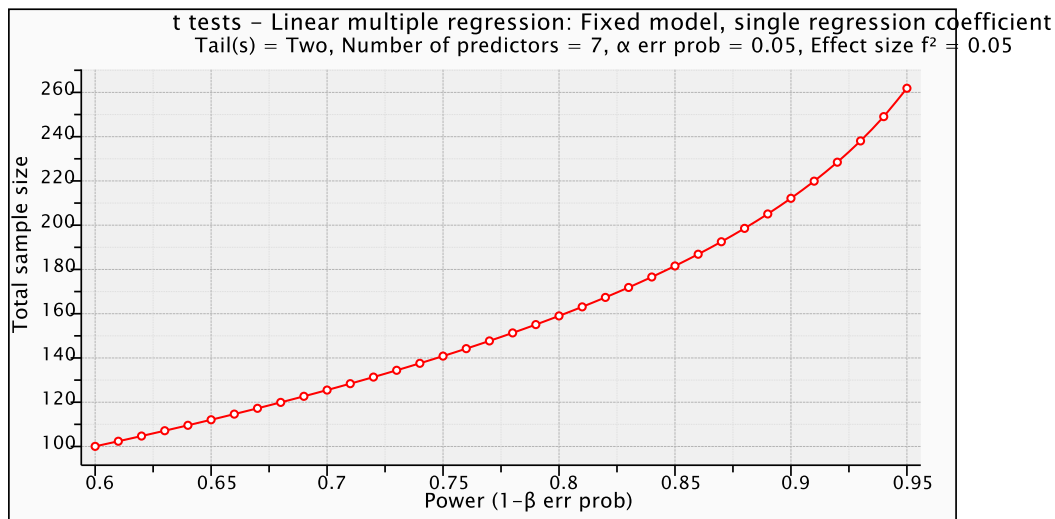
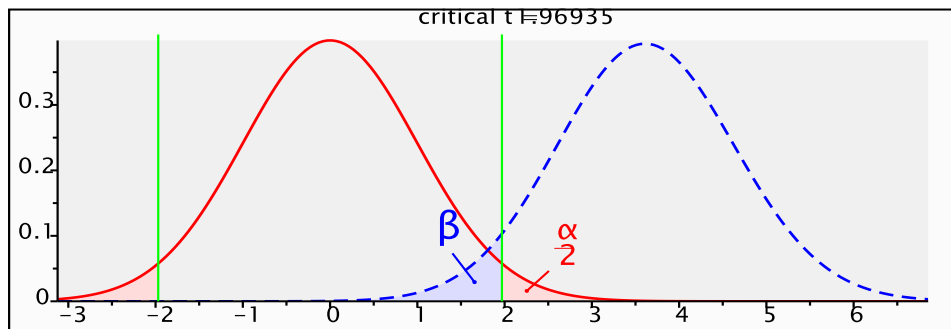
$$s = \frac{0.1252 * 3.36063}{0.0025}$$

$$s = \frac{0.42075}{0.0025} = 168.30 \text{ so sample size is rounded off to } 168$$

3.9.5.2: Sample size determination for PLS-SEM

Graph No:3.1

Sample size determination for PLS-SEM by G* Software



3.9.5.2.1 RESULT OF G* Software for Identifying Minimum Sample size

t tests - Linear multiple regression: Fixed model, a single regression coefficient

Analysis: A priori: Compute the required sample size

Input: Tail(s) = Two
Effect size f^2 = 0.05
 α err prob = 0.05
Power ($1-\beta$ err prob) = 0.95
Number of predictors = 7

Output: Non-centrality parameter δ = 3.6193922
Critical t = 1.9693475
Df = 254
Total sample size = 262
Actual power = 0.9500882

The sample size was determined by applying the G*Power software 3.1.9.7 version to investigate the minimum required sample size (Erdfelder et al., 2009). The actual power of 0.95 and the number of highest predictors is 7, were duly obtained by a minimum sample size of 262 respondents, whereas the study used a sample size of 548 which satisfies the appropriate sample size requirements. The minimum sample size estimations are reported above.

Table Number: 3.1			
Industry Wise Distribution and Computation of Sample Size for Calculating Total Sample Size			
Sr. No.	Name of the selected four key sectors of the manufacturing industry of Gujarat State as per 3 digit Industry (NIC-2008), Gujarat Annexure-V- Description & codes for the 3-Digit industry. (GOVERNMENT OF INDIA et al., 2019)	*Total number of Employees other than Workers in Selected manufacturing industry of Gujarat State as per 3 digit Industry (NIC-2008), Gujarat-table 4, page 50-54. (GOVERNMENT OF INDIA et al., 2019)	Calculated Sample Size
01	Agro& Food Processing Industry(industry come under code-105-108 &110)	24212	161
02	Oil & Gas Industry(industry come under code-192,201,352)	9505	147
03	Pharmaceuticals & biotechnology Industry(industry come under code-210)	50617	144
04	Chemical & Petrochemical industry (industry comes under code-202)	21950	96
Total Estimated Sample Size		106284	548
Note: * For determination of population researcher has used <i>Summary Results for Factory Sector: ASI 2019-20</i> , table 14B- "Percentage Distribution of Factories in Operation by Size of Employment for each State/UT- (Only for Selected Manufacturing Sector) absolute and percentage for the total person engaged in Gujarat for the selected manufacturing sector is 12.52% (INDIA, 2019) *For estimation of sample size researcher reviewed "Estimate of Employee other than a worker(Supervisory & managerial & other Employee), in the factory sector by their type for each 3-digit Industry group(NIC-2008) for Gujarat State (GOVERNMENT OF INDIA et al., 2019)			

