CHAPTER - IV

REVIEW OF PREVIOUS EMPIRICAL STUDIES
4.1 Introduction

This chapter presents the review of previous empirical research studies of Total Quality Management in the manufacturing sector. It is presented in chronological order (year wise) and classified under national (Indian) and international studies of TQM literatures. The reference of each review is also given at the end of this chapter.

4.2 Review of previous empirical studies

4.2.1 International status

Most of the studies regarding TQM practices in manufacturing sectors are conducted in international level, which include PhD thesis, research articles, seminar papers etc. All available studies are reviewed and briefly explained below.

1. Saraph (1989) has successfully developed an instrument that can be used to evaluate quality management in either manufacturing or service organizations in **USA**. The measures proposed were empirically based and shown to be reliable and valid. The reliability coefficients alphas of the measures ranged from .71 to .94. Further, the systematic literature review and the comprehensive pretesting helped insure that the measures have content validity. The .8 multiple correlation coefficients between the eight measures of quality management and the perceived quality performance measure offers strong evidence of criterion-related validity. Specification and measurement of the critical factors of quality management permit managers to obtain a better understanding of quality management practices.

2. Ahire (1996) conducted quality management study to develop a quality management scale with special reference to TQM philosophy to measure TQM practices. The items and constructs were generated through a detailed analysis of quality management literature. The constructs were empirically tested through a field study of 371 companies in the automotive components manufacturing industry from **USA**. A comprehensive scale refinement and validation procedure using the confirmatory factor analysis approach was employed. The refined and validated scales were then used for estimating correlation using LISREL 7 software packages. Comparisons between this and two other comprehensive scales of TQM are made.
3. Kevin B. Hendricks from Virginia & Vinod R. Singhal from Georgia (1997), have conducted an empirical study which explores the hypotheses that implementing effective total quality management programs improves the operating performance of firms. The winners of world-wide quality awardees companies are used as a proxy for the effective implementation of TQM programs. Changes in various performance measures for a test sample of quality-award winners are compared against a sample of control firms. The statistical tests provide strong evidence that firms that have won quality awards outperform the control firms on operating income-based measures. There is reasonably strong evidence that firms that have won quality awards do better on sales growth than the control firms.

4. David J. Lemak, Richard Reed, & Satish, P.K, (1997), from Washington state university, address the overarching question of whether or not TQM measurably improves firm performance. For a sample of sixty firms, that have demonstrated a commitment to TQM for a period of at least five years, the findings shows that the strategy is associated with superior stock-market performance (on a market-and risk-adjusted basis) and improved profit margins.

5. Nawar Khan (1999) from Pakistan, in his doctoral thesis demonstrates the Total Quality Management Model which could lead a company into a Competitive Business Position (CBP) both in local and international markets. A TQM international Quality Award Model was developed against which a company could assess its progress in areas of quality or prepare an application for quality awards. It is an international, generic and non-competitive award model which is applicable to a company of any size business and in any country. The model has overcome the short coming of existing national quality award models and has also filled gap in the TQM literature. The TQM IQA model was based on an accepted and comprehensive criteria set. This was developed through Comprehensive Synthesis Process (CSP) of reviewing relevant quality literature. This CSP covered the short coming of existing synthesis which were either very limited or a guru or industry specific. This CSP also included the criteria set of the best known quality award models like the European Quality Awards (EQA), the Deming prize (DP), Malcolm Baldrige National Quality Award (MBNQA) etc. The model passed through four stages of a pretest validation process against the required attribute of TQM model, individual criteria reviews, multi-
disciplinary panel validation and user validation. The validated TQM IQA model also was also compared to the best known national quality award models including the DP, the MBNQA and the EQA in order to check the relative strengths and weakness of these models. The TQM IQA model was successfully used in a self-assessment case study of a manufacturing company based in Pakistan. An assessment application was prepared by the company which was then analyzed for strengths and for areas for which improvement was needed. The overall results indicated that the company was in the early stages of TQM initiatives and that there were large areas for improvement.

6. George S. Easton & Sherry L. Jarrell, (1998), from Georgia state university, examine the impact of total quality management on the performance of 108 firms that began TQM implementation between 19981 to 1991. The findings indicate that performance measured by both accounting variables and stock returns, is improved for the firms adopting TQM. The improvement is consistently stronger for firms with more advanced TQM systems.

7. Lee T.S, Everett, Adam.E and Tuan C, (1999), have conducted an empirical study to determine the effect of Quality and Productivity improvement practices on firms quality, operating and financial performance in Hong Kong industry. Using data from 130 firms, factor analysis was performed to converge the critical factors of the improvement approaches. Then regression modeling was applied to determine the strength of the relationship between the improvement approach and a firms actual performance. Result showed that quality performance is strongly related to improvement approach while operating and financial performance were found to be weakly related.

8. Bruce Han, S, (2000), from university of Rhode Island, in his doctoral thesis explores the effect of ISO 9000 registration efforts on Total Quality Management practices and business performance. The result shows that the ISO 9000 registration efforts enhance organizational competitiveness, which in turn enhances customer satisfaction as well as business performance. Also, ISO 9000 registration efforts and TQM practices have a significant positive relationship when the model is tested based on all responses. However, TQM practices don’t have a significant, positive relationship with customer as the literature suggests.

9. Zhang (2000), has developed a model of Quality Management Methods. The model ha 83 Quality Management Methods (QMMs) which are categorized by
11 TQM elements such as Supplier Quality Management, Process control and improvement, Product design, Quality System improvement, Leadership, Vision and Plan Statement, Evaluation, Recognition and Rewards, Participation, Education and Training and Customer Focus etc. which they primarily aimed to improve. Ten manufacturing companies which were renowned for quality management in the Netherlands were selected for investigation of how they practically implemented the model of QMMs and what the effects of QMMs were on business performance. It is concluded that the model of QMMs can be used to assess an organization's strengths and weaknesses with regard to its use of QMMs; different companies have employed different QMMs on the basis of their own requirements; QMMS really have positive effects on product quality and TQM has much better effects on overall business performance than ISO 9000.

10. Kevin B. Hendricks from Canada & Vinod R. Singhal from USA (2001)’s research work uses a sample of quality award winners to empirically test hypotheses that relate changes in operating income associated with effective implementation of total quality management (TQM) to various firm characteristics. The characteristics examined are firm size, the degree of capital intensity, the degree of diversification, the timing of TQM implementation, and the maturity of the program. The study reveals that smaller firms do significantly better than larger firms. Firms that have won awards from independent award (a proxy for more mature TQM implementation) do significantly better than just supplier award winners. The evidence weakly supports the hypotheses that less capital-intensive firms do better than more capital-intensive firms, and more focused firms do better than more diversified firms. Finally, it do not observed any significant differences between the performance of earlier and later implementers of effective TQM.

