The relationship between TQM Practices and Business Excellence in Small and Medium Sized Manufacturing Enterprises of north Karnataka region

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ABSTRACT

The purpose of this paper was to explore the relationship between Total Quality Management (TQM) and Business Excellence (B E) in Small and Medium Sized Manufacturing Enterprises (SMMEs) of north Karnataka region. Twelve critical success factors (CSFs) of TQM practices and four factors of dependent variables of business excellence were identified to measure the performance of SMMEs. The investigated independent CSFs of TQM included 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 and communication. Dependent variables of business excellence are satisfaction of employee, quality of product, satisfaction of customer and strategic business performance. A questionnaire was sent to 950 companies of small and medium enterprises in north Karnataka region, which resulted in responses of 315 being returned. 10 of the 315 returned responses were incomplete, resulting in only 295 responses considered for final study, i.e. 31.05% valid response rate. Attempts at finding significant differences between small and medium companies' quality practices were made and revealed that there is a significant difference between the TQM perceived & practices of small and medium companies. Besides in comparative analysis, performance of ISO-certified SMMEs was found better than non-ISO certified SMMEs.

Key words*:* Total Quality Management, Business Excellence, Small and Medium Sized Manufacturing Enterprises, Perception, TQM practices, ISO certification.

INTRODUCTION

Total quality management is a management philosophy, diffused all over the world, with the objective of improving the business performance of the organizations, by offering a systemic approach to continually improve the operative activities to continually fulfills customers' requirements, Powell, (1995). Due to global competition, companies have indeed emphasized that quality should have to be put in place, integrated into all aspects of products and services within their management system. Hence total quality management (TQM) has become increasingly popular as one of the managerial devices in ensuring continuous improvement as to improve customer satisfaction and retention as well as to ensure its product or service quality.

Total quality management (TQM) is also a managerial philosophy that has received great attention in the business world during the past several years. The companies are started implementing TQM to increase the profitability and competitiveness to achieve business excellence. As the result of a perception that smaller firms do

not have the resources necessary to implement TQM effectively, the focus of the literature has been on large organizations. For this study, a survey instrument was developed to evaluate the relationship between TQM and business excellence in small and medium manufacturing enterprises (SMMEs) of north Karnataka region.

DEFINITIONS OF TQM

Defining of what TQM really is does seem to be a tough job by itself. For instance, Okland (1989) says TQM is "an approach to improving the effectiveness and flexibility of business as a whole". It is an essential way of organizing and involving the whole organization, every department every activity every single person at every level. Ishikawa (1985) defined TQM as a total system approach, and an integral part of high level strategy which works horizontally across functions and departments, involving all employees, top to bottom, and extends backwards and forwards to include the supply chain and the customer chain. Boaden (1997), considers the importance of TQM for a number of reasons, viz., TQM is increasingly taught as an academic subject; there is broad based developing body of research on TQM; TQM and quality management are often confused; and evidence reading the 'success' of TQM is mixed. Feigenbaum (1993, 2001) defined it as a management approach that encourages everyone in the organization to focus exclusively upon serving the customer. Dean and Bomen (1994) defined quality management as approach to management comprising mutually supported principles, where each of them is supported by a set of practices and techniques. ISO 9000:2000 defined TQM as coordinated activities aimed at the control and direction of the organization towards quality (ISO, 2000). It is visible from the various definitions that there is no unique definition of the TQM but there is a common thread of customer satisfaction and continuous improvement in all most all definitions of TQM.

LITERATURE REVIEW

The essence of this research was to get an understanding of the impact of TQM on the business excellence of SMMEs. In order to get complete understanding of the theory and practice, various studies were analyzed and reviewed.

Pascoe, Larry Bruce (1992) in their study attempted to determine the level of importance placed on the key and important component of TQM, The effectiveness of the TQM programs and the degree of correlation between each of the critical factors of the effectiveness of the TQM programme. The study demonstrated that TQM programms were instrumental in enhancing the business excellence. Senior managers of the manufacturing organizations in USA represented in this research study.

