International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075 (Online), Volume-8 Issue-12, October 2019

TQM and Organizational Performance in Indian Manufacturing Companies

Venkataiah Chittipaka, Ravi Aluvala

ABSTRACT: ***With the advent of the 21st century, the corporate world is facing several challenges and prospects that seems to be very arduous as well as stimulating. Firms and businesses throughout the world are in a necessity of upgrading their quality system and maintaining the product standards in order to survive. When a firm fails to have such a quality system, there will be a difficulty in identifying the issues. However, when an organization functions with proper procedures and system, the managers will easily find out the blockades as well as bring out the remedial and preventive activities. Therefore, the objective of the current study is examining the TQM and OP in manufacturing companies that are present in India. It was piloted in Indian manufacturing companies in Chennai with a sample size of 150 employees with the help of questionnaire method. The data that was gathered then evaluated using SPSS-AMOS. It was found that all the hypotheses were absolutely appropriate for the study and henceforth displayed the progressive influence of TQM on organizational performance (OP). It seemed that there was found no much variance in TQM and OP. Certain TQM practices are associated with OP of the Indian Firms. Lastly, the results offer a relevant knowledge about TQM from Indian manufacturing perspective TQM and OP was examined through Factor analysis (CFA), Reliability tests and SEM analysis. The Analysis revealed to what extent both TQM and OP are interrelated and in what way TQM practices brings an influence on OP of a firm.***

Keywords: Total Quality Management (TQM), Organizational Performance (OP), Manufacturing Industries, Customer Satisfaction, Supplier Quality Management (SQM), Quality Assurance (QA), Performance Indicator (PI).

I. INTRODUCTION

With mounting competition throughout the world, quality management is turning out to be very essential to the leadership and also the business's management. The ''total quality'' notion is an over-all philosophy of management that goes well beyond the selling, customer-oriented view by counting all main necessities that play a part not only in customer-perceived quality, but also in the satisfaction of customers(Buzzell and Gale Bradely, 1987; Sashkin and Kiser, 1993),

Revised Manuscript Received on October 30, 2019.
***** Correspondence Author
Venkataiah Chittipaka*, Professor, Department of Operations, GITAM Institute of Management, GITAM (Deemed to be University), Visakhapatnam, Andhra Pradesh, Email: venkatchitti@gmail.com
Ravi Aluvala, Associate Professor, Department of Management Studies, Mahatma Gandhu University, Nalgonda, Telangana Stae, Email: aravi13371@gmail.com

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an open access article under the CC-BY-NC-ND license http://creativecommons.org/licenses/by-nc-nd/4.0/

stated that TQM signifies the culture of the organization culture which is decided by provisions and the continuous accomplishment of client satisfaction with the help of integrated tools system, systems, and training. This comprises of the constant development of organizational processes that result in greater quality goods. Therefore, the TQM philosophy of management is customer-motivated. A firm cannot uphold the product quality without suitably implementing calculated and planning tools of QM. Though, Indian manufacturing still do not have a clear TQM policy.

Organizations everywhere are growing progressively aware of the competitive quality potential. Quality has developed into a problem as criterions nowadays are contractually described while formerly they were unclear and ambiguous. Competition emphases not just on cost yet also on quality.

Amalgamation of quality theory into their general approach turns out to be an obligation in order to sustain the heavy competition. In the previous years, several firms executed TQM to augment the quality of the product. TQM is denoted as an organized and combined approach in gaining customer satisfaction by means of continues development in all ranges of process and products (Yeoh, 1992; Tenner &DeToro, 1992)

The objective is to examine the TQM as well as OP in Indian manufacturing industries in attaining business quality and satisfaction of the consumers. Moreover, the scope of the study is to offer practitioners and managers, a choice of which philosophies and practices to take in and that not to comprise in a quality improvement program.