11. Lars Nilsson, Michael D. Johnson & Anders Gustafsson (2001) conducted a research on the differences in customer satisfaction between product and service organizations. It has focused on an output perspective, or how customers evaluate performance. This study takes this research inside organizations to analyze and investigate how key internal quality practices of product versus service organizations (employee management, process orientation, and customer orientation) influence customer satisfaction and business results. Using a
national quality survey from 482 companies in **Sweden**, the analysis shows that for product organizations, internal quality practices influence customer satisfaction and business results primarily through an organization’s customer orientation. For service organizations, both customer and process orientation impact customers directly, and employee management has a direct impact on business results. The research also supports the claim that organizations with a quality foundation are in a better position to adopt a customer orientation.

12. Abby Ghobadian & David Gallear (2001) from **London**, have provided deeper understanding of the two research questions which include, 'Is there commonality in the implementation processes of successful TQM organizations? and 'If there is commonality in these implementation processes, does the commonality lie at a level deeper than the activity level?'. Evidence from the study indicates that the answer to both questions is yes. There is commonality in the implementation processes, and furthermore, the level at which this commonality resides is at the "outcome" level. This level is concerned with the purpose and driving force for the associated tactics.

13. Zhang, Z., Waszink, Ab., Wijngaard, J. (2001), have identified the eleven TQM constructs from the extensive literature review and an instrument developed for measuring TQM implementation in **Chinese** manufacturing firms. His eleven TQM constructs contains leadership, supplier quality management, vision and plan statement, evaluation, process control and improvement, product design, quality system improvement employee participation, recognition and reward, education and training and customer focus. The reliability and validity of the instrument were tested and validated using data from 212 Chinese manufacturing companies. Various methods were employed for this test and validation. Comparisons between this instrument and the three other quality management instruments were made. It was concluded finally that the instrument developed by this study was reliable and valid.

14. Katerina D. Gotzamani & George D. Tsiotras (2001) present the results of an empirical study on the contribution of ISO 9000 standards towards total quality management (TQM). For the purposes of this study, a TQM measurement instrument was developed and tested for its reliability and validity to measure TQM performance improvement in certified companies in **Greek** industry. This performance improvement was then used to test the basic research hypothesis:
“Can ISO 9000 standards provide a good first step towards TQM?” The results of the study reveal that ISO 9000 standard can provide a good first step towards TQM implementation.

15. Zhihai Zhang (2001), in his doctoral thesis, explains the results of the empirical study that the effect of Total Quality Management on overall business performance and development of TQM implementation model in Chinese manufacturing firms. For this purpose, he developed a TQM implementation test instrument and it tested and validated. Also formed TQM implementation theoretical model by comprehensive review of literatures. The study also demonstrates the TQM implementation model in practice by a case study analysis of major 10 Chinese manufacturing firms. The survey reveals the following results: (1) TQM implementation has positive effects on employee satisfaction, product quality, customer satisfaction, and strategic business performance; (2) Leadership has positive effects on employee satisfaction and strategic business performance; (3) Employee participation, recognition and reward have positive effects on employee satisfaction; (4) Education and training does not have a positive effect on employee satisfaction; (5) Supplier quality management, evaluation, product design, and quality system improvement do not have positive effects on product quality; (6) Vision and plan statement, process control and improvement have positive effects on product quality; (7) Quality system improvement has a positive effect on strategic business performance; (8) Customer focus has a positive effect on customer satisfaction; (9) Employee satisfaction has positive effects on product quality and customer satisfaction; (10) Product quality has positive effects on customer satisfaction and strategic business performance; and (11) Customer satisfaction does not have a positive effect on strategic business performance. The case study reveals that the TQM implementation model developed in this study is applicable in practice. This model can be used by Chinese manufacturing firms to improve their TQM implementation efforts. The case study further shows that this TQM implementation model can be used to self-assess firms’ quality improvement efforts and measure their progress over time. Through using this model, firms can quickly identify which areas urgently need improvement.

16. Shaukat A. Brah & Serene S.L. Tee’s (2002) study finds support for the proposition that TQM implementation correlates with quality performance at
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manufacturing and service companies in Singapore. The study finds that behavioral factors such as role of top management leadership, customer focus, human resource focus and quality focus as well as TQM tools and techniques such as corporate planning, process focus, and information and analysis, contribute to the successful implementation of TQM. Also, the study finds that the size of the company (big or small), the company’s adoption of TQM, and the duration of the company’s experience with TQM affect the rigor of implementation and the resulting level of quality performance. However, the nature of the company (manufacturing or service) does not seem to have a significant effect on the rigor of quality management implementation and level of quality performance.

17. Lau R.S.M, Xiande Zhao & Ming Xiao (2003) reports a recent survey of the current state or level of total quality management implementation and practices in China with reference to the Malcolm Baldridge National Quality Award (MBNQA) criteria. Comparison are made between firms in three different stages of the development of a quality system: firm that focus on inspections, statistical quality control, and total quality management. The results support the common wisdom that firms practicing total quality management have superior performance in leadership, strategic planning, customer and market focus, information and analysis, human resource focus, process management and business results. The survey results also indicate that most Chinese firms still lack of a full understanding of strategic quality management although a higher percentage of them claim that they are total quality management companies.

18. MohdYusof’s (2003), study was designed to identify the current level of TQM implementation among SMEs and large companies in Malaysia. The study revealed that medium level of TQM practices can be seen in the SMEs and large companies in Malaysia. In addition, the areas lacking in TQM implementation among SMEs in Malaysia are also discussed.

19. John Watson, Ralph kober, Juliana, & Thanesvary Subramaniam (2003) examine the association between TQM and financial performance. The analysis was based on 3,776 firms in Australia and no evidence was found to suggest that adopting TQM practices improves the financial performances of SMEs.