3.9.6: Sampling Media:

The primary data were collected through Google form circulated amongst the selected Employees of the manufacturing industry of selected 04 Companies located in the State of Gujarat. Viz. Agro& Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology a, and Chemical & Petrochemical industry that had employed more than 100 employees at the time of collection of the primary data.

3.10 HYPOTHESES OF THE RESEARCH STUDY:

An illustrative list of Group of Research Hypotheses has been given as follows.

The researcher has attempted to test various hypotheses. An illustrative list has been given as follows.

Null Hypotheses-1

Greater the Awareness of Competencies will not Strengthen the Competency-Based HR Functions”
in the selected Companies of Gujarat’s Manufacturing Industries.

Alternative Hypothesis-1

"Greater the Awareness of Competencies will Strengthen the Competency-Based HR Functions”
in the selected Companies of Gujarat’s Manufacturing Industries.

Null Hypotheses-2

The Greater competencies implemented in the selected Companies of Gujarat’s Manufacturing Industries will NOT strengthen Talent Acquisition, Talent Development, and Talent Retention & Talent Management practices.

Alternative Hypothesis-2

Greater competencies implemented in the selected Companies of Gujarat’s Manufacturing Industries will strengthen talent acquisition, talent development, talent retention & Talent Management practices.

Null Hypotheses-3

Greater competency-based HR Functions implemented in the organisation will NOT strengthen talent acquisition, talent development, and talent retention in the selected Companies of Gujarat’s Manufacturing Industries.

Alternative Hypothesis-3

Greater competency-based HR Functions implemented in the organisation will strengthen talent acquisition, talent development, and talent retention in the selected Companies of Gujarat’s Manufacturing Industries.

Null Hypotheses-4

Competency-based HR functions will not mediate the Competencies & Talent management in the selected Companies of Gujarat’s Manufacturing Industries.

Alternative Hypothesis-4

Competency-based HR functions will mediate the Competencies & Talent management in the selected Companies of Gujarat’s Manufacturing Industries

Null Hypotheses-5

There is no significant relationship between the selected Employees' demographic variables, viz., age group, gender, Designation; Gender; Experience, and Educational Qualifications vis-à-vis their awareness & implementation of Competency-based HR practice(Competency Management) in the selected Companies of Gujarat’s Manufacturing Industries.

Alternative Hypothesis-5

There is a significant relationship between the selected Employees' demographic variables, viz., age group, gender, Designation; Gender; Experience, and Educational Qualifications vis-à-vis their awareness & implementation of Competency-based HR practice(Competency Management) in the selected Companies of Gujarat's Manufacturing Industries.

Null Hypothesis-6

There is no significant relationship between the selected Employees' demographic variables, viz., age group, gender, Designation; Gender; Experience, Educational Qualifications vis-à-vis their implementation of Competency-Based HR practices in the Organisation

Alternative Hypothesis-6

There is a significant relationship between the selected Employees' demographic variables, viz., age group, gender, Designation; Gender; Experience, Educational Qualifications vis-à-vis their implementation of Competency-Based HR practices in the selected Companies of Gujarat's Manufacturing Industries.

Null Hypothesis-7

There is no significant relationship between the selected Employees' demographic variables viz., age group, gender, Designation; Gender; Experience, Educational Qualifications vis-à-vis their implementation of Talent Management Practices in the selected Companies of Gujarat's Manufacturing Industries.