Sun (2000) has extensively investigated the relationship between TQM, ISO 9000 certifications, and business excellence through questionnaire. Survey conducted in Norway, baring the critical factors or criteria Malcolm Baldrige quality award model are leads to business excellence. Cerio (2003) has reported that there existed a significant relationship between the levels of implementation of quality management principles and improvement in organized performance in terms of cost, quality and flexibility. The survey was held in Spanish firms. He concluded that, as the higher level of implementation of quality management practices increases it also improves the organizational performance. The author also found that quality management practices, product design and development, were the most important significant predicts of operational performance.

Garvare and Isakassan (2001) have suggested that many different concepts can be applied as measurements and indicators of sustainable development. They have proposed four categories of indicators such as driving forces, state reactive response and active response. They have concluded that excellence for sustainable development can be built on triangle i.e. person-organization- society.

Oakland, (1994) and Clayton and Charles (1995) have used hard and soft indicators to measure competitive achievement for business excellence. Hendricks and Singhal (1997, 1999) indicated that an effective TQM programme actually improved operating performance. Mann (1992) also agreed that TQM is not only a management tool for producing quality products and services, but also

a process that leads to increased productivity and more favorable comparative position. He stressed that there is a relationship between quality and productivity. As quality improves there will be less rework or wastage, meanwhile customer satisfaction will be improved with this business excellence enhancement.

Powell (1995) has investigated the possibility of incorporating TQM practice to gain and sustain competitive age. Drawing on the resources approach, his study examined TQM as potential source of sustainable competiveness. He found that organizations that put TQM practices in place outperform their competitors and among others, this finding suggested that financial performance was positively associated with quality management practices.

Saraph et al., (1989) and Flynnet at. Al., (1994) have proposed empirically validated empirical values of measures for integrated quality management aimed at providing better understanding of quality management practice in relation to an organization' quality environment and quality performance. Researchers have used such measures to understand quality management practice better and to build theories and models that relate the critical factors of quality management to organizational performance to achieve business excellence. Some claimed that successful implementation of TQM could generate improved products and services, reduced costs, produced more satisfied customers and employees and improve financial performance. Walton (1986), Garivin (1988) Piper, Randy, T. (1997) found that there was a significant and positive relationship between TQM and business excellence results. This research will therefore fill a gap in the existing literature by investigating fusible relationship between TQM practices and business excellence of small and medium sized manufacturing enterprises.

CRITICAL SUCCESS FACTORS

The critical factors of TQM are almost invariant across countries. The leaders, policy makers and strategists, human resource managers, process managers, information managers, marketing and supply chain managers focus on certain factors of TQM, of course, with suitable adaptations, as critical factors that contribute to the success of TQM. The critical factors of TQM identified are Leadership & Top Management Commitment (LTMC), Vision and Plan Statement(VPS), Supplier Quality Management (SQM), System Process Quality Improvement (SPQI), Total employee involvement (TEI), Education and Training(ET), Performance appraisal, Recognition(PAR), Customer Focus Satisfaction and(CFS), Evaluation (En), Work Environment and Culture (WEC), Continuous Improvement (CI), and Communication(Co), with a perspective on how to use critical factors as the foundation for driving transformational orientation in order to create a sustainable performance of business excellence. Although, TQM is a well-established field of study for business excellence the success rate of TQM implementation is not very high. The major reason for TQM failure is owing to the tendency to look at TQM as tool and not as a system.

METHODOLOGY

The objective of this study is to investigate the relationship between Total Quality Management (TQM) and Business Excellence (B E) in Small and Medium Sized Manufacturing Enterprises (SMMEs) of north Karnataka region. To that end, a survey questionnaire was developed. A total of twelve constructs were proposed, which were felt to be important for TQM implementation. For scoring purposes, a five-point Likert scale was employed with a score of 1= strongly disagree; 2=Disagree; 3= Neutral; 4= Agree; 5= strongly agree, for practice (The level of perceived importance to the factory) and 1= Not important at all; 2=Not important; 3= Neutral important; 4=Important; 5= very important for Importance (The level of perceived importance to the factory). Having validated the questionnaire through expert validation and pilot testing, a sample of 950 companies of small and medium enterprises in north Karnataka region, were randomly selected from the Directory of the north Karnataka small scale industries association (NKSSI) and the data base of the Karnataka Small and Medium Industry Development Corporation (KSMIDEC). The full survey, through the mailed questionnaire, and personally visited the some companies was carried out. Although the response rate was initially not encouraging, various techniques were used to improve the response rate including providing a