20. Samir Baidoun (2003) presents the results of a questionnaire survey to investigate factors of quality that are absolutely essential for successful
implementation of TQM in Palestinian organizations. 17 factors are indentified as Critical Successful Factors (CSF) for this study, that is, Leadership and top management commitment, People management, middle management involvement, training and development, rewards and recognition, teamwork, quality policy and strategy, communication for quality, supplier management, accredited quality management system, organizing for quality, managing by processes, benchmarking, cost of quality, quality control techniques, measuring customer wants and satisfaction etc. All of the factors were found to be supported by similar studies and quoted literatures. The result of this investigation suggests that addressing the 17 CSF as part of the quality management process increase its chance of success in the Palestinian context.

21. Amjed Al-Ghania’s (2003) research study provides details of an investigation of the impact of the principles of ISO9000 quality management system on improving organizational effectiveness in Palestine. Using a survey of ISO9000 implementing companies, data were collected and analyzed about critical quality management principles: quality strategy, continuous improvement, leadership development, and customer satisfaction, and the impacts were assessed using key organizational effectiveness indicators: employee satisfaction, quality, and productivity. The results showed that companies have indeed made significant efforts towards establishing genuine quality systems and consequently attained benefits in terms of effectiveness indicators. Furthermore, correlation analysis confirmed suggestions in the literature that a company’s performance is positively impacted by the establishment and implementation of quality principles and quality models.

22. Noorliza Karia & Muhammad Hasmi Abu Asaari (2003) have empirically studied to assert the impact of continuous improvement and problem prevention on workers of the organizations in Malaysia, that have implemented TQM practices. The results of the study show that if organizations implement some degree of continuous improvement and problem prevention, their employees experience some positive impact on job satisfaction and organizational commitment.

23. Francisco Jose Conca, Juan Llopis & Jaun Jose Tari (2004) have given an account of the research work which reflects the empirical results developing measures of TQM, verifying its reliability and validity. Samples for this study
were collected from business organizations in Spain. This study provides 10 measures of TQM (leadership, quality planning, communication, training in general terms, specialist training, suppliers management, customer focus, process management, continuous improvement and learning), as a model allowing managers to have a better understanding of quality management practices. By periodically using this model, it may serve to evaluate a firm's quality standards and finding those areas where improvement is necessary.

24. Choong Y. Lee (2004) presents the result of the study that examines the present status of TQM practices and its development and impact on organizational performance in Chinese small manufacturing firms. The survey results indicate that TQM program commonly are seen as a cost-saving tool through inventory reduction by many Chinese small firms. Also, there is no coordinated effort in sharing implementation experience among small firms in China. While many Chinese manufacturing firms are willing to employ new advanced systems and technologies, their organizational structure remain traditional. The study also reported that TQM implementation and organizational performance is not much correlated.

25. Burhan F. Yavas’s (2004) study explores the perceptions of American and Turkish managers with respect to different dimensions of product quality. Survey data on perceptions of product quality were obtained from managers in both countries. Results provided partial support for the hypothesized differences in quality perceptions. The data indicated that although the conceptualization of quality did not differ across the two samples, there were some differences in terms of importance assigned to various aspects of quality. In particular, Turkish managers rated aspects pertaining to communication and shared definition, quality execution, and quality control higher than American managers.

26. SahalaSiallagan (2004), in his master project, explores to define the implementation of total quality management in the manufacturing industries in Medan (Indonesia) by examining the relationship between TQM practices (orientation towards quality, linkage with customers, linkage with suppliers, process control and human resources management) and quality performance (quality conformity and customer satisfaction) and also the relationship between organizational culture and TQM practices. The study found that all organizations (100%) had implemented total quality management although not as completely
with respect to: 1. theory, 2. findings of the researchers and 3. the usage of quality tools. The conclusions based on theory, findings of the many researchers and quality tools application, the organizations are classified into 46 % as incomplete implementation of TQM while 54 % is classified as partially implemented. It could be inferred that manufacturing organizations in Medan are categorized as partially implemented.

27. Henrik Eriksson (2004), in his thesis, demonstrates the benefits from TQM for organizational performance in Swedish Telecom companies. The study reveals that working with the quality awards affects the financial performance positively if companies successfully implement TQM, which is the case for quality award recipients. Moreover, the results of this thesis have not been able to show strong evidence proving that the performance of units which have worked with in-company quality awards, but have yet successfully implemented TQM, are affected by this work. However, such units experience that working with in-company quality awards has positive effects on the customers as well as the employees.

28. Masahiro Miyogawa & Kosaku Yoshida (2004) explore the relationship between TQM practices and business performance of Japanese-owned manufactures’ in China. The survey results show that TQM practices influence overall company performance significantly in Japanese-owned manufacturers in China. This implies that TQM is an effective method to improve business performance regardless of where the company might be operating as long as the TQM practices are implemented appropriately.

29. Micaela Martinez Costa (2004) examines and compares the TQM and ISO 9000 effects in company performance in Spanish companies. The results show a positive relationship between TQM application and hard and soft results while only an improvement in hard results after the ISO 9000 implementation has been found.

30. Juan Jose Tari’s (2005) empirical study attempts to identify the components of total quality management in order to inform the managers and, thus, facilitate successful quality management implementation, and to show the situation of 106 ISO 9000 certified firms in Spain concerning these components. The major components identified for the study are, customer based approach, management commitment and leadership, quality planning, management based on facts,
continuous improvement, human resource management, training, work teams, communication system, involvement of all members of the firm, learning, process management, cooperation with suppliers, organizational awareness and concern for the social and environmental context etc.

31. Brian Fynes & Sean De Burca (2005) have developed a conceptual model incorporating design quality, conformance quality, external quality-in-use, product cost, time-to-market and customer satisfaction. The model was tested with data collected from 351 manufacturing companies in the Republic of Ireland. Analysis of the data indicated considerable support for the conceptual model.

32. Cheng Wing Man (2005) presents the result of a questionnaire survey which is carried out to find out the organizational culture profile and the TQM attainment level of construction companies under the approved list of the Hong Kong Housing Authority. It was found that most of their culture profiles tend to have a dominant culture in hierarchy or market; while for the attainment TQM level, most of them are found to be at the stage of enlightenment and empowerment. The organizational culture profiles are studied by classifying the respondents into different groups according to their age, size and annual turnover. It is found that the annual turnover significantly affects the dominant culture of the construction companies. Moreover, the relationship between the organizational culture and the TQM attainment level is studied by using test of association. It was found that companies with a dominant culture in clan or hierarchy would have a higher attainment level.

33. Jayasree Sreeraman, Solucis Santhapparaj A. & Sharon Bains (2005) have conducted a study regarding the worker’s perspectives on level of TQM practices in a leading cell manufacturing company, Malaysia. Descriptive study was done and the findings in general indicated that the workers did not have very strong positive opinion about the functioning of TQM in the company whereas the company has proved that TQM practices were very successful.