Alternative Hypothesis-7

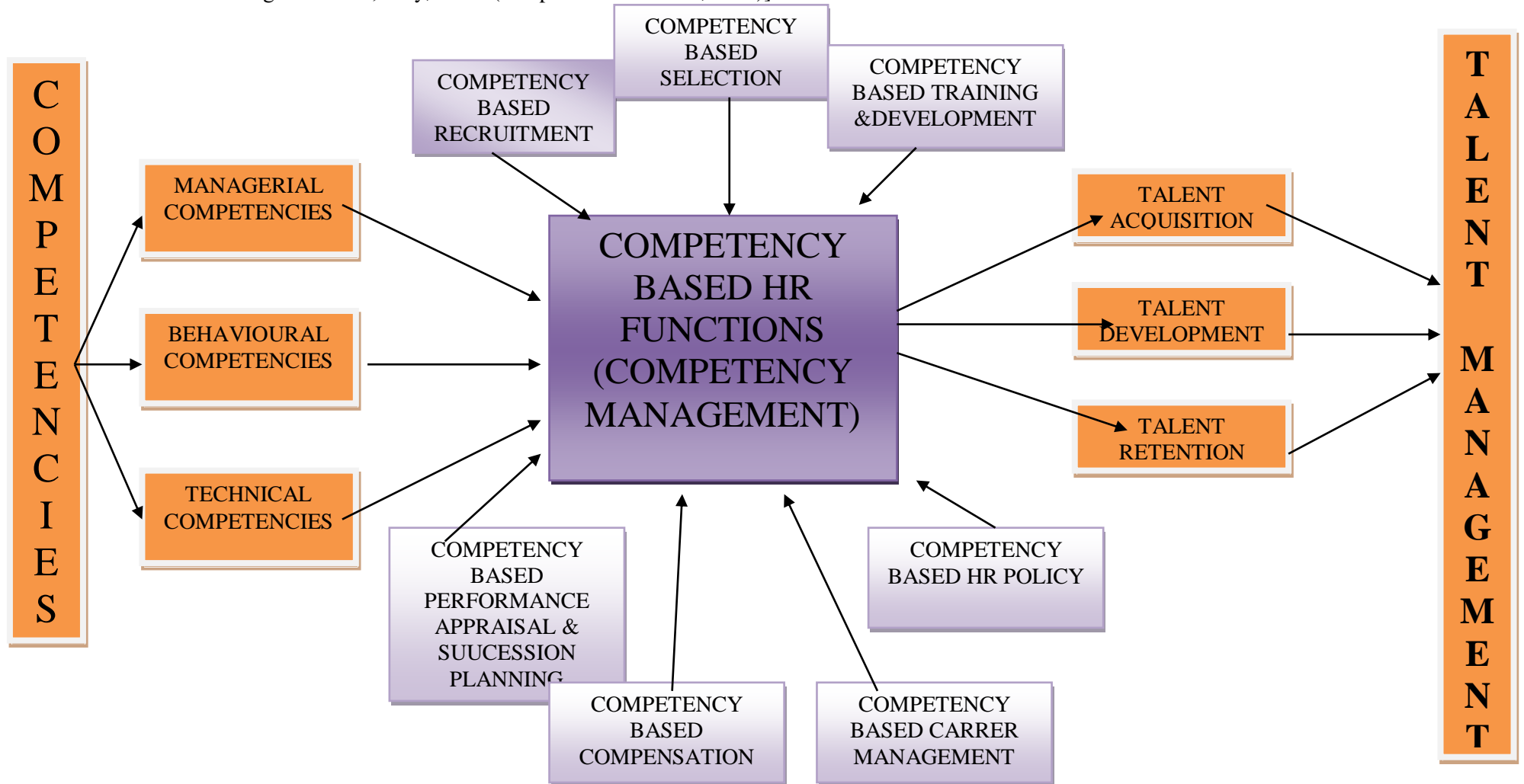
There is a significant relationship between the selected Employees' demographic variables viz., age group, gender, Designation; Gender; Experience, Educational Qualifications vis-à-vis their implementation of Talent Management Practices in the selected Companies of Gujarat's Manufacturing Industries.

3.11 CONCEPTUAL MODEL DEVELOPED AND USED IN THIS RESEARCH STUDY:

To attain the objectives of this research study, a review of the available literature undertaken by the researcher. Subsequently, a theoretical structural model was developed, as shown in Figure Number __. The model incorporated concepts from the subject domain of Competencies; Competency-Based HR Practices & Talent Management. The research study's conceptual model tries to establish a link between Competencies & Competency-Based HR functions, which ultimately results in Talent Management in the organisation. The individuals would equip themselves with Technical, Professional, Managerial & Behavioural competencies towards the possibility of their talent being acquired performed in such a way that their talent is developed, they are retained, thus ensuring their continued employability in the Organization. (Srivastava & Bhatnagar, 2008).

FIGURE:3.1. THE CONCEPTUAL MODEL OF THE RESEARCH STUDY

[Proposed Model is adapted & modified from ANITHA KUMARI PINAPATI, 'Competence Management as a Tool of Talent Management- A Study of Practices in Indian Organizations', May, 2011 (Pinapati & Vanka Sita, 2011)]



3.12 DESIGNING OF THE STRUCTURED NON-DISGUISED QUESTIONNAIRE:

The structured nondisguisedquestionnaire was drafted considering the objectives of the research study with the help of gaps that were identified through conduct of the review of literature on the chosen field of research study. The structured nondisguisedquestionnaire consists of neutrally worded questions. The selected employees were asked to rate their opinion based on their awareness and experience ofon Competencies, Competency Management, and Talent Management with the that were pre-determined using a Likert scale. The selected Demographic Background Variables of the selected employees who were drawn for the purpose of collection of the primary data in this research study included viz., Age, Gender, Educational Qualifications, Designation &Experience. The secondary source of information used by the researcher in drafting of the structured nondisguised questionnaire as given in Table Number 3.2 [Please Refer the Annexure-I].