stamped self-addressed envelope, and personalization (a hand-written note) on the covering letter in the follow-up stage. As a result responses of 315 being returned. 10 of the 315 returned responses were incomplete, resulting in only 295 (48 medium and 247 small) responses considered for final study, i.e. 31.05% valid response rate which the authors felt to be reasonable for this kind of study. The responses were analyzed using the SPSS Version 11.5 statistical package.

SURVEY RESULTS

General profile of the company

Table 1 shows that the respondents of small and medium sized companies. Respondents from small-sized companies, defined in this study the investment in plant and machinery is more than twenty five lakhs rupees but does not exceed rupees 5 cores. This is followed by medium-sized companies the investment in plant and machinery is more than rupees 5 cores but not exceeding Rs.10 cores.

Table 1 Classification of respondents by type of company

Type of Company	Respondents	
	Number	Percent
Small	247	83.7
Medium	48	16.3
Combined	295	100.0

Source: Research Survey Data

Table 1 indicates the classification of respondents by type of companies. It is evident from the finding that higher percentage (83.7%) of small type of companies established as compared to 16.3% groups of industries focused as medium manufacturing enterprises.

Table 2 indicates the classification of respondents by type of group of industries. It is evident from finding that straightly higher percentage (76.6%) of non ISO groups of industries focused as compared to ISO (23.4%).

Table 2 Classification of respondents by type of groups

Groups	Respondents	
	Number	Percent
ISO	69	23.4
Non ISO	226	76.6
Combined	295	100.0

Source: Research Survey Data

Aspect wise mean response as perceived on total quality management implementation: small and medium company.

Table 3 indicates the comparative mean response as perceived on Total Quality Management implementation among small and medium size companies. The findings show that the mean response on Total Quality Management implementation as perceived in medium manufacturing enterprises groups is found slightly less (87.4%) as compared to small manufacturing enterprises groups (88.0%). Further, establishing the difference in the overall response as perceived on Total Quality Management implementation is found to be statically non-significant (t= 0.76 NS).

It is interesting to note that, there exists non significant difference of response as perceived on Total Quality Management implementation between small and medium size companies with respect to 12 aspects using t-test statistic (P>0.05).

Aspect wise mean response as practice on total quality management implementation: small and medium company

Table 4 indicates the mean response as practice on total quality management implementation in small and medium size companies. The mean practice on Total Quality Management implementation of small size companies is found to be slightly higher (57.0%) as compared to medium size companies (56.5%). There exist a non-significant difference in the performance of practice between small and medium manufacturing enterprises groups (t=0.22 NS).It is interesting to record among all the practice aspect where the result exhibited is non-significant (P>0.05), trend

Table 3 Aspect wise mean response as perceived on TQM implementation: small and medium

No.	Aspects of TQM	Respondents Small (n=247)		Perceived (%) Medium (n=48)		't' Test
		Mean	SD	Mean	SD	
I	LTMC	87.9	4.4	87.4	4.7	0.68 NS
II	VPS)	86.6	4.8	85.5	6.7	1.08 NS
III	SQM	88.7	6.5	87.0	6.5	1.66 NS
IV	SPQI	88.2	6.7	89.0	6.9	0.74 NS
V	TEI	86.5	6.2	85.7	6.6	0.78 NS
VI	ET	88.6	6.3	87.3	6.3	1.31 NS
VII	PAR	88.1	6.1	88.5	6.8	0.38 NS
VIII	CFS	87.9	5.1	86.1	6.1	1.92 NS
IX	En	88.4	5.7	88.0	6.1	0.42 NS
X	WEC	88.4	6.9	88.9	7.8	0.41 NS
XI	CI	87.5	6.7	87.5	6.2	0.00 NS
XII	Co	89.1	7.2	87.3	6.1	1.81 NS
Combined		**88.0**	**4.7**	**87.4**	**5.1**	**0.76 NS**

* Significant at 5% level,

Source: Research Survey Datacompany

between small and medium manufacturing enterprises groups. The result finally establishes that the practice on TQM between small and medium companies found more or less similar in response.