34. Chin S. Ou, Fang C. Liu, Yu C. Hung & David C. Yen (2005)’s study contributes to prior TQM literature by establishing a comprehensive research model to examine the relationship among TQM practices and various levels of performance in Taiwan information related industries. By reviewing prior TQM literatures and identifying important TQM practices, the authors examine the
relationship among TQM practices and measure how these TQM practices influence different levels of a firm’s performance. The findings of this research show that an effective management leadership can positively influence human resource management, supplier management, and design management. In addition, findings obtained from this study provide evidence that the influence of TQM practices on a firm’s performance should be measured at different levels of performance. The findings support that TQM practices have direct effects on operating performance. Then, improving operating performance brings in better customers’ satisfaction and improved financial performance.

35. Bruce S. & Shaw K. Chen (2005) explain and predict the relationship between and among ISO certification, TQM practices, organizational competitiveness, customer satisfaction, and business performance in Electrical and Chemical industries in **United States**. The data showed that neither ISO 9000 nor TQM has significant direct positive relationship with business performance. However, one important result is the strong evidence that both the ISO 9000 certification efforts and TQM practices enhance organizational competitiveness, which in turn helps to improve business performance. The study also indicates that ISO 9000 certification efforts and TQM practices have a significant, positive relationship. Thus, the finding supports the claim that ISO 9000 may be a good first step to total quality and is a meaningful component of TQM.

36. Mile Terziovski (2006) has attempted to test the strength of the relationship between quality management practice and two key operational performance measures: productivity improvement and customer satisfaction. A large database consisting of 962 responses from **Australian** manufacturing firms and 379 responses from **New Zealand** manufacturing firms is used to test the hypotheses. The major findings of this study were that multiple quality management practices when implemented simultaneously have a significant and positive effect on productivity improvement and customer satisfaction. The main implication that emerges from this study is that managers in manufacturing firms should place more emphasis on “soft” quality management practices (e.g. unity of purpose/elimination of barriers between individuals and departments) and less emphasis on “hard” practices (e.g. process control).

37. Mehmet Demirbag, Ekrem Tatoglu, Mahmet Tekinkus & Selim Zaim (2006) attempted to identify the critical factors of total quality management and to
measure their effect on organizational performance of SMEs operating in Turkish textile industry. Using exploratory and confirmatory factor analyses, seven empirically validated dimensions of TQM were identified. The structural equation modeling technique was employed to investigate the relationship between the implementation of TQM practices and organizational performance. Data analysis reveals that there is a strong positive relationship between TQM practices and non-financial performance of SMEs, while there is only weak influence of TQM practices on financial performance of SMEs. With only a mediating effect of non-financial performance, the TQM practices has a strong positive impact on financial performance of SMEs. As the data in this study were collected from top managers of organizations on the basis of their subjective evaluations, objective performance indicators should also be employed in the analysis.

38. Mahour Mellat Parast (2006), in his doctoral study, attempts to investigate the relationship among quality management constructs based on the Malcolm Baldrige National Quality Award and the effect of quality management practices on operational and business results in the petroleum industry. A validated and reliable survey instrument was used for the study to collect data from 31 project managers or consultants in the petroleum industry in Iran. The results of the correlation analysis show that top management support is the major driver of quality management, which significantly correlates with other quality management practices. It was also found that customer orientation is not significantly correlated with external quality results (profitability). A regression analysis indicated top management support, employee training, and employee involvement as the three statistically significant variables in explaining the variability in internal quality results. Furthermore, it was found that internal quality results were statistically significant in explaining the variability of external quality results.

39. Jiang Feng, Daniel I. Prajog, Kay Chuan Tan & Amrik S. Sohal (2006) examine and compare the experience of organizations in Australia and Singapore with respect to the multidimensionality of TQM and its relationship with quality performance and innovation performance. Results of the survey cross-validate that TQM practices take place along several dimensions. Relatively more organic dimensions such as leadership and people management are related more
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to innovation performance, whilst more mechanistic dimensions such as customer focus and process management are significantly related to quality performance

40. Ooi Keng Boon, Mohammad Samaun Safa & Veeri Arumugam (2006) have reported about the effects of the five elements of TQM practices on employees’ affective commitment within six major Malaysian semiconductor contract manufacturing organizations. Regression analyses were employed to explore the relationship between TQM practices and affective commitment. Findings of the study reveals that teamwork, organizational communication, organizational trusts are positively associated with affective commitment. The study also shows that the organizational communication is perceived as a dominant TQM practice and is strongly associated with affective commitment.

41. Chich Jen Shieh’s (2006) empirical study assesses the impact of TQM implementation on employee’s performance in China - an example of Shanghai Fu-Shing Company. Results show that there is a significant difference in the degree of Employee participation between after and before TQM Implementation.

42. Shahab Alam Malik, Muhammed Zahid Iqbal, Razia Shaukat & Jia Young (2006) explain the impact of total quality management practices on non-financial performance of SMEs. Six determinants of TQM practices were identified and their impact was measured on performance of SMEs. The investigated determinants included top management commitment, customer focus, supplier relationships, employee involvement and empowerment, work environment and benchmarking. Sample size was comprised of 60 SMEs (both ISO-9000 certified and non ISO certified SMEs) from three renowned industrial cities of Punjab (Pakistan) province. The findings indicate that TQM practices such as supplier relationship, benchmarking, top management commitment and customer focus are critical factors and have a positive impact on performance of SMEs.

43. Hua Yan Zhu (2006) conducted a research work in the field of TQM which tests the implementation of TQM and its impact on business performance measures such as hard and soft measures in small and medium sized manufacturing industries in China. The results of this study show that the company has a fully implementation of TQM, and it has positive impact on hard and soft measures. Hard measures are forms of monitory terms: reduction in inventory and waste,
from the company record, since the implementation of TQM, the inventory reduced by 26 percentages. It also increases the sales and turnover, a reduction in inventory and waste reduce the product cost and low selling price, and therefore, it increases the sales. Soft measures include supplier relation; customer satisfaction, workers participation and etc. Soft measures benefits hard measures.

