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TQM-A MANAGEMENT PHILOSOPHY IN INDIAN AUTOMOBILE INDUSTRY (NCR)

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ABSTRACT

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. Importantly, employees are regarded as the most important entity in ensuring that total quality management (TQM) can be carried out successfully in an organization. Therefore, this paper will address certain issues based on employees' perspectives with regard to TQM implementation in the SMEs of the automobile industry in National Capital Region (NCR) of India. Specifically, the research would identify the perceptions towards TQM among the employees in the small-medium industry in the automobile sector. Secondly, to determine the important factors towards TQM implementation as perceived by those employees. Finally, to ascertain whether there are other measurements employed by the SMEs of the automobile industry in ensuring quality.

Keywords: Small-Medium Enterprise, Perception, Total Quality Management, Automobile Industry.

INTRODUCTION

The **automotive industry in India** is one of the larger markets in the world and had previously been one of the fastest growing globally, but is now seeing flat or negative growth rates [1, 2]. India's passenger car and commercial vehicle manufacturing industry is the sixth largest in the world, with an annual production of more than 3.9 million units in 2011 [3]. According to recent reports, India overtook Brazil and became the sixth largest passenger vehicle producer in the world

(beating such old and new auto makers as Belgium, United Kingdom, Italy, Canada, Mexico, Russia, Spain, France, Brazil), grew 16 to 18 per cent to sell around three million units in the course of 2011-12 [4]. In 2009, India emerged as Asia's fourth largest exporter of passenger cars, behind Japan, South Korea, and Thailand [5]. In 2010, India beat Thailand to become Asia's third largest exporter of passenger cars.

Quality is a term that carries important meaning to both producer and customer. In the global marketplace today, many organizations realized that its survival in the business world depend highly on producing high quality product and services. Indeed, a lot of organizations have emphasized that quality should have to be put in place, integrated within the management system, especially in terms of bringing the end products or services to the customers, especially with the intense competition arriving from the rivals. Accordingly, total quality management (TQM) has become increasingly prevalent as one of the management strategies in ensuring customer satisfaction and loyalty, improving products and service quality and reinforcing continuous improvement.

This research investigates total quality management (TQM) of the small and medium scale enterprises (SMEs) in the automobile industry due to the general quest for quality-produced cars and the increasing competition between the local car producer and foreign car manufacturer. The automotive industry is chosen for the present study due to its importance and emphasis place in the manufacturing sector to boost the industrialization process in order for India to be a developed nation by 2025 (<http://www.unescap.org>, assessed on October 2012 [6]). In addition, total quality management (TQM) would be one of the measurements to ensure that the cars produced are reliable, satisfied by the consumers at large and to ensure competitiveness in the market, as well as conforming to the international standard. Therefore, the objectives of this study are three-folds, namely (i) to explore the perception of employees pertaining to the implementation of total quality management (TQM) in the automobile industry, (ii) to identify at which attribute of TQM has been chosen most by the respondents and (iii) to determine whether there are other quality measurements besides TQM that has been practiced in those respective organizations.

The majority of India's car manufacturing industry is based around three clusters in the south, west and north. The southern cluster consisting of Chennai is the biggest with 35% of the revenue share. The western hub near Mumbai and Pune contributes to 33% of the market and the northern cluster around the National Capital Region (NCR) contributes 32% [7]. This research is focused on National Capital Region (NCR) automobile Industry of India.

METHODOLOGY

This study is based on small and medium-sized enterprises (SMEs) in the Indian automobile industry. It is empirical as it aims to discover the perceptions of employees towards the implementation of Total Quality Management (TQM) in their organizations. Questionnaires were adopted from Zhang *et al.*[8] based on 11 variables which include training, reward and recognition, product or service design, supplier quality management, employee participation, customer focus, process control and improvement, evaluation, vision and plan statement, quality system improvement and leadership. Though in terms of reliability, it has been proven valid and reliable [8, 9]. Since the questionnaires were tested and validated on 272 Chinese and Malaysian manufacturing companies, but yet this study also had conducted the reliability test. The reliability of the factors was determined by establishing their alpha weighting using Cronbach's alpha coefficient. Construct validity was assessed using factor analysis. The result of reliability shows that the item loading was 0.863, thus it was concluded that the scales had good construct validity. A total of 250 questionnaires were sent to employees of the SMEs of the automobile industry in National Capital Region (NCR) of India on a purposive sampling basis. However, only 150 employees managed to respond which gives a

response rate of 60%. Those organizations were based from Small and Medium Industries Development Corporation (SMIDEC) directory that constitute organizations that generally supply parts or provide services to the automobile industry (see **Table 1**). In addition to those lists, questionnaires were also sent to organizations that meet the SMEs definition, and supplying parts to Maruti-Suzuki and Tata or other car producer. The questionnaire basically consisted of questions to infer the employees’ perception on the concept of TQM, using a five point Likert type scale, with a response of 1 indicating that respondents disagree with the item perceived and 5 indicating that respondents agree with the item perceived.