Aspect wise mean response as perceived on TQM implementation: ISO and non ISO

Table 5 indicates the comparative mean response

Table 4 Aspect wise mean responses as practice on TQM implementation: small and medium company

No.	Aspects of TQM	Respondents Perceived (%) Small(n=247)		Medium (n=48)		't' Test
		Mean	SD	Mean	SD	
I	LTMC	56.0	15.5	56.0	14.9	0.00 NS
II	VPS)	54.2	13.0	54.5	13.0	0.15 NS
III	SQM	58.3	16.3	57.7	15.3	0.25 NS
IV	SPQI	56.9	17.2	57.1	18.4	0.07 NS
V	TEI	53.3	13.5	53.4	14.4	0.04 NS
VI	ET	58.1	13.4	58.0	15.1	0.04 NS
VII	PAR	56.8	14.0	56.9	14.7	0.02 NS
VIII	CFS	59.0	17.0	56.9	17.6	0.76 NS
IX	En	56.3	14.7	56.4	16.2	0.04 NS
X	WEC	59.3	17.2	59.9	17.0	0.22 NS
XI	CI	57.9	18.0	55.1	16.9	1.04 NS
XII	Co	57.3	14.9	55.3	15.3	0.83 NS
Combined		**57.0**	**14.1**	**56.5**	**14.6**	**0.22 NS**

* Significant at 5% level,

Source: Research Survey Data

Table 5 Aspect wise mean responses as practice on TQM implementation: small and medium companies

No.	Aspects of TQM	Respondents Importance ISO (n=69)		Non ISO (n=226)		't' Test
		Mean	SD	Mean	SD	
I	LTMC	87.5	3.5	87.9	4.7	0.76 NS
II	VPS)	84.5	4.2	87.0	5.3	4.06*
III	SQM	85.2	7.1	89.5	6.0	4.56*
IV	SPQI	85.2	10.0	89.3	5.0	3.28*
V	TEI	84.0	6.5	87.0	6.0	3.42*
VI	ET	86.0	7.3	89.2	5.8	3.33*
VII	PAR	85.6	5.9	89.0	6.1	4.16*
VIII	CFS	83.2	4.5	89.0	4.8	9.22*
IX	En	84.9	5.2	89.4	5.5	6.21*
X	WEC	89.0	9.3	88.5	6.1	0.42NS
XI	CI	86.4	10.4	87.9	4.8	1.16NS
XII	Co	87.8	9.4	89.1	6.2	1.08NS
Combined		**85.8**	**5.6**	**88.5**	**4.3**	**3.69***

* Significant at 5% level,

Source: Research Survey Data

as perceived on Total Quality Management implementation among ISO and non ISO groups. The findings show that the mean response on Total Quality Management implementation as perceived in ISO is found slightly less (85.8%) as compared to Non ISO (88.5%). Further, the result, establishing the difference in the overall response as perceived on total quality management implementation is found to be statistically significant (t= **3.69***).

It is interesting to note that, there exists significant difference of response as perceived on total Quality Management implementation between ISO &non ISO among eight aspects under study and remaining four aspects elicited non significant findings, i.e. on aspects of Leadership Top management commitment, Work Environment and culture, Continuous Improvement and Communication.

Aspect wise mean response as perceived and practice on total quality management implementation; non-ISO

Table 6 indicates the mean response as practice on Total Quality Management implementation in ISO and non ISO.