Table Number: 3.2:		
List of References of Selected Criteria Used in Drafting of Structured Questionnaire		
Name of Author and Research Article & Time Period of Research Study Conducted	No. of Criteria used in the Questionnaire.	Total No. of Criteria Items
General information regarding age group, gender, Designation, Education Qualification, and Department [Q-1 T0 Q-7]		
General information regarding Awareness of Competencies (Q-8 to Q-11)		
(Dubois & Rothwell, 2000)		03
(Zlatkin-Troitschanskaia et al., 2015)		
(Sita, 2013)		
Statements that reflect Awareness about General Competencies [Q-13& Q:14]]		
(Lado & Wilson, 1994)		06
(Sita et al., 2021)		
(Watson et al., 2002)		
(Bradshaw, 1998)		
Criteria for mapping Level of &organizational Competencies [Q-15;12]		

(Arafeh, 2015)	12
(Sita et al., 2021)	
(Dubois & Rothwell, 2000)	
(Shavelson, 2010)	
(Simon, 2010)	
Statements that reflect the adoption of competency-basedHR Practices [Q- 16;1,2,3,4,5,6,7,8,9,10,11)	
(Naidu, 2009)	11
(Dubois & Rothwell, n.d.)	
(Sita, 2013)	
(Hollenbeck et al., 2006)	
(Hollenbeck et al., 2006)	
(Palaniappan, 2003)	
(Kuruba, 2019)	
Statements that reflect the adoption of Talent Acquisition Practices [Q- 16;12,13,14,15,17]	
(Srivastava & Bhatnagar, 2008)	05
(Hewitt Associates & Human Capital Institute, 2008)	
(Orlova et al., 2015)	
(Chauhan, 2015)	
Statements that reflect the adoption of Talent Development Practices [Q- 16;16,19,21,23,24,25,26,27, 28,29,30,31,32,)	
(Chauhan, 2015)	13
(Sita, 2013)	
(Wanjira Muriithi, 2017)	
(Mervat E. A. El Dahshan, 2018)	
Statements that reflect the adoption of Talent Retention Practices [Q- 16;18,20,22, 39,40,41,42,43,33,34,35,37,38)	
(Oladapo, 2014)	13
(Chauhan, 2015)	
(Sita, 2013)	

Statements that reflect the activities of managing talent through competency Management [Q- 17; 1 to 11]	
(Chauhan, 2015)	11
(Sita, 2013)	
Statements that reflect the identification of Competency Practices[Q:18;1 to 8]	
(Chauhan, 2015)	08

3.12.1 Reliability and Validity of the Structured Non-Disguised Questionnaire:

To test the reliability and validity of various constructs of the structured non-disguised questionnaire, Cronbach's Coefficient Alpha equivalent to the average of all the split-half correlation coefficients was used by the researcher. Cronbach's alpha reliability coefficient normally ranges between 0 and 1. However, there is actually no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale. Based upon the formula $\alpha = rk / [1 + (k - 1)r]$ where k is the number of items considered and r is the mean of the inter-item correlations, the size of alpha is determined by both the number of items in the scale and the mean inter-item correlations. (George & Mallery, 2003) provide the following rules of thumb: " $\alpha > .9$ – Excellent, $\alpha > .8$ – Good, $\alpha > .7$ – Acceptable, $\alpha > .6$ – Questionable, $\alpha > .5$ – Poor, and $\alpha < .5$ – Unacceptable". (Gliem, 1992).

As given in Table Number 3.3, Cronbach's Alpha score (Cronbach, 1951) showed the value of the opinion of selected employees on selected factors for measuring reliability. The Selected Factors' Cronbach's Alpha score ranges between 0.546 to 0.905; Talent Acquisition has a value of 0.546, but it is above 0.5, is acceptable (Gliem, 1992), and all other factors showed the scale's internal reliability and reflected that the variable satisfactorily met the requirement.