Table 1. Definition of SMEs by Small and Medium Industries Development Corporation (SMIDEC) by Size

Category	Micro-Enterprise	Small Enterprise	Medium Enterprise
Manufacturing, Manufacturing-Related Services and Agro-based Industries	Sales turnover of less than INR 5million OR full time employees less than 5	Sales turnover between INR 5million and less than INR 2billion OR full time employees between 5 and 50	Sales turnover between INR 2 billion and INR 5 billion OR full time employees between 51 and 150
Services, Primary Agriculture and Information & Communication Technology (ICT)	Sales turnover of less than INR 4million OR full time employees less than 5	Sales turnover between INR 4million and less than INR 2 billion OR full time employees between 5 and 19	Sales turnover between INR 2 billion and INR 10 billion OR full time employees between 20 and 50

(source: Small and Medium Industries Development Corporation (SMIDEC))

RESULTS AND DISCUSSION

Demographic profile of respondents

Table 2 shows the demographic profile of the respondents. A total of 65.7% of the respondents were male and 34.3 % were female. In terms of the level of education, most of the respondents completed their secondary educational level (42.0%), followed by having their first degree (28%), diploma/certificate (23.7%) and completed their primary education (6.3%). The above table also shows that 38% of the respondents were executive, administrative officer (32.0%), technical supervisor (27.3%) and top management (2.7%).

Table 2. Respondents Demographic Profile

Variables	%	N
Gender		
Male	65.7	98
Female	34.3	52
Ethnic Group		
Indian	77.3	116
Nepalis	9.3	14
Bhutanese	7.3	11
Others	6.0	9
Years of working		
Less than one year	7.3	11
5-10 yrs	20.0	30
1-5 yrs	57.3	86
Over 10 yrs	15.4	23
Job status		
Technical Supervisor	27.3	41
Executive	38.0	57
Administrative Officer	32.0	48
Top Mgt	2.7	4
Education level		
Primary and Below	6.3	9
Secondary	42.0	63
Diploma	23.7	36
Graduation	28.0	42
Income		
Less than INR 20,000	27.4	41
INR 50, 001-INR 1,00,000	12.0	18
INR 20,001-INR 50,000	58.0	87
More than INR 1,00,000	2.6	4

Understanding on the Concept of TQM by respondents

The respondents were also being asked to indicate their general understanding on the concepts of TQM (**Table 3**). In generally 42.1% of the respondents associated TQM as total customer satisfaction, 37% viewed it as continuous improvement, 9.5% relates it to management

leadership and commitment, while 9.7% associated it with employees’ involvement. The least opinion relates TQM with training and reward (1.7%). Eventually, the highest perception of TQM among employees relates to total customer satisfaction (4.18), followed by employee involvement (4.02), then management leadership and commitment and training and education (3.95) and finally, continuous improvement (3.89).

Table 3. Respondents’ Understanding on the Concept of TQM

Items	Percentage	Mean	Frequency
Management leadership and commitment	9.5	3.95	14
Continuous improvement	37.0	3.89	55
Total customer satisfaction	42.1	4.18	63
Employee involvement	9.7	4.02	15
Training and education	1.7	3.95	3

In order to further explore the perception of employees on the importance of TQM, a set of variables were listed to measure the degree of its importance to the respondents on TQM, on a scale ranging from 1(disagree) to 5 (agree). Among the 11 variables measured based from Zhang *et al.* [8] were training and education, reward and recognition, service design, quality system improvement, employee participation, customer focus, process control and improvement, evaluation, vision and plan statement, leadership, and supply quality management. Based on responses to the TQM variables, **Table 4** provides mean of different employees in their perception of TQM. The result indicates that in terms of TQM variables, training and education is perceived the highest (4.09), followed by customer focus (4.05) than Product design (4.04) and quality system improvement (4.03). The result presented in **Table 4** indicates the differences of perception among the respondents on TQM variables. Since training and education shows the highest mean score (4.09), the study will highlights the relationship between training and education with the respondents’ perception of TQM.