II. REVIEW OF LITERATURE

TQM is progressive these days besides is acknowledged as a philosophy of management which represents a set of basic philosophies that are unrestrained by distinctive industrial concerns (Dean and Bowen, 1994). An wide-ranging review of literature of the earlier TQM studies have inspected in what way TQM is set up and the important practices for the achievement of TQM (Saraph et al., 1989, Zhang et al., 2000, Antony et al., 2002, Ebrahimpour and Sila, 2002 Sureshchandar et al., 2002, Al-Marri et al., 2007.) These researches have delivered varied collections of practices that are measured to be vital for the achievement of TQM operations. This might lead to discrepancies in earlier study which makes it hard for reaching to an assumption on the TQM (Hoang et al., 2006, Ooi et al., 2008).

Per se none of the research has recognized shared set of practices for effective execution of TQM. Bayraktar et al. (2008) in the research provided TQM's crucial factors of success and they are vision,

leadership, evaluation and measurement, program design, process control and development, quality system enhancement, involvement of employee, education and training, award and recognition, stake holders focus and other.

III. PERFORMANCE MEASURE INDICATORS

Prajogo and Sohal (2004) evaluated OP with the quality performance such as performance, consistency, conformance, stability besides specifications and other related innovations in products and processes. Zakuan et al. (2010) has measured OP over 2groups with level of satisfaction between employee and customers along with business results such as efficiency, generation of new effective products, cost performance. This can also be evaluated and replicated in quite a lot of methods as expressed in previous experimental TQM researches (Ahire et al., 1996, 94, Su et al., 2001, Prajogo and Sohal, 2003, 2004, Yang, 2006, Arumugam et al., 2008).

Numerous research studies on TQM and OP has been already done. Most of these researches made use of indicators like quality performance for evaluating the overall performance (Flynn et al., 1994; Ahire et al., 1996; Dow et al., 1999; Zhang et al., 2000, Cua et al., 2001, Prajogo and Brown, 2004, Saravanan and Rao, 2007, Arumugam et al., 2008) and the outcomes were noted.

FACTORS OF TQM AND OP

With the help of comprehensive review of literature on the ethical along with experimental studies (Flynn et al., 1994; Powell, 1995; Ahire et al., 1996; Black and Porter, 1996; Zeitzetal., 1997), Motwani (2001) has recognized 7crucialfactors for TQM implementation and for measuring the performance of TQM. The 7 factors comprise of top

- Commitment of the Management,
- Measurement of Quality,
- Benchmarking,
- Process management,
- Product design,
- Training of the Employees and
- Authorization.

There are adequate amount of evidences and facts proving to the conclusion that TQM and performance enhancement are known to have an optimistic association (Brah et al, 2000, Motwani, 2001,Montes et al., 2003, Prajogo and Brown, 2004, Brah and Lim, 2006, Demirbag et al., 2006, Kapuge and Smith, 2007, Soltani and Lai, 2007, Sila, 2007). However there are few scholars who discovered that the implementation of TQM did not bring any progress in the organizational performance. Nevertheless, scholars like Dow et al. (1999); Singles et al. (2001); Samat et al. (2006), Zakuan et al. (2010) established a TQM Model that has an association with OP. they all measured the business results with the help of level of Satisfaction to delineate the OP of the firm. These studies presented a progressive influence of TQM success on OP.

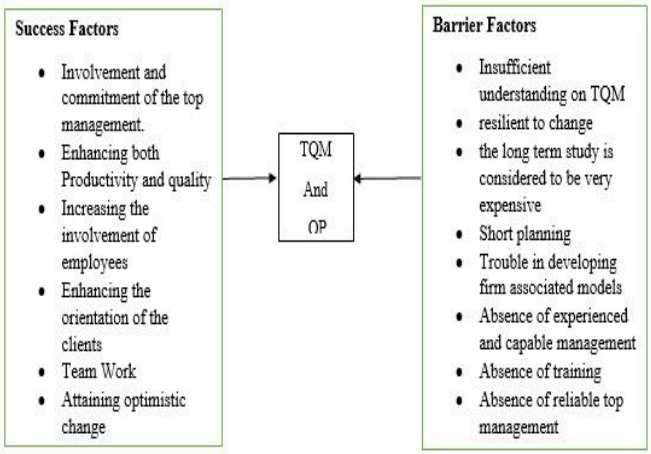

Fig 1. Factors of success and barriers that influence TQM and OP

IV. RESEARCH METHODOLOGY

The sample size is concentrated on the employees from manufacturing industries that is located in Chennai. This city is one of the largest city in the State of Tamil Nadu. It has become the most significant source of income for the state and still continues to be the same. It is also vital auto component manufacturing hub. But then again, the industry is moving towards the negative route lately. This industrial group is not capable of meeting the competition in the market and nowadays they started losing their shares.