44. OzdenBayazit & BirsenKarpak (2007) have developed analytic network process (ANP)-based framework to identify the level of impact of different factors on total quality management implementation and to assess the readiness of the Turkish manufacturing industry to adopt TQM practices. The results of the decision model show that the Turkish manufacturing industry has a readiness level of 59.2% for implementing TQM. Model identifies a number of factors for successful application; therefore, an understanding of the critical factors would help managers to advance TQM implementation. Since there is feedback and interdependence among these factors, ANP proves to be an effective framework for assessing readiness to adopt TQM and facilitating TQM implementation.

45. Maria Leticia Santos Vijande & Luis I. Alvarez Gonzalez (2007), in an article, have attempted to develop an instrument for measuring TQM implementation following the European Foundation for Quality Management Excellence Model and to provide empirical evidence on the relationship between management practices and measures of business performance in the model. To this end, the study employs survey data collected from Spanish manufacturing and service firms. Confirmatory factor analysis is used to test the psychometric properties of the measurement scales and the hypothesized relationships between total quality management practices and organizational performance are examined using structural equation modeling. The major enablers of TQM used for this study was leadership, people, policy and strategy process and resources and partnership. The result variables used was customer results, society results, people results and key performance results. The findings of the research indicate that the adoption of the TQM practices suggested in the EFQM Excellence Model allows firms to outperform their competitors in the results criteria included in the Model.

46. Alexandros G. Psychogios & ConstantinosVasiliopoulos’s (2007) studyaddresses, managers’ awareness and familiarity with Total Quality Management. Eighteen semi-structured, in-depth interviews were conducted
with managers working in a variety of service organizations in Greece. The major argument of the study is that although the acronym TQM and some of its concepts and practices are known by a range of public and private sector managers, actual awareness of its “soft” side is often superficial, and managers have a relatively poor understanding of it. TQM is neither resisted nor directly absorbed by them, but they tend to see it from the technical point of view, being aware only of the importance of its “hard” aspects.

47. Brian Fynes, Sean de Burca & John Mangan (2008) have developed a model of relationship characteristics (duration, presence of supplier awards, degree of product standardization/customization, tier position), supply chain (SC) relationship quality and SC performance. This study used data from the electronics sector in Ireland to test the model. The results provide mixed support for the model, with the effects of both duration and supplier awards being supported but degree of product standardisation/customisation and SC tier position not supported.

48. Michael Elisha James (2008), in his doctoral thesis, evaluated the relationship between total quality management practices and organizational performance in Jamaican (North America) manufacturing firms. The explanatory-mixed-method design research study compared organizations that have adopted formal TQM programs and organizations without a formal TQM program in place. This study is the first to report on the international competitiveness assessment of Jamaican manufacturing firms with reference to the Malcolm Baldrige National Quality Award (MBNQA) criteria for performance excellence. The findings suggested that TQM firms implemented a quality management program with mean levels above 3.8 on the 5-point Likert-Type scale for all 7 MBNQA variables. TQM firms also outperformed than non-TQM firms in terms of relative change in domestic sales, export sales, net income, return on assets, and productivity growth.

49. Angeles Escriba Moreno M., Maria Teresa CanetGiner & Maria Moreno Luzon (2008) present a qualitative study that examines how design variables contribute to the improvement of teams’ effectiveness in manufacturing industries in Spain. The analysis is carried out in an engineering firm developing advanced total quality management practices. Results show that this management philosophy has created a culture and a set of values that have facilitated a adequate use of
design variables in order to improve teams effectiveness. In this sense, decentralization and formalization reinforce, respectively, autonomy and coordination inside and among teams. Also the participative style of leadership, reinforced by high level of decentralization, facilitates the allocation of the resources required by teams, thus contributing to their effectiveness.

50. Salaheldin Ismail Salaheldin (2008) aims to explore and identify the critical success factors of TQM implementation, to evaluate their impact on the primary measures as expressed by the operational performance and the secondary measures as expressed by the organizational performance, and to find out the effect of the operational performance on the organizational performance of small and medium-sized enterprises (SMEs) in the Qatari industrial sector using the structured equation modeling approach. The empirical analysis demonstrates several key findings: data analysis reveals that there is a substantial positive effect of the TQM implementation on both the operational and the organizational performance. The findings confirm the significant relationship between operational and organizational performances of the SMEs. Overall, the results showed the central role of the strategic factors in the successful implementation of the TQM programs within the SMEs.

51. Khleef A. Al-Khawaldeh & Majed S. Smadi (2008) studied to investigate the impact of TQM adoption on balanced performance as recently defined by the methodology of balanced scorecard and lagging factors of Baldrige Award (overall business results). To achieve this objective, a sample of (300) firms from Dubai manufacturing firms were selected to fill the developed questionnaire. About 42% of the distributed questionnaires were collected and subjected to statistical analysis. Results revealed that 71.5% of the variation in firms’ balanced performance (as measured by financial performance, operational performance, customer satisfaction and employee satisfaction) is due to the application of all TQM constructs. The major TQM independent constructs consists of this study was vision and plan statement, leadership, customer focus, education and training, continues training, evaluation and measurements, zero defect mentality, employeeempowerment, benchmarking, flexible manufacturing etc.

52. Carlos BouLiusar J., Ana B. EscrigTena, Vicente Roca Puig & InmaculadaBletran Martin (2009) analyze the extent to which the EFQM Excellence Model
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captures the main assumptions involved in the TQM concept, that is, the distinction between technical and social TQM issues, the holistic interpretation of TQM in the firm and the causal linkage between TQM procedures and organizational performance. The study was conducted among the Spanish information service industries. Findings show that: (a) social and technical dimensions are embedded in the model; (b) both dimensions are intercorrelated; (c) they jointly enhance results. These findings support the EFQM Excellence Model as an operational framework for TQM, and also reinforce the results obtained in previous studies for the MBNQA, suggesting that quality award models really are TQM frameworks.

53. Kumar, Viond, Choisne, Franck (2009) investigated the impact of total quality management implementation on different dimensions of company performance. The study investigates Canadian finalists (winners and certificates of merit) in the Total Quality category of the Canada Awards for Business Excellence. The data analysis confirmed the hypothesized positive impact of TQM on all investigated dimensions of company performance, i.e. employee relations (improved employee participation and morale), operating procedures (improved products and services quality, process and productivity, and reduced errors/defects), customer satisfaction (reduced number of customer complaints), and financial results (increased profitability).