Table 4. Mean for TQM variables

TQM variables	Mean
Training and education	4.09
Reward and recognition	3.61
Service/product design	4.04
Quality system improvement	4.03
Employee participation	3.65
Customer focus	4.05
Process control and improvement	3.84
Evaluation	4.02
Vision and plan statement	3.95
Leadership	3.76
Supply quality management	3.43

Table 5 illustrates the relationship between respondents’ understandings on the concept of TQM with training and education. For the respondents who perceived TQM as management leadership and commitment, any follow up activities made by the management for improvement of quality job is very important (4.40). It is followed by problem solving (4.39) and availability of

resources for employee education and training (4.31). The least perception is on attending training program (3.89). For those who regard TQM as continuous improvement, to them employee should be regarded as the most valuable resources in ensuring the better performance of the company (4.28). They also perceived that the employees should be given greater involvement in the training program as a motivation for them to perform the job (4.19) as well as the management should made resources for employees' education and training are available (4.15). 42.1% of the respondents have associated their understanding of TQM to be total customer satisfaction. For those who regards TQM as total customer satisfaction has definitely says that the employees should be given the quality awareness education in order to ensure that the customer will satisfied with the service given (4.43). Then it followed by the importance of imparting MS ISO training awareness to the employees in order to improve their job performance (4.28). The result also shows that for those who considered employee involvement as TQM has different perception on the training variables. To them, MS ISO training motivation and greater involvement of employees in training program should be given priority (4.49). The employees also perceived that they should be exposed with a new skill on improvement of quality to reduce defective production and goods service (4.32).

Table 5. Understandings on the Concept of TQM and Training by Respondents

Concept of TQM		Program attended	Learning	Awareness	Follow up	Problem	Motivate	Satisfied	Education	Resources	Employee	Quality Awareness
Mgt Leadership and Commitment	Mean	3.89	4.12	4.27	4.40	4.39	4.17	3.99	4.12	4.31	3.97	3.91
	S.D	.677	.548	.722	.669	.741	.810	.830	.809	.808	.920	.921
Continuous Improvement	Mean	3.87	4.01	4.00	4.02	4.02	4.19	4.03	4.03	4.15	4.28	3.61
	S.D.	.516	.950	.796	.765	.625	.781	.802	.809	.719	.985	.823
Total Customer Satisfaction	Mean	4.15	4.23	4.28	4.12	4.07	4.18	4.15	4.23	4.17	4.31	4.43
	S.D.	.828	.666	.809	.630	.805	.638	.738	.811	.841	.861	.751
Employee Involvement	Mean	3.99	4.32	4.30	4.02	3.73	4.49	4.14	4.10	3.87	4.17	3.93
	S.D.	.728	.650	.750	.767	.857	.513	.618	.728	.693	.816	.618

The respondents were then asked on the reasons for the implementation of TQM in the organization. **Table 6** shows that majority of respondents agreed that with the implementation of TQM the company would be able to increase efficiency and productivity (54.6%), followed by the ability deliver high level of service to the customers (16.4%), to be more competitive (12%), to ensure better utilization of resources (9.0%) and lastly, the ability to prepare for continuous improvement (8%). The research would also seek to identify whether there are other measurements that have been used and implemented by the organizations in terms of quality initiatives besides TQM (**Table 7**). The result in **Table 7** shows that 54.8% are implementing TQM in managing their quality system, followed by Six Sigma 15.2%. TQM is indeed, agreed upon as one of the ways of managing organizations to improve efficiency and effectiveness [8]. Nevertheless, there is not much conformity in terms of the overall view of TQM since TQM connotes different meaning to different people [10]. Therefore, this study seeks to determine employees' perception on TQM since organizational performance depends highly on the performance of employees [11]. Furthermore, this study is conducted in the automobile industry of the small-medium enterprises (SMEs) to identify their perception on the implementation of TQM. Consequently, many researchers have contributed toward the critical success factors on TQM implementation (eg., Lau and Idris, [12]; Idris, McEwan

and Belavendram [13]; Dean and Helms, [14]; Thiagarajan, *et al.*, [15] and Behesti and Lollar, [16]). From the study, customer satisfaction is perceived the most by the employees in terms of their understanding of TQM which correspond with Bowen and Waldman [17] argument that the most important requirement for long-term organizational success is customer satisfaction. Accordingly, customer satisfaction can only be achieved if the company continuously put an effort to improve the quality system [18]. Ultimately, employees perceive their involvement as an important concept of TQM and this