The procedure adopted in the current study is Simple random sampling. In this, every item is of inclusion criteria. A well-structured questionnaire which was aimed at gathering the required data from the workers since it was considered to be easy in collecting information and opinions. It was noted that almost all the participants effectively undertook the survey and filled the questionnaire. The questionnaire was provided in English.

The former survey based studies on TQM emphasized on practices has been made as the foundation for the present research and also the methodology which was used for this study is considered to be both qualitative and quantitative. Qualitative study is done using review of literature on published research journals of present issue emphasizing on TQM practices in manufacturing industries and they are also experimental or review studies. Subsequently after this, it was easy to conduct quantitative study on the research. The initial part was to determine the elements enhancing TQM and OP. These elements facilitates in structural building of the research. The data has been evaluated with SPSS-AMOS software. It was accomplished in the 3 phases, to be precise, factor analysis, reliability and the SEM and it was all based on the previous studies of Singh (2016), and Singh & Sharma (2014, 2016).

The CFA was employed to delineate and form theoretical models of structuring the factors (Hair et al., 2010). Finally, the SEM technique was employed and experimentally established the associations amid TQM and OP. it was stated that SEM is a multivariate method with lets the concurrent estimate of multiple equations (Singh, 2016).

Furthermore, SEM is moreover a statistical modeling technique which could achieve both variables like dependent and independent besides elucidating all relations (Hair et al 2010).

V. HYPOTHESIS OF THE STUDY

With the help of above mentioned aims and objectives, the following hypotheses were framed as per the research. They are as follows,

H1: Quality consideration relationship for TQM is positively correlated with OP in Indian manufacturing firms.

H2: Continuous improvement relationship for TQM is positively correlated with OP in Indian manufacturing firms.

H3: Process monitoring and control relationship for TQM is positively correlated with OP in Indian manufacturing firms.

H4: Employees' satisfaction and Employee empowerment relationship for TQM is positively correlated with OP in Indian manufacturing firms.

H5: Organization growth relationship for TQM is positively correlated with OP in Indian manufacturing firms.

VI. ANALYSIS AND INTERPRETATION

Data analysis comprises of analyzing, classifying, tabularizing or coalescing the data to declaim the primary study propositions (Yin, 1994). The analyzing method is the variation of the worldwide understanding, the hunt for which features that is "concealed" in the international detained totality. The researcher must in other words abstract the defined global entity, by a method of replication and consideration. The global entity in this multiple case study is defined by various sources of experiential data: questionnaire survey, documentary information and direct observation.

VII. FACTOR ANALYSIS

It is employed for scrutinizing the rationality of composed data. This is a numerical method which could be employed in analyzing the interrelations amongst several variables and elucidates these variables in their general basic factors. Factor structure of both dependent as well as independent variables could be found out through this analysis by using key constituents through varimax rotation. For validity measuring, factor loadings for each and every item are attained and these postulate the resilient point of the association between an item and a specific factor. When the loading greater, the specific item of the factor is illustrated better. Thus, in this research, a loading of 0.40 or bigger was taken (Hair et al., 1998; Arumugam et al., 2008; Ooi et al., 2008).

VIII. RELIABILITY

The factors reliability was taken with the help of Chronbach's Alpha which has a permissible value above 0.7 (Singh and Verma 2018, Hair et al. 2010) and the values obtained for all the given 5 factors were found to be between .742 and .942 (Table 1).