The mean practice on Total Quality Management implementation of ISO groups is found to be higher (61.4%) as compared to non ISO groups (55.5%). There exist a significant difference in the performance of practice between ISO non ISO (t=**3.30***).

It is interesting to record the statistical significant difference among all the practice aspect of ISO and non ISO at 5% level accepts for five aspects i.e. Education and Training, Performance appraisal Recognition, Customer Focus & Satisfaction, Evaluation Work Environment and culture where the result exhibited non significant trend between ISO & non ISO. The result finally establishes that the practice on TQM between ISO and non ISO companies found ISO companies TQM practice is more than non ISO companies.

RESPONSE ON OVERALL BUSINESS EXCELLENCE (SMALL AND MEDIUM)

Following sections are indicating the dependent variables which lead to the business excellence.

Overall mean satisfaction level of employees on overall business performance

Table 7 indicates the overall mean satisfaction level of employees on overall business performance.

Table 6 Aspect wise mean responses as practice on TQM implementation: ISO and non ISO

No.	Aspects of TQM	Respondents Importance ISO (n=69)		Non ISO (n=226)		't' Test
		Mean	SD	Mean	SD	
I	LTMC	63.3	10.4	53.7	15.9	5.86*
II	VPS)	60.9	10.7	52.2	13.0	5.61*
III	SQM	63.1	13.0	56.7	16.7	3.33*
IV	SPQI	62.4	13.6	55.2	18.1	3.54*
V	TEI	59.5	13.1	51.4	13.2	4.49*
VI	ET	60.5	12.3	57.4	14.0	1.77NS
VII	PAR	59.0	14.3	56.2	14.0	1.43NS
VIII	CFS	61.1	17.5	57.9	16.9	1.34NS
IX	En	58.3	14.3	55.7	15.1	1.30NS
X	WEC	62.0	12.9	58.6	18.2	1.73NS
XI	CI	65.5	19.5	55.0	16.6	4.05*
XII	Co	62.4	16.2	55.3	14.2	3.28*
Combined		**61.4**	**12.6**	**55.5**	**14.3**	**3.30**

* Significant at 5% level,

Source: Research Survey Data

The result shows that the mean satisfaction of the employees of medium sized companies is found to be comparatively higher (45.2 %) as against small manufacturing sized companies (38.8%). Further, the overall mean satisfaction of the employees of combined groups is found to be 39.8% with S D as 20.3%. The result also substantiated significance in the mean satisfaction of employees between small and medium sized companies on overall business performance, (t=2.49*)

Table 7 overall mean satisfaction level of employees on overall business performance

Company	Sample (n)	Max. Score	Satisfaction Scores Mean	Mean (%)	SD (%)	't' Test
Small	247	10	3.88	38.8	19.9	2.49*
Medium	48	10	4.52	45.2	15.5	
Combined	295	10	3.98	39.8	20.3	

Source: Research Survey Data

Table 8 Classifications of respondents on perception level on quality of product

Perception level	Category (Score)	Classification of company Small No.	%	Medium No.	%	**χ 2 Value**
Inadequate	< 50 %	0	0.0	0	0.0	3.85 *
Moderate	51-75 %	209	84.6	35	72.9	
Adequate	> 75	38	15.4	13	27.1	
Total		247	100.0	48	100.	

* Significant at 5 % Level **χ 2 (0.05, 2df) = 5.991**

Source: Research Survey Data

Classification of respondents on perception level on quality of product

Table 8 shows the classification of respondents on perception level on quality of product. The data reveals that 84.6% of the small group companies have a moderate perception level as compared to 15.4% of small groups which have adequate perception level.

Further among medium manufacturing enterprises groups the results indicate that 72.9% and 27.1% observed to be moderate & adequate respectively on quality of products. The statistical test indicates that the perception level on quality of product between small and medium manufacturing enterprises groups (t= 3.85 *).

Classification of respondents on Satisfaction of Customer on Overall Business performance

Table 9 shows the classification of respondents on satisfaction of customer on overall business performance. The result indicates that 50.2% and 56.3% of respondents among small group companies is found to be moderate and adequate level of customer satisfaction on overall business performance. On the contrary 56.3% and 27.1 % among medium group companies is found to be moderate and adequate satisfaction level respectively of customer on overall business performance.