Table Number: 3.3:		
Reliability of Opinion of Selected Employees for the Study		
Sr. No.	Selected Criteria	Cronbach's Alpha Co-efficient
01	Competency	0.905
02	Competency-based HR Function	0.861
03	Talent Acquisition	0.546
04	Talent Development	0.647
05	Talent Retention	0.771
06	Talent Management	0.885
Overall Reliability of all Criteria		0.869

3.12.2 Validity Test of the Structured Non-Disguised Questionnaire:

Table Number: 3.4 Comparison of Mean Scores of Experience/Satisfaction from Selected Employees from four Key sector of Gujarat's Manufacturing Industry.				
Selected Employees Opinion with respect to Criteria. Rating Scale 1 [Strongly Disagree] to 5 [Strongly agree]		Selected Employees Opinion with respect to Criteria. Rating Scale 1 [Highly Dissatisfied] to 5 [Highly Satisfied]- Overall responses towards selected Criteria		Difference in Mean Count [Column B - Column D]
Average Score	Mean Score	Average Score	Mean Score	Mean Score
	(Rank)		(Rank)	(Rank)
A	B	C	D	B-D
Managerial Competencies	3.44	Overall Competencies	3.65	-0.21
Behavioral Competencies	3.62			-0.03
Technical Competencies	3.76			0.11
Competency Based Recruitment	3.66	Competency based HR Functions	3.70	-0.04
Competency-based Selection	3.66			-0.04
Competency-based Training & development	3.66			-0.04
Competency based Performance Appraisal & Succession Planning	3.81			0.11
Competency based Compensation	3.63			-0.07
Competency based HR policy	3.73			0.03
Competency based Career Planning	3.77			0.07
Talent Acquisition	2.981	Talent Management	3.240	-0.25
Talent Development	3.613			0.37
Talent Retention	2.975			-0.26
Overall Average	3.93	Overall Average	3.98	-0.06

The researcher had measured validity by comparing mean scores of scales with other measures of the same construct. The results of the validity are revealed in the Table Number 6.6. Mean of the same construct were measured and less variation was found in the given question categories and overall responses towards the major Criteria score. Majority of the Employees' Opinion were found between Strongly Agree to Neutral. Thus, different construct of the questions fulfil the condition of validity.

3.12.3 Assessing Normality of the Distribution of Data:

An attempt was made to test the Normality of data that were collected from the selected employees from the manufacturing industry of selected 04 Companies Viz. Agro& Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology a, and Chemical & Petrochemical industry that had employed more than 100 employees located in the State of Gujarat.

As the sample size was, more than 100 normality of the data were tested by applying the Kolmogorov-Smirnov Test. The results of the test are shown in Table Number 3.4 and **results were found to be significant at a 5 per cent level of significance.**

Table Number: 3.5: Kolmogorov-Smirnov Test of Normality				
Sr. No.	Factors	Test Statistic	df	P-Value
01	Managerial Competency	0.179	546	.000c
02	Behavioural Competency	0.187	546	.000c
03	Technical Competency	0.233	546	.000c
04	Competency-Based HR Function	0.106	546	.000c
05	Talent Acquisition	0.093	546	.000c
06	Talent Development	0.097	546	.000c
07	Talent Retention	0.114	546	.000c
08	Talent Management	0.258	546	.000c
Note: c. Lilliefors Significance Correction.				

Below given is a Histogram of selected employees from the manufacturing industry of selected 04 Companies Viz. Agro& Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology a, and Chemical & Petrochemical industry that had employed more than 100 employees located in the State of Gujarat.

Values on the vertical axis indicate the frequency of cases, and values on the Horizontal axis are midpoints of value ranges that were total scores as given by the employee for Competency-Based Talent Management practices in their respective company's industries. From the histogram (Graph Number 3.2, it can be inferred that data were slightly negatively skewed. From the Table Number 3.5 of Descriptive Statistics and Graph of Q-Q Plot (Graph Number:3.3), it was found that **the primary data that were collected are very much near to the normal distribution.**