SEM & testing of hypotheses

Before assessing the SEM, the validity of the model was verified. Subsequently for every factors short of constrains in the covariance matrix factors, the SEM for all the factors was assessed. This model assessment was done by scrutinizing the standard errors, by erasing, addition and adapting model paths (modification indices), then it is retested by means of the similar data set, and similarly observing t-values, p-values, other statistics (CFI, GFI, RMSEA etc.). AMOS 20.0 software was employed to test the theory. In this, certain practices viz,

- Consumer focus,
- Employee empowerment,
- Training and Education,
- Quality and
- Quality culture is removed because of low loading.

From this, the research ratifies the rationality of hypotheses and observes using various tests like Reliability analysis, CFA and SEM of TQM. Figure 1 to 5 displays the outcomes of the testing of hypotheses and path diagram of SEM analysis. In the Hypothesis testing, the association between PCM, EE, ES, OG, CI, QC for TQM with OP was proposed as optimistic and the outcomes prove the validity of hypothesis. It construct the results are strongly supporting the hypothesis

Next to this, the research requires checking the validity of hypotheses and inspecting the SEM of TQM and OP. Table 1 and Fig. 1 to 5 displays the outcomes of the hypotheses testing and SEM. Henceforth, CSR is a substantial feature of TQM to improve the OP. So, this is established that the TQM has an optimistic effect on the OP and henceforth implementation of TQM raises the firm performance suggestively. It is determined that the above stated elements of TQM enhance the organizational performance.

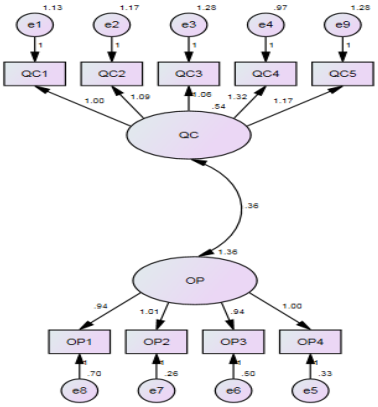

Fig2:SEM analysis of the relationship of quality consideration with TQM and OP

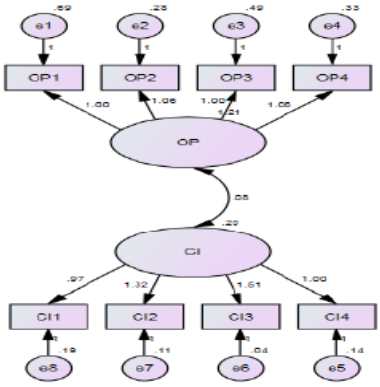

Fig 3: SEM analysis showing the relationship of continuous improvement with TQM with OP.

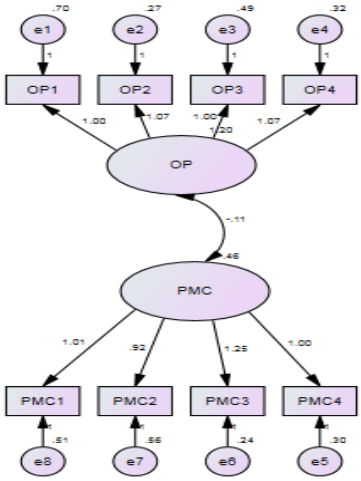

Fig 4: SEM analysis showing relationship of process monitoring and control for TQM with

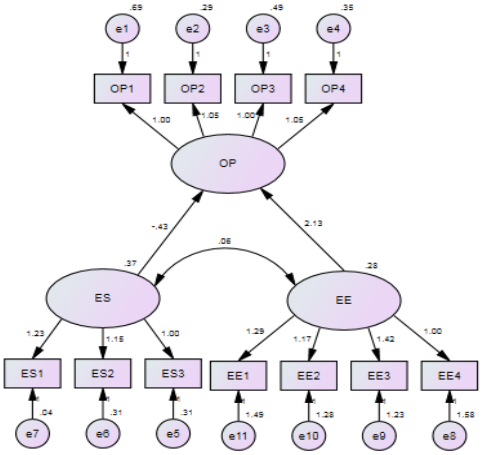

Fig 5: SEM analysis showing relationship of Employee's satisfaction and empowerment with TQM and OP