Classification of respondents on strategic business performance

Table 10 shows the classification of respondents on strategic business performance. The result shows that 66.4% & 54.2% of small and medium sized companies measured the performance level as moderate while compared to remaining 33.6% and 45.8% of the respective groups noticed with adequate performance level.

Table 9 Classification of respondents on Satisfaction of Customer on Overall Business performance

Perception level	Category (Score)	Classification of company				χ 2 Value
		Small		Medium		
		No.	%	No.	%	
Inadequate	< 50 %	16	6.5	8	16.7	8.02*
Moderate	51-75 %	124	50.2	27	56.3	
Adequate	> 75 %	107	43.3	13	27.1	
Total		247	100.0	48	100.	

* Significant at 5 % Level χ **2 (0.05, 2df) = 5.991**

Source: Research Survey Data

Table 10 Classification of respondents on Satisfaction of Customer on Overall Business performance

Perception level	Category (Score)	Classification of company				χ 2 Value
		Small		Medium		
		No.	%	No.	%	
Inadequate	< 50 %	0	0.0	0	0.0	2.62 NS
Moderate	51-75 %	164	66.4	26	54.2	
Adequate	> 75 %	83	33.6	22	45.8	
Total		247	100.0	48	100	

* Significant at 5 % Level χ **2 (0.05, 2df) = 5.991**

Source: Research Survey Data

The chi-square test indicates the association between performance level among the small and medium study groups which is found to be non-insignificant (χ **2=**2.62 NS).

RESPONSE ON OVERALL BUSINESS EXCELLENCE (ISO AND NON ISO)

Following sections are indicating the dependent variables which lead to the business excellence.

Overall mean satisfaction level of employees on overall business performance

Table 11 indicates the overall mean satisfaction level of employees on overall business performance. The result shows that the mean satisfaction of the employees of ISO groups is found to be comparatively higher (65.7 %) as against non ISO groups (31.9%). Further the overall mean satisfaction of the employees of combined groups is found to be 39.8% with S D 20.3%. The result also substantiated significance in the mean satisfaction of employees between ISO non ISO on overall business performance, (t=17.13*).

Classification of respondents on perception level on quality of product

Table 12 shows the classification of respondents on perception level on quality of product. The data reveals that 85.5% of the ISO groups have a moderate perception level as compared to 14.5% of ISO groups which have adequate perception level. Further, among non ISO groups the results indicate that 81.9% and 18.1% observed to be moderate & adequate respectively on quality of products.

The statistical test indicates in the perception level on quality of product between ISO non ISO groups (t= 0.43 NS).

Classification of respondents on Satisfaction of Customer on Overall Business performance

Table 13 shows the classification on satisfaction level of customer on overall business performance. The result indicates that 31.4% and 69.6% of respondents among ISO groups is found to be

Table 11 overall mean satisfaction level of employees on overall business performance

Company	Sample (n)	Max.Score	Satisfaction Scores			't' Test
			Mean	Mean (%)	SD (%)	
ISO	69	10	6.57	65.7	14.3	17.13*
Non ISO	226	10	3.19	31.9	14.5	
Combined	295	10	3.98	39.8	20.3	

* Significant at 5% level, t (0.05, 293df) =1.96

Source: Research Survey Data

Table 12 Classifications of respondents on perception level on quality of product

Perception level	Category (Score)	Classification of company				χ **2 Value**
		Small		Medium		
	No.	%	No.	%		
Inadequate	< 50 %	0	0.0	0	0.0	0.43 NS
Moderate	51-75 %	59	85.5	185	81.9	
Adequate	> 75 %	10	14.5	41	18.1	
Total		69	100.0	226	100.0	

* Significant at 5 % Level χ **2 (0.05, 2df) = 5.991**

moderate and adequate level respectively of customer satisfaction on overall business performance. On the contrary 57.5% and 31.9 % among non ISO groups found to be moderate & adequate satisfaction level of customer overall business performance.