54. David Gadenne & Bishnu Sharma (2009) investigated the key “hard” and “soft” quality management factors used by Australian small and medium enterprises (SMEs) and their association with organizational performance. The study found that improved overall performance appears to be favorably influenced by a combination of “hard” TQM factors such as benchmarking and quality measurement, continuous improvement, and efficiency improvement; and the “soft” TQM factors consisting of top management philosophy and supplier support, employee training and increased interaction with employees and customers. Furthermore, the TQM factors of employee training, efficiency improvement, and employee and customer involvement would appear to be important in maintaining customer satisfaction, whilst employee and customer involvement also appeared to be important in maintaining a competitive edge in terms of return on assets.
55. Daniel Jimenez Jimenez & Micaela Martinez Costa (2009) have reported about human resource management (HRM) as a key element in the implementation of total quality management (TQM). The samples of this study were collected from Spanish organizations. The results show that the alignment of the orientation towards quality and the approach to HRM is statistically significant for the utilization of the HRM system. The results also support the hypothesis that both TQM and HRM practices have a positive effect on performance.

56. John Richard Horne (2009) from United Sates, explains based on his doctoral study that business results of companies that won the Malcolm Baldrige National Quality Award (NQA). It used performance data before and after the award to determine if there were significant differences in three key performance indices after adoption of those business techniques that enabled these companies to win their NQA. The three key indicators were return on assets (ROA), earnings per share (EPS) and the current ratio. The study examined the data in two ways; first tests were made by comparing company performance before and after winning an NQA. The second way of testing was by comparing the NQA-winning company's performance with its key competitors within their market segment. Using both parametric and nonparametric hypothesis testing techniques, the preponderance of evidence suggests there was no significant difference in performance after winning the NQA than before, using the three performance indicators used in this study. Likewise, there was no evidence to suggest that the NQA-winning firms outperformed their key competitors within their market segment, for the three performance indicators used.

57. Arumugam V., Hiaw Wei Chang, Keng Boon Ooi & Pei Lee Teh (2009) have attempted to assess the current level of TQM practices within a major computer hard disk USA based manufacturing company in Malaysia and to identify improvement opportunities. The analysis revealed that the strengths of the company, in its quality management implementation, lie in customer focus and process management. It was also perceived to attain a “good” level of practices in leadership, strategic planning, human resource development and management. On the other hand, supplier relationship and information and analysis both received only moderate scores.

principles and requirements of ISO 9001:2000, and its compiling and validation. The studying activities finally led to developing a new self-assessment model with 33 criteria (Key statements), and 300 indicators (focus areas), in 8 separated fundamental principles of ISO 9000 family such as customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationship. Developed model has been applied in 8 Iranian ISO certified companies and validity of the model is approved.

59. Fasil, T., Osada, H. (2010) from Japan, conducted an empirical study among the Deming prize winners from Thailand and India to explore the applicability, methodology, and effects (tangible and non-tangible) of TQM on New Product Development. The result shows that TQM is effectively used for the development of adaptive products through improvements on Production Technology, New Product Development system, Product Development, Production process, and Employee know-how. It is also found that TQM revolutionizes conventional R&D system in reducing development costs and time enhancing the innovation capabilities with limited financial commitment in the developing countries.

60. Esin Sadikoglu & Cemal Zehir (2010) investigated the relationships between TQM practices and multiple performance measures and examined the mediating effects of employee performance and innovation performance on the relationship between TQM practices and firm performance in different industries in Turkey. Results of the study support the proposed hypotheses that employee performance and innovation performance partially mediate the relationship between TQM practices and firm performance. The study also tested the model and hypotheses using structural equation modeling.

61. Dinh Thai Hoang, Barbara Igel & Tritos Laosirihongthong (2010) examine and compare the relationship between implementing total quality management and organizational characteristics (size, type of industry, type of ownership, and degree of innovation) in a newly industrialized country in South East Asia. Vietnam has become the 150th member of the World Trade Organization (WTO) since January 2007, and this is the first empirical study to examine TQM practices in Vietnam. Analysis through Structural Equation Modeling, t-test and MANOVA of survey data used and produced three major findings. First, this
study supports previous research findings that TQM can be considered as set of practices. Second, industries in Vietnam have deployed certain TQM practices (customer focus and top management commitment) at much higher levels than others, namely information and analysis system, education and training, employee empowerment, and process management. Finally, MANOVA shows a clear difference in TQM practices by company size, industry type, and degree of innovation. Large companies had higher implementation levels across almost all practices except for teamwork and open organization when compared to small- and medium-sized companies.

62. Chan Chung Yi, Wen Has Yao & Chih Hung Tsai (2010) have undertaken a research study which probes into the influences of implementation strategies of Total Quality Management and organizational culture on execution degree of TQM activities and the effect of execution degree of TQM activities on operational performance. The subjects of this study were Taiwan’s high-tech firms in the Hsinchu science based industrial park and southern Taiwan science based industrial park. Quality management supervisors in the company were the target respondents. The research findings reveal that implementation strategies of TQM (cost leadership strategy, differentiation strategy) have significant influence on the execution degree of TQM activities; Organizational culture significantly influences execution degree of TQM activities; TQM activities execution degree significantly influence operational performance (quality performance, financial performance and inventory management performance).

63. Thamizhmanil, S., Hasan, S. (2010) has described about the employee empowerment and TQM practices in Malaysian industries. The study reveals that employee empowerment is good for an organization and employee is empowered to make specific decision for the interest of the organization. Empowerment helps to play a wider role in an organization as a process owner.

64. Adolfas Kaziliunas’s (2010) from Lithuania, article presents the critical success factors for ISO 9000 certification benefits which can help plan and implement quality management systems according to the 9000 standard most successfully. The investigation has shown that very important for ISO 9000 financial benefits is a well-developed ISO 9000 implementation strategy. Strategic orientation is a moderating factor influencing the relationship between ISO 9000 certification benefits and the firm’s financial performance. In this study, a strong
interdependence between the companies’ certification motivation factors and the results obtained was determined. From the overall findings of the investigation, it can be concluded that strong internal motivation or willingness to improve a company’s quality helps establish a quality management system that leads to external benefits (such as the improvement of the company’s position in the market) as well as to internal benefits. Continuous improvement of processes, people and system, the reward system, teamwork, the measurement of performance and communication during the post-certification period are all critical success factors for the sustainable quality management system and for successful results of ISO 9000 certification. Quality auditors are in a powerful position to increase the value of certifications.