Graph Number: 3.2:
Histogram Showing Distribution of Data

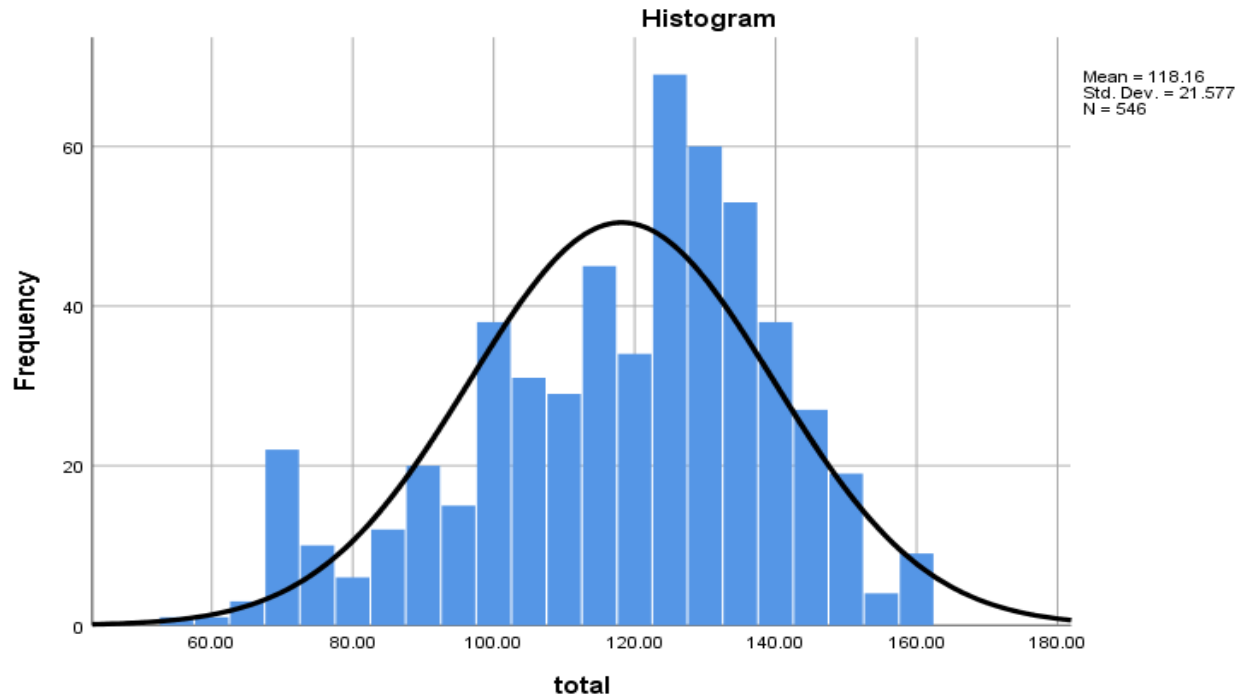
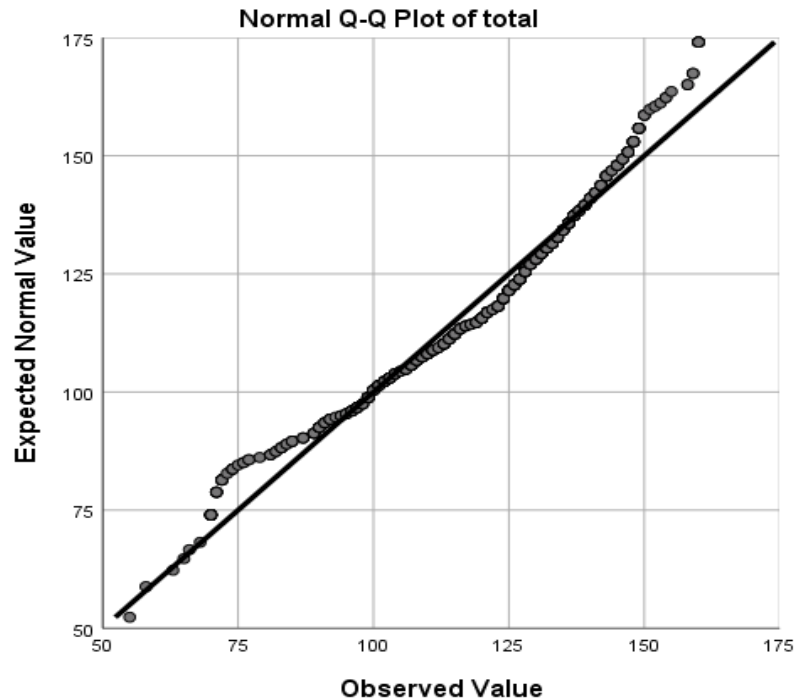


Table Number: 3.6:
Descriptive Values for Normality Test of Employees

Particulars		Statistic	Std. Error
Mean		118.1612	.92342
95% Confidence Interval for Mean	Lower Bound	116.3473	95% Confidence Interval for Mean
	Upper Bound	119.9751	
5% Trimmed Mean		118.9351	
Median		123.0000	
Variance		465.578	
Std. Deviation		21.57725	
Minimum		55.00	
Maximum		160.00	
Range		105.00	
Interquartile Range		30.00	
Skewness		-.567	.105
Kurtosis		-.205	.209

Graph Number: 3.3:
Q-Q Plot of the Normality of the Distribution of Data of Employees



3.12.3: Reliability Test of the Structured Non-Disguised Questionnaire:

The reliability of a scale as measured by Coefficient Alpha reflects the degree of cohesiveness among the scale items (Malhotra, 2007; Nunnally, 1981) and validity (Malhotra, 2007; Parasuraman, Berry & Zeithaml., 1991) of the structured questionnaire. In this research study, reliability tests were run, and a Composite Score was computed to determine the strength of the variable underresearch study, viz., Managerial Competency, Behavioural Competency, Technical competency, Competency-Based HRFunctions, Talent Acquisitions, Talent Development, Talent Retention & Talent Management to one another. The overall reliability score of the structured questionnaire is 0.869, which is more than 0.5, and it is more than 0.8, which is considered to be "**Good**" (Gliem, 1992).

3.13: DATA ANALYSIS AND INTERPRETATION:

Various statistical tools were applied to draw inferences from this research study. The researcher had used, viz., Frequency Analysis; Computation of Mean; Correlation Test, Application of Factor Analysis and Structural Equation Modelling. The Correlation Test, Chi-Square Test, Kruskal-Wallis Test & Post hoc analysis were also applied to test the significance of the framed Statistical Hypotheses to offer findings and implications of this research study.