Further, the statistical chi–square test reveals the existence of significant association in the level of satisfaction on overall business performance, which is found to be significant (**(χ2=33.38*).**

Classification of respondents on strategic business performance

Table 14 shows the classification of respondents on strategic business performance. The result shows that 85.5% & 81.9% of ISO and Non ISO groups measured the performance level as moderate while compared to remaining 14.5% and 18.1% of the respective groups noticed with adequate performance level.

The chi – square test indicates the association between performance level among the ISO which is and Non ISO study groups, found to be non-significant (**(χ2=.49NS).**

RELIABILITY ANALYSIS

Using the SPSS reliability analysis procedure, an internal consistency analysis was performed separately for the items of each critical factor. Cronbach's alpha is commonly used for this purpose. Values of Cronbach's alpha range between 0 and 1.0. Higher values indicating higher reliability. The value of each variable, as measured by each statement on the scale of 1 to 5, is computed using the reliability analysis procedure shown in Table 15. The alpha values range from 0.8259 to 0.9148, which indicates an internal consistency with the alpha value of more than 0.70, so no items were dropped from each variable. These results are therefore acceptable and are a reliable.

Table 13 Classification of respondents on Satisfaction of Customer on Overall Business performance

Perception level	Category (Score)	Classification of company				χ 2 Value
		Small		Medium		
		No.	%	No.	%	
Inadequate	< 50 %	0	0.0	24	10.6	33.38*
Moderate	51-75 %	21	31.4	130	57.5	
Adequate	> 75 %	48	69.6	72	31.9	
Total		69	100.0	226	100.0	

* Significant at 5 % Level χ **2 (0.05, 2df) = 5.991**

Source: Research Survey Data

Table 14 Classification of respondents on Satisfaction of Customer on Overall Business performance

Perception level	Category (Score)	Classification of company				χ 2 Value
		Small		Medium		
		No.	%	No.	%	
Inadequate	< 50 %	0	0.0	0	0.0	0.49 NS
Moderate	51-75 %	59	85.5	185	81.9	
Adequate	> 75 %	10	14.5	41	18.1	
Total		69	100.0	226	100.0	

* Significant at 5 % Level χ **2 (0.05, 2df) = 5.991**

Source: Research Survey Data

Table 15 Internal consistency analysis

Quality management practice	No. of items	Alpha value	Item for deletion	Alpha if item deleted
LTMC	7	.8818	none	.8833
VPS	7	.8511	none	.8532
SQM	6	.9023	none	.9019
SPQI	6	.9064	none	.9065
TEI	7	.8506	none	.8546
ET	7	.8653	none	.8606
PAR	7	.8639	none	.8608
CFS	7	.9188	none	.9193
En	9	.9019	none	.9017
WEC	9	.9270	none	.9262
CI	7	.9090	none	.9089
Co	5	.8421	none	.8437
Total	**84**	**0.885**	**none**	**0.885**

DISCUSSIONS

Having described the survey results, this section attempts to present a broad evaluation of the current status of TQM amongst the north Karnataka SMEs companies.

The main purpose of this study is to find out where north Karnataka companies are in the quality race, compared with other regions of Karnataka. Based on the survey results, it is evident from finding that straightly higher percentage (83.7%) of small manufacturing enterprises groups of industries focused as compared to medium manufacturing enterprises (16.3%). From the study samples of medium manufacturing enterprises (10.4 %) implemented total quality management as against almost same percentage (10.5%) among small manufacturing enterprises implemented total quality management. It is evident from the from the finding that 26.9% of small manufacturing enterprises & 20.0% of medium manufacturing industries processes with less than 10.0% of employees involved in total quality management. Further 53.9% and 40.0 % of respective groups revealing 10-49% employees in total quality management.50-90% of employees in total quality management noticed in small manufacturing enterprises (19.2%) & medium manufacturing enterprises (40.0%).