65. Arash Shahin (2011) has made a serious attempt to investigate the influence of TQM on financial performance in Bhutan Industrial Corporation. For this purpose, relevant literature is reviewed and the six ratios are considered for study as the most popular indicators of the financial performance and statues of organization, which include current ratio, quick ratio, return of assets ratio, return on equity ratio, debt to total assets ratio, and total assets turnover ratio. The findings of the investigation imply that almost all of the hypotheses are confirmed at 95% level of confidence, indicating that TQM can have a strong and positive influence on financial performance and status of the organization.

66. Waqas Raja, M., Mahmood Ahmad Bodla & Shahab Alam Malik (2011) have empirically evaluated the effect of TQM practices on business performance of manufacturing firms in Pakistan. Descriptive statistics were used to demonstrate the effect of different levels of TQM practices on business performance in terms of financial performance, product quality performance, customer satisfaction. The study had also considered organizational level variables like size of firms, year of existence, top management commitment as moderating variables. The results have shown that TQM was implemented only at the first three levels i.e., quality control, quality assurance, and continuous improvement in the selected firms and that top management commitment is the most important variable effecting on TQM implementation which then directly effect on business performance in these manufacturing firms.
67. ArashShahin & Reza Dabesani (2011) from Isfahan (Iran), have examined the feasibility of implementing TQM based on soft factors, which can influence the successful implementation of TQM. The findings imply that committed leadership, closer customer relationship, benchmarking and process improvement have the most correlations amongst the TQM soft factors. Training is the only factor which is not correlated to other soft factors. Leadership has also the highest value among the soft factors.

68. Rohaizan, R., (2011) attempt to identify the most important factor for the implementation of TQM in ISO Certified manufacturing firms in Malaysia. 7 factors and 32 measurement items were developed from literature review and a survey was conducted among a sample of ISO 9000 certified companies. The results found that Process Management is the most important factor among ISO 9000 certified companies. The result also showed the different perception on importance of factor based on different background of a company.

2.2.2 National Status (Indian)

Only very few studies were conducted regarding TQM practices in national level, which contains PhD thesis, Research articles, seminar papers etc. All available studies are reviewed and briefly explained below.

69. Shassi, S, and Ramachandran, A, (1999), brought out a study on the possibility of introducing Total Quality Management Systems incorporating Hazard Analysis and Critical Control Point (HACCP) as the core concept in Kerala (India) for successful and sustainable development of seafood markets for Indian exporters. The study was conducted on the organizational structure, leadership styles and communication systems prevailing in the various seafood factories in Kerala with respect to their applicability to Total Quality Management Systems in these factories. The study shows that 43% of the seafood factories in Kerala are partnership companies, 28% are public limited companies and the remaining 29% proprietary concerns. Typical organizational structures of the partnership companies, public limited companies and the proprietary concerns are reported. The organizational structures of the public limited companies show that 50% are based on typical line functions and the remaining 50% have line and staff functions. The management in all the factories studied adopt autocratic or feudal leadership styles. This is not suitable for introducing Total Quality Management
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in these factories. An egalitarian leadership model is developed to suit the seafood industry in Kerala. The study also discusses the type of communication prevailed in the seafood industry in Kerala. The communication system in the seafood industry in Kerala is also not suitable for successful implementation of Total Quality Management.

70. Joseph, I.N, Rajendran, C. & Kamalanabhan, T.J (1999), have attempted to develop an instrument for measuring TQM implementation in business units in India. Through a detailed analysis of the literature, this research identified 150 measures of quality management. After a pre-test, 111 measures were used to develop a questionnaire. The major construct used in the study was divisional top management leadership for quality, Role of the Quality department, Training, Product design, Supplier Quality Management, Process Management, Quality data and Reporting and Employee Relations. These items were empirically tested by data collected from 50 respondents. A factor analysis uncovered ten underlying dimensions of TQM with a total of 106 items. These factors and items were found to be reliable and valid.

71. Sasmita Palo & NayantaraPadhi (2003)’s study seeks to examine the role of training as well as measuring its effectiveness for successful implementation of TQM. For this purpose, data have been retrieved from public sector enterprise manufacturing crude steel in India. Pearson’s Correlation Coefficient with their significance levels have been used to measure the effectiveness of TQM training and the correlation between TQM training and selected factors. From this study, it is found that training creates awareness, builds employees’ commitment to quality policy and strategy, facilitates teamwork, enhances performance standards, and bolsters the skills and abilities of employees.

72. SudhanshuBala Singh & Dhalla, R.S, (2010) have given a detailed account to identify and analyze the significant factors affecting Total Quality Management implementation in Indian Pharmaceutical Industries. The survey is carried out by a selfdesigned questionnaire and circulated to select pharmaceutical industries in India. Based on the responses received in the study, the main factors affecting the implementation of Total Quality Management are: Top Management Commitment, Leadership, Quality Management, People Management and Training, Customer Focus and Supplier Quality.
73. Unnikrishnan Kartha, N. R, (2010), in his doctoral thesis, demonstrates the study of the impact of ISO 9000:2000 on quality management practices in selected organizations in Kerala (India). The major quality management constructs used for the study were, Top management commitment, Employee involvement, teamwork, continual improvement, internal communication, customer satisfaction. The study reveals that the organization which are certified for ISO 9001:2000 perform quality management practices, marginally better than the organization which are not certified by this standard.

74. Mallur, S. B, & Hiregouder, N.L, (2010) have developed a TQM survey instrument and conducted a survey to investigate the level of practice of TQM elements and to find the most critical factors perceived by the small and medium sized manufacturing enterprises (SMEs). Attempts at finding significant differences in quality practices were made and the result established the existence of significant differences between perceived and practice response on Total Quality Management implementation among small and medium manufacturing enterprise groups. It is also noted that, from the results presented and discussed, the level of TQM implementation among the north Karnataka (India) SMEs has been far below that of South Asian countries. The Critical factors identified for the North Karnataka SMEs were leadership and top management commitment, vision and plan statement, supplier quality management, system process quality improvement, total employee involvement, education and training, performance appraisal and recognition, customer focus and satisfaction, evaluation, work environment and culture, continuous improvement, communication etc.

75. Harjeev Kumar Khanna’s (2010) study aims to explore the current practices of Quality Management (QM) adopted by the manufacturing organizations in India. The main objective of this study is to provide empirical evidence on top management’s awareness and understanding of the quality management and its role towards business survival and competitiveness. First, several studies about the implementation of the QM in various countries are reviewed, and then a mail survey was sent to 200 manufacturing organizations in India using a questionnaire as the survey instrument. The questionnaire was checked for reliability and validity by experts and practitioners. Only 50 organizations participated in the survey. The survey findings indicate that Indian organizations
are well aware of TQM practices. But implementation level is lower than the awareness level. The important CSFs of TQM are identified and it is found that the overall mean of implementation is lower than the importance perceived by the respondents. The most implemented factors are process management, customer focus and top management commitment.