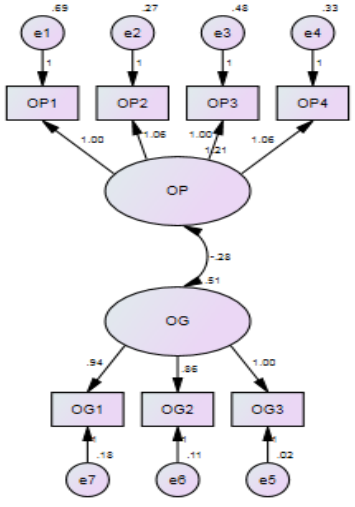

Fig 6: SEM analysis showing relationship of Organizational growth with TQM and OP

Table.1.Model Fit Summary

Indices	Abbreviation	Observed values					Recommended criteria
		OP with QC	CI with OP	OP with PMC	OP with EE and ES	OP with OG	
Reliability test	Cronbach's Alpha	.742	.893	.832	.714	.942	>7 good fit
Confirmatory factor analysis	KMO and Bartlett's Test	.781 at p=0.000	.673 at p=0.000	.774 at p=0.000	.701 at p=0.000	.725 at p=0.000	P<0.05
Chi-square	χ^2	40.085 at p = 0.038	88.817 at p=0.000	45.332 at P=0.001	154.192 at p=0.000	134.96 at p=0.000	p < 0.05
Normed chi-square	χ^2 /df	1.542	4.67	2.386	3.67	2.78	1 < χ^2 /df < 3
Goodness-of-fit index	GFI	0.945	0.891	.935	.836	.856	>0.80
Adjusted GFI	AGFI	0.904	.821	.876	.742	.895	>0.80
Normed fit index	NFI	0.938	.905	.938	.841	.824	>0.90
Comparative fit index	CFI	0.977	.923	.962	.878	.863	>0.95
Tucker–Lewis index	TLI	0.968	.886	.944	.840	.870	0 < TLI < 1
Root mean square error of approximation	RMSEA	0.06	0.07	.096	.03	0.02	<0.05 good fit < 0.08 acceptable fit

IX. CONCLUSION

TQM is a complete and virtuous approach of the companies in continuously improving their goods or processes that comprises of all investors in satisfying their consumers and improving sustainability and performance. The outcomes provide that overall TQM practices progress all performance measures. It is also stressed by research of Kannan and Tan and Choi and Eboch. Knowledge and process management increases the performances of inventory management, innovation system, social responsibility and financial system. Such studies showed that when one organization takes up TQM in effective way, its performance might be mostly improved from numerous possible ways (Ittner&Larcker, 1996, Hendricks &Singhal, 1999). In a Literature review unveiling the influence of TQM on organizational performance, Saizarbitoria (2006) pointed out that there was found an optimistic association between TQM and OP, Nevertheless, Dooyoung*et al*. (1998) has highlight that TQM practices might deter organizations in achieving their goals.

The constructive relationship amongst TQM and OP measures points out the significance of each of the practices to progress and expand the business of the firm. At times Managers need to investigate where their organization is standing in the QM passage.

This similarly needs to investigate the impacts of TQM on performance measures, results and evaluation of business and TQM success. The optimistic associations between TQM and OP measures might encourage the top management of firm to implicate the improved organizational goals and planning, to organize resources and capitals on time for the TQM implementation in quest for better quality, employee and organizational performances.

The obtained outcomes confirm that organizations can syndicate human resources, customer satisfaction, and supplier quality management along with strategic planning in increasing and expanding OP. Furthermore, review methods such as complaint analysis and customer feedback must be undertaken at consistent interval to make sure of the satisfaction of consumer desires and hopes that may enhance the business performance level. Lastly, the outcomes of this research offer relevant knowledge concerning TQM from Indian manufacturing. The Indian manufacturing has to emphasis on the TQM implementation if they actually want to improve the product excellence as well as to withstand the heavy competition in the worldwide market. The outcomes can benefit researchers, policy makers, executives and companies that might like to boost and upkeep TQM in Indian manufacturing companies.