The primary data analysis was used to offer the Demographic Profiles of the selected employees of 04 key companies of the manufacturing industry Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry of the State of Gujarat. The researcher has offered results based on data analysis on selected criteria viz., Employees overall Competencies, Employees **level of** Awareness of different Competencies in the selected companies, Adoption of various Competency-Based HR Functions, and Application of Talent Management Practices of selected 04 sectors of the manufacturing industry Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry located in the State of Gujarat.

3.14: FINDINGS AND IMPLICATIONS OF THE RESEARCH STUDY:

The researcher has attempted to offer findings of applications of various statistical tools and techniques that were used to draw findings and bring out meaningful Strategic Business, Economic and Managerial Applications of this research study. The use and application of correlation have revealed the relationships between selected employees' Competency & Talent Management Practices. The relationships between Competency-Based HR Functions & Talent Management were also examined through the correlation test. The researcher has also applied the Chi-Square Test to study and assess the association of the selected background variables of selected Employees and their responses for the Awareness of Competency Management & Talent Management Practices of selected 04 key companies of the manufacturing industry Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology, and Chemical & Petrochemical industry located in the State of Gujarat.

The findings of the research study are also based on the application of the One-Way ANOVA- a Non-Parametric Test that was used to identify the differences in the Sector-wise responses of selected Employees in the State of Gujarat. Confirmatory Factor Analysis (CFA) is also used to assess the extracts' validity and the reliability of the constructs of the indicators (items) that comprise latent constructs.

The CFA utilised in this research is a First order confirmatory factor analysis, which is an analysis of the measurement model through PLS-SEM. Structural Equation Model (SEM) using PLS-SEM was performed to predict the relationships among the variables. The researcher also attempted to present overall implications based on the results and findings of this research study.

3.15: RECOMMENDATIONS AND SUGGESTIONS OF THE RESEARCH STUDY:

This research study measured the direct relationships between the constructs. The researcher has put efforts into this chapter to offer a birds-eye view of the entire Ph.D. Thesis. It has provided the recommendations, suggestions, and limitations of the research study as well as the directions for future research shortly.

Based on the data analysis of the collected primary data, testing of hypotheses, and development of the Structural Equation Modelling (SEM), the researcher wishes to offer recommendation that Competencies companies should properly understand the requirement of the Competency-Based Functions in acquiring, developing, and retaining talent in organizations. It calls for regular practices of applying Competencies in every function of human resource management in organizations.

3.16: LIMITATIONS OF THE RESEARCH STUDY:

The research study involved collecting primary data by filling up the structured-non-disguised questionnaire. The responses collected might lead to distorted and incorrect data information, analysis, and research study findings. However, possible efforts were made to check, reduce and minimize ambiguous responses as provided by the selected Employees.

As this empirical study was mainly undertaken based on the collection of primary data and information, especially from the Manufacturing Industries, it would be inappropriate to generalize it as fit and representative for all other companies of the Gujarat State. This research work does not aim to cover the total picture of the manufacturing industry of Gujarat state.

The findings of this research study suffer from limitations of restricted sampling size, sampling design that is convenience sampling method as followed by the researcher in the conduct and drawing of representative sampling units under this research study. This research study is based upon only representative samples that were conveniently drawn in it. The research study also faces limitation of limited time duration and monetary resources that might have relatively influenced to some extent the results of this research study.

The surveying samples' hurdles of "Neutral" response categories. The biased opinion of selected employees might have relatively influenced to some extent the results of this research study. There are different methods to measure Competencies, Competency Management & Talent Management, and several models and assessment techniques have been developed. In this regard, the views of experts may differ from one another and that might have relatively influenced to some extent the results of this research study.

3.17: DIRECTIONS FOR THE FUTURE RESEARCH:

Another study can be conducted on several other industry sectors of the State of Gujarat viz., Information Technology, GEMS&Jewelry, Textiles, Education and Infrastructure etc. While this research study concentrated on Top, Middle, and Executive personnel, other research study can be conducted on Workers and Lower-Level Employees. The researcher has studied and examined mainly 03 competencies Managerial, Technical/Professional, and Behavioural, so other researchers can study and assess various other competencies.

3.18: CHAPTERISATION SCHEME OF THE PH.D. THESIS:

3.18:1:ChapterNumber ONE: An Introduction

The first chapter on 'Introduction' provides a comprehensive look at Human Resource Management. It deals with various aspects and details of Human Resource Management, its past and present scenarios & expected future growth. The researcher has tried to understand the meaning of 'Human resource Management' and throw light on the term 'Talent Management' & 'Competency Management'; while reviewing the current scenario of Human Resource Management. The researcher has put efforts to offer a Bird-Eye View of Talent Management & Competency Management at the Global level and its Indian context. The researcher has reviewed diverse areas concerning Talent Management & Competency Management viz., the Evolution of the word Talent & Talent Management, its Growth-Personnel to Strategic Human Resource to Talent Management, Components, and finally reviewing, the Functions of Talent Management and its functions, and recent most essential trends in Talent Management. The researcher has also studied various areas concerning Competencies, viz., the Evolution of the word Competency, its Growth and Characteristics, Classification of Core Competency and Workplace Competency, Competency Management, and finally, reviewing the different Human Resource Functions where the Competency-Based tools are used. In the end, the researcher has also analysed the Impact of Competency Mapping.