76. Mathew Jacob (2010) conducted a doctoral study to explore the role of TQM in ISO 9000 Certified manufacturing firms as case study from selected units in Kerala (India). He identified the following TQM variables for his study which include Employee participation, team work, supplier teaming, continuous improvement, unity of purpose, top management commitment, customer focus, benchmarking, employee education and training, use of statistical process control tools, information usage about quality and value analysis. The major aim of the study were to identify whether ISO certified manufacturing firms are practicing TQM principles, to identify the relationship between TQM principles and organizational performance among ISO certified manufacturing firms, to analysis the difference between the perception about the practices of TQM between managers and workers and, finally, to make a comparative analysis on the TQM practices of the selected ISO certified public and private sector undertakings in Kerala. The study has revealed close association between ISO 9000 certification and TQM. The study has clearly established a link between organizational performance and practices of TQM. Through this study, it is understood that there is no significance difference in the practices of TQM in the ISO 9000 certified private and public sector manufacturing organizations in Kerala. The study has concluded that the perception about the practices of TQM among the managers and workers of the ISO certified manufacturing firms shows significant differences.

77. VijayagiriBikshapathi’s (2011) study tries to examine whether ISO certified small and medium enterprises have higher TQM practices as compare to those non ISO certified small and medium enterprises in general in India, Hyderabad in particular. The results of the study of the impact of ISO certifications on TQM practices in terms of the seven TQM Constructs - Leadership, Quality Culture, Quality System Improvement, Team-building, Employee Participation, and Supplier Customer Relations are showing that there is strong relation between ISO certification and TQM implementation. This
study also observes that the total quality management implemented in organizations with ISO certification were better than those without ISO certification. Thus, the study observes SMEs are doing systematic way of activities due to compliance of ISO guidelines, which are certainly helpful for the success of TQM.

4.3 Discussion of literature review and pointing out the research problems

Total sixty-seven international and ten national studies related with TQM in manufacturing sectors were reviewed. The following are the major findings extracted from the review of previous empirical studies.

1. Total 67 international and 10 Indian studies were reviewed and in Indian studies, two studies were conducted in the manufacturing firms in Kerala.
2. Thirty five studies were reviewed on the effects or impacts or relationship or association of TQM practices on business results or performance
3. Nine studies were on scale or TQM instrument development
4. Seven studies were on assessment of the level or extent of practices of TQM principles
5. Four studies examined the critical successful factors (CSF) of TQM practices in manufacturing firms in different parts of the world
6. Three studies were based on the readiness or feasibility assessment for practicing TQM principles
7. Two studies used Malcolm Baldrige National Quality Award criteria for assessing TQM practices and they evaluated its effect on firm’s performance
8. One study assessed the effects of TQM practices on teamwork effectiveness
9. One study was based on the role of Human Resource Management in TQM practices
10. Four studies assessed the impact of ISO certification on organizational performance
11. One study was measured the effects of TQM on continual improvement
12. Two studies measured the TQM effects on organizational culture
13. One study explored the effects of TQM practices on Employee participation and relation and one study about TQM and new product development, another study was TQM on Training
14. One study measured the relationships between TQM practices and multiple performance measures and examined the mediating effects of employee performance and innovation performance on the relationship between TQM practices and firm performance.

15. One study was based on the effects of TQM on financial performance.

16. Only one study which measured the effects of TQM practices on business performance was conducted in the manufacturing industries in Kerala. The samples of this study were collected from both medium and large scale manufacturing firms in Kerala.

17. Only one TQM scale was developed for the managers of manufacturing firms in India for measuring their TQM effort.

18. No study was conducted to design and develop a TQM measuring instrument or scale for the top level managers of manufacturing firms of Kerala.

19. One study was based on the impact of ISO certifications on TQM practices.

From this discussion, it is clear that most of the studies conducted (thirty five) in the field of TQM in manufacturing sectors in the different parts of the world were for measuring the effects or impacts or relationship between TQM practices and business performance, followed by the development of TQM scale or instrument development (Nine) and measuring of the extent or level of practices of TQM principles of manufacturing firms (Seven). These studies were the most frequently conducted studies on TQM in the manufacturing sector in the different parts of the world. From this, it can be inferred that these are the major areas of TQM research and that no study has been conducted to measure the TQM practices in the ISO certified large scale manufacturing firms in Kerala. Besides this, only few studies can be seen in the literature, which measures the mediating effects between TQM factors especially soft TQM factors like human resource dimensions of TQM practices.
4.4 Research gap, needs, and uniqueness of the study

By the comprehensive review of previous empirical studies mentioned above, it is clear that no large-scale empirical research has been systematically conducted on the following research problem areas,

- developing and validating of a TQM self-assessment instrument by adopting psychometric test construction procedures for the top level managers of ISO certified large-scale manufacturing firms in Kerala for measuring the level of practices of TQM principles in their firms,
- measuring the effects of practices of TQM principles on key business performance indicators in the ISO certified large-scale manufacturing firms Kerala,
- developing a TQM model for ISO certified large-scale manufacturing firms in Kerala and
- examining the extent of contribution of TQM factors and Key business performance indicators of the ISO certified large-scale manufacturing firms Kerala.
- Investigating the mediating effects of Human Resource perspective of TQM factors.

In order to bridge these research gaps, an investigation related with the above mentioned research problem areas are truly needed. Such a study can explore a lot of valuable information regarding practices of TQM principles in the manufacturing firms in Kerala and help in identifying problem areas and possible remedies. This study is the first of its kind in terms of developing and validating a TQM self-assessment instrument for the top level managers of ISO certified large-scale manufacturing firms in Kerala for measuring the level of practices of TQM principles in their firms. Beside this, the study explores the effects of practices of TQM principles on key business performance indicators, identifies contributing factors of TQM practices and key business performance indicators and examines role of mediating effects among HR based TQM factors in the same population. This makesthis study a unique one.
4.5 Conclusion

In this chapter, a review of previous empirical research studies of Total Quality Management domain in manufacturing firms was furnished. The review of previous empirical studies was presented in chronological order (year wise) and classified under national (Indian) and international status of TQM literatures. A brief discussion of literature review and identification of research gap was also included in this chapter. The reference of each review is given at the end of this chapter.

4.6 References