X. MANAGERIAL IMPLICATIONS

Few managerial implications of this study are:

• This study might offer ample amount of knowledge in TQM concerning the applying it and associations between quality performance and TQM.

• Organization should concentrate on the acknowledged TQM to attain greater fulfilment levels in the industry and that can offer benefit in holding an environment that seems to be very competitive.

• The future research model might let experts and executives to weigh the firm's quality management level suggested by quality experts.

• Managers can improve their understanding the acknowledged key TQM from the research and make the most of the proper quality structure.

• Lastly, the research might be able to offer a substantial contribution in evolving an improved knowledge of the TQM and OP in manufacturing industries.

REFERENCES:

1. Buzzell, Robert Dow, Bradley T. Gale, and Bradley T. Gale. The PIMS principles: Linking strategy to performance. Simon and Schuster, 1987.
2. Sashkin, Marshall, and Kenneth J. Kiser. Putting total quality management to work: what TQM means, how to use it, & how to sustain it over the long run. Berrett-Koehler Publishers, 1993.
3. Long, Choi Sang, Lee Yean Thean, and Tan Owee Kowang. "The transformational leadership: A possible TQM solution to increase job satisfaction." Life Science Journal 10.4 (2013): 1474-1484.
4. Tenner, Arthur R., and Irving J. DeToro. Total quality management: Three steps to continuous improvement. Addison-Wesley Longman, 1992.
5. Saraph, Jayant V., P. George Benson, and Roger G. Schroeder. "An instrument for measuring the critical factors of quality management." Decision sciences 20.4 (1989): 810-829.
6. Zhang, Z. H. Implementation of total quality management: an empirical study of Chinese manufacturing firms. Diss. University of Groningen, 2001.
7. Antony, Jiju, et al. "Critical success factors of TQM implementation in Hong Kong industries." International journal of quality & reliability management 19.5 (2002): 551-566.
8. Sila, Ismail, and Maling Ebrahimpour. "An investigation of the total quality management survey based research published between 1989 and 2000: A literature review." International Journal of Quality & Reliability Management 19.7 (2002): 902-970.
9. Sureshchandar, G. S., Chandrasekharan Rajendran, and R. N. Anantharaman. "The relationship between service quality and customer satisfaction–a factor specific approach." Journal of services marketing 16.4 (2002): 363-379.
10. Al-Marri, Khalid, Abdel Moneim M. Baheeg Ahmed, and Mohamed Zairi. "Excellence in service: an empirical study of the UAE banking sector." International Journal of Quality & Reliability Management 24.2 (2007): 164-176.
11. Hoang, Dinh Thai, Barbara Igel, and Tritos Laosirihongthong. "Total quality management (TQM) strategy and organisational characteristics: Evidence from a recent WTO member." Total quality management 21.9 (2010): 931-951.
12. Ooi, Keng-Boon, et al. "TQM practices and its association with production workers." Industrial Management & Data Systems108.7 (2008): 909-927.
13. Bayraktar, Erkan, Ekrem Tatoglu, and Selim Zaim. "An instrument for measuring the critical factors of TQM in Turkish higher education." Total Quality Management 19.6 (2008): 551-574.
14. Prajogo, Daniel I., and Amrik S. Sohal. "The multidimensionality of TQM practices in determining quality and innovation performance—an empirical examination." Technovation 24.6 (2004): 443-453.
15. Zakuan, N. M., et al. "Proposed relationship of TQM and organisational performance using structured equation modelling." Total Quality Management 21.2 (2010): 185-203.
16. Ahire,S.L. "TQM age versus quality: an empirical investigation", Production and Inventory Management Journal,First Quarter,Vol.37.(1996):18-23.
17. Ahire, Sanjay L., and Matthew A. Waller. "Incremental and breakthrough process improvement: an integrative framework." The International Journal of Logistics Management 5.1 (1994): 19-32.
18. Su, Chun-Hsien, August Tsai, and Chu-Ling Hsu. "The TQM extension: Total customer relationship management." Total Quality Management 21.1 (2010): 79-92.
19. Prajogo, Daniel I., and Amrik S. Sohal. "The relationship between TQM practices, quality performance, and innovation performance: An empirical examination." International journal of quality & reliability management 20.8 (2003): 901-918.
20. Prajogo, Daniel I., and Amrik S. Sohal. "The multidimensionality of TQM practices in determining quality and innovation performance—an empirical examination." Technovation 24.6 (2004): 443-453.
21. Yang, C.C., "The establishment of a TQM system for the health care industry", The TQM Magazine, Vol. 15 No. 2, (2003): 93-98
22. Arumugam, V., Ooi, K.-B. and Fong, T.-C. "TQM practices and quality management performance. An investigation of their relationship using data from ISO 9001:2000 firms in Malaysia", The TQM Magazine, Vol. 20 No. 6, (2008): 636-650.
23. Flynn, B., Schoeder, R. and Sakibaba, S. ``A framework for quality management research and associated measurement instrument", Journal of Operations Management, Vol. 11, (1994): 339-366
24. Dow, D., Samson, D. & Ford, S. (1999) Exploding the myth: Do all quality management practices contribute to superior quality performance?, Production and Operations Management, 8, 1999: 1-27
25. Cua, Kristy O., Kathleen E. McKone, and Roger G. Schroeder. "Relationships between implementation of TQM, JIT, and TPM and manufacturing performance." Journal of operations management 19.6 (2001): 675-694.
26. Prajogo, Daniel I., and Alan Brown. "The relationship between TQM practices and quality performance and the role of formal TQM programs: An Australian empirical study." Quality management journal 11.4 (2004): 31-42.
27. Saravanan, R., and K. S. P. Rao. "The impact of total quality service age on quality and operational performance: an empirical study." The TQM Magazine 19.3 (2007): 197-205.
28. Parzinger, Monica J., and Ravinder Nath. "A study of the relationships between total quality management implementation factors and software quality." Total quality management 11.3 (2000): 353-371.
29. Powell, Thomas C. "Total quality management as competitive advantage: a review and empirical study." Strategic management journal 16.1 (1995): 15-37.