The result shows 54.3 % of small manufacturing enterprises & 54.2% medium manufacturing enterprises responded positively in considering the internal customer needs. Remaining 45.7% and 45.8% responded in not considering the internal customers' needs. It is evident from the result the mean agreement scores on general total quality management found slightly higher in the medium manufacturing enterprises group found to be higher (79.9%) as compared to slightly less among small manufacturing enterprises Group(78.9%).

The mean response on perceived and practice on TQM implementation among small manufacturing enterprises groups. It is very evident from the result that the perceived response to be 88.0% as compared to practice component of 57.0%. Further the respondent also established a range of 89.1% to 865%.in the perceived response as against range noticed between 59.3% and 53.3% with respect to practice.

The result established the existence of statistical significant difference between perceived and practice response on total quality management implementation among small manufacturing enterprises groups is significant.

The Aspect wise Mean Response as Perceived and Practice on Total Quality Management

Implementation medium manufacturing enterprises groups.

The overall response as perceived by medium manufacturing enterprises groups found to be 87.4% as against practice 56.5%. Further the difference implied between perceived & practice with the application of test statistics (t= 14.49*). The mean response towards perceived aspect found between 89.0 and 85.5 as against practice response range between 59.9% and 53.4%. Further the implication of statistical test resulting with significant between perceived & practice towards Total Quality Management Implementation of medium manufacturing enterprises groups for all the aspect under study.

The data indicates that 43.32% of small groups noticed with moderate perception level as a barrier as compared to 54.66% found to be adequate percentage level. It is interesting to note that among medium groups majority (64.59%) identified adequate percentage perception level on barriers to TQM as compared to 35.41% noticed with moderate perception level.

The result shows that the mean satisfaction of the employees of medium manufacturing groups found to be comparatively higher 43.5 % as against small manufacturing enterprises groups 39.1%. The overall mean perception scores on Quality of Product of combined sample found to be 68.6% with S D 8.0%. Further the mean perception score found to be slightly higher among medium manufacturing enterprises groups (70.5%) compared to small manufacturing enterprises groups (68.2%).

The result indicates that the overall Mean Satisfaction of Customer on Overall Business performance found to be 73.4% & S D 13.4%. It is interesting to note that the overall Mean Satisfaction of Customer among small manufacturing enterprise groups found to be 73.6% as compared medium manufacturing enterprises groups 72.1% which is slightly less. The data analysis shows overall Mean Response of Respondents on Strategic Business performance found to be 71.10% % S D 8.6. The response of medium manufacturing enterprise groups explicit more (73.3%) as compared to small manufacturing enterprise groups (70.7%) on the component Strategic Business performance.

Many research results have revealed that top management commitment and leadership, education and training are the most important elements in a successful implementation of TQM (Zhang et al., 2000). However, as direct comparisons cannot be made with other countries from these findings, it can be said that north Karnataka SMEs are behind in this initiative based on a mean practice of 2.844 Finally, there is evidence that should raise some concerns on system process quality improvement. In the case of this work, system process quality improvement gave the lowest practice (2.38) from the twelve constructs.

CONCLUSIONS

Relationship between TQM and business excellence has been a prominent topic in numerous empirical studies. As compared to the number of published research on TQM, only a small number of these studies investigated the relationship between TQM and business excellence. It is generally accepted that TQM influences the business excellence. Thus, TQM is considered as a systems approach. TQM is also found to be related to business excellence. The present study employed to evaluate the relationship between TQM practices and business excellence in small and medium manufacturing enterprises (SMMEs) of north Karnataka region. From the research survey results presented and discussed, the level of TQM implementation among these north Karnataka SMMEs has been outlined. This research work also concentrates on identifying a systematic approach towards TQM practice to achieve business excellence so that SMMEs can sustain the changes in the new era of the global business environment. Although some of these results may not be directly comparable, they have undoubtedly provided some indications on the extent of achievements for north Karnataka SMMEs in their journey towards business excellence. SMMEs act as a vital component of growing economy and contribute positively in economic development. If TQM policies and practices are applied in true essence in north Karnataka SMMEs, it will contribute in their performance in terms of quality and profitability.

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