3.18:2:Chapter Number Two: Review of Literature:

The researcher has attempted to offer a concise review of literature on the selected areas viz., Competencies, Competency Management & Talent Management the Typology offering a Conceptual Model developed and used in this research study. The researcher has also considered reviewing of diverse areas, viz., Awareness of Competencies, various factors of Talent Management, the Need for Talent management, and the relationship between Competency Management & Talent Management. The researcher has conceptualize the Model of the research study by browsing, classifying, compiling, and critically reviewing earlier Ph.D. Theses; Dissertations as well as Research Articles; Research Papers; Empirical Studies; Research Reports, and results of Empirical Field Surveys conducted by other researchers in India and Worldwide. The researcher has made use of Reference Books and the Publication of Proceedings and Edited Books Seminars, Conferences, and Workshops relating to the chosen area of the research study. Thus, the researcher had put efforts to identify the gaps with the help of an in-depth review of the literature to decide upon the objectives of this research study.

3.18:3:Chapter Number Three: Research Methodology:

The chapter number three of this research study has provided details and explanations on various procedural and methodological aspects followed in the conduct of this research study. It has explained primary data collection methods and statistical tools and techniques applied for data analysis and interpretations.

The researcher had deployed efforts to outline in brief various methodological and procedural steps and conceptual aspects concerning the 'Research Methodology', which has mainly included viz., the Basic Terms of the research study, Rationale of the research study, Scope and Coverage of the research study; Research Design of the research study; Objectives of the research study; Hypotheses of the research study; the Conceptual Model used in the research study; sources of secondary data; and sampling decisions followed in conduct of this research study. It has outlined in brief Chapteriation of the Ph.D. Thesis at the end of it.

3.18:4:Chapter Number Four: Data Analysis & Interpretation of the Research Study:

The chapter four, entitled 'Data Analysis and Interpretation of the Research Study', has provided results of the research study based on analysis and interpretation of the primary data that were collected using a structured non-disguised questionnaire from amongst the selected employees of the Manufacturing industry of 04 Selected Companies located in the State of Gujarat.

The researcher had carried out primary data analysis with the help of the Statistical Software SPSS-21 Version. It has provided factual data and its analysis and interpretations on selected aspects viz., the Profile of Selected Employees; the level of their awareness and use of Competencies; Adoption of Competency & Talent Management Practices in the selected companies; frequency of Competencies Viz Communication Skills, Imitativeness, Flexibility, Quality Concern, Information Seeker, Inter-Personal Skills, Learning and Empathy; Competency-based HR Function Viz. Recruitment, Selection, Training, Performance Appraisal, Compensation & Succession Planning. The results of data analysis have been presented in Percentages, Averages, and Frequency Distribution supported by its Graphical Presentation.

3.18:5:Chapter Number Five: Findings & Implications of the Research Study:

The chapter number five, called as 'Findings and Implications of the Research Study', has presented the results of Tests of Significance (or) Testing of Hypotheses with the help of different statistical tools and techniques to bring out Business and Strategic Managerial Implications of this research study. The researcher has offered the findings and importance of the research study considering the inferences made based on the data analysis using Correlation; Chi-Square, T-Test; One-Way ANOVA; and Structural Equation Modelling (SEM), respectively.

3.18:6:Chapter Number Six: Conclusions, Recommendations, and Suggestions of the Research Study:

The chapter number six offers an abridged form of the entire Ph.D. Thesis. It has provided the Recommendations, and Suggestions of the research study as well as Limitations of the research study, and Future Directions of the research study. It contains the researcher's own annotations expressed in the form of Conclusions, Recommendations, and Suggestions of the research study.

Based on the researcher's learning, insight, and empirical evidences that are systematically inferred through this research study have been offered as a set of Recommendations of this research study supported with some invaluable Suggestions of this research study that have emerged during the conduct this research study. The researcher has also put forward her 'Concluding Remarks' based on the results of the data analysis and interpretations as well as findings and implications of this research study based on collected primary data from the total number of 546 employed who were conveniently drawn from the 04 key Sectoral Companies of the Manufacturing industry Viz. Agro & Food Processing Industry, Oil & Gas, Pharmaceuticals & Biotechnology a, and Chemical & Petrochemical industry located and functioning in the State of Gujarat. An attempt is also being made to suggest some significant areas where Employees expect improvement in applying and adopting a Competency-Based Talent Management System.

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