30. Black, S. and Porter, L.J. “An empirical model for total quality management”, Total Quality Management, Vol. 6 No. 2, (1995): 149-64.
31. Zeitz, Gerald, Russell Johannesson, and J. Edgar Ritchie Jr. "An employee survey measuring total quality management practices and culture: Development and validation." Group & Organization Management 22.4 (1997): 414-444.
32. Motwani, Jaideep. "Critical factors and performance measures of TQM." The TQM magazine 13.4 (2001): 292-300.
33. Brah, Shaukat A., Jen Li Wong, and B. Madhu Rao. "TQM and business performance in the service sector: a Singapore study." International Journal of Operations & Production Management 20.11 (2000): 1293-1312.
34. Montes, F., Jover, A. and Fernandez, L. “Factors affecting the relationship between total quality management and organisational performance”, International Journal of Quality & Reliability Management, Vol. 20 No. 2, (2003): 189-209.
35. Brah, Shaukat A., and Hua Ying Lim. "The effects of technology and TQM on the performance of logistics companies." International Journal of Physical Distribution & Logistics Management 36.3 (2006): 192-209.
36. Demirbag, M., Tatoglu, E., Tekinkus, M. and Zaim, S. “An analysis of the relationship between TQM implementation and organizational performance: evidence from Turkish SMEs”, Journal of Manufacturing Technology Management, Vol. 17 No. 6, (2006): 829-47.
37. Malmadana Kapuge, Anton, and Malcolm Smith. "Management practices and performance reporting in the Sri Lankan apparel sector." Managerial Auditing Journal 22.3 (2007): 303-318.
38. Soltani, Ebrahim, and Pei-Chun Lai. "Approaches to quality management in the UK: survey evidence and implications." Benchmarking: An International Journal 14.4 (2007): 429-454.
39. Sila, Ismail. "Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An empirical study." Journal of Operations management 25.1 (2007): 83-109.
40. Singles, J., Ruel, G., & van de Water, H.). ISO 9000 series: Certification and performance. International Journal of Quality & Reliability Management, 18, (2001): 62–75
41. Samat, Nusrah, T. Ramayah, and Norizan Mat Saad. "TQM practices, service quality, and market orientation: Some empirical evidence from a developing country." Management Research News 29.11 (2006): 713-728.
42. Zakuan, N. M., et al. "Proposed relationship of TQM and organisational performance using structured equation modelling." Total Quality Management 21.2 (2010): 185-203.
43. Singh, M. D., et al. "An interpretive structural modeling of knowledge management in engineering industries." Journal of Advances in Management Research 1.1 (2003): 28-40.
44. kumar Sharma, Shiv, Shivanand Vishnu Gupta, and Rahul Singh. "Implementation of TQM for improving organizational effectiveness." International Journal of Application or Innovation in Engineering & Management (IJAIEM) 3.9 (2014).
45. Singh, Bhim, S. K. Garg, and S. K. Sharma. "Lean can be a survival strategy during recessionary times." International journal of productivity and performance management 58.8 (2009): 803-808.
46. Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L., Multivariate Data Analysis, 6th ed., earson-Prentice-Hall, Englewood Cliffs, NJ. (2005)
47. Yin, R. K. Case study research: Design andmethods,second edition. Thousand Oaks, Calif: SagePublications, Inc. 1994
48. Singh, Vinay, et al. "Predictive auto-completion for query in search engine." IJBIS 28.3 (2018): 299-314.
49. Lee, Voon-Hsien, et al. "Structural relationship between TQM practices and learning organisation in Malaysia's manufacturing industry." Production planning & control 23.10-11 (2012): 885-902.
50. Mohammed, Ahlam, et al. "Organization Performance Improvement using TQM." International Journal of Computer Applications 108.9 (2014).
51. Green, Trevor J. "TQM and organisational culture: how do they link?." Total Quality Management & Business Excellence23.2 (2012): 141-157.
52. Zimon, Dominik. "THE IMPACT OF TQM PHILOSOPHY FOR THE IMPROVEMENT OF LOGISTICS PROCESSES IN THE SUPPLY CHAIN." International Journal for Quality Research11.1 (2017).

AUTHORS PROFILE

Dr.Venkataiah Chittipaka is working as Professor in the area of Operations, Quality and Project Management in GITAM Institute of Management, GITAM (Deemed to be University), Visakhapatnam, Andhra Pradesh, India- 530045. He is a certified ZED Master Trainer from Quality Council of India and National Monitoring & Implementation Unit (NMIU) for the Zero Defect and Zero Effect (ZED) scheme of Ministry of Micro, Small and Medium Enterprise (MSME). He has been conferred with “BEST PROFESSOR IN PROJECT MANAGEMENT” award by Business School Affaire & Dewang Mehta National Education Awards. Has over 16 years of experience in Teaching and Research in the area of Quality Management, Operations, Logistics & Supply chain Management and Project Management.

Dr.Ravi Aluvala is currently working as Associate Professor in the department of Management Studies of Mahatma Gandhi University, Nalgonda. He is also the Director, Academic Audit Cell, MGU as well as Head of the Department of Management Studies in Mahatma Gandhi University. He also worked as Principal for University college of Commerce and Business Management, MGU, Nalgonda. He has an overall vast experience of 25 years in which 15 years of teaching and 10 years of Industry experience. He has published more than 45 papers in National and International Journals/Books. He has published 5 edited books and presented more than 30 papers in National and International conferences/seminars. His teaching, research and consultations are related to Organizational Behavior, Human Resource Management, Participative Management, Industrial Relations, Total Quality Management, Change Management, Leadership and Team Building, Performance Management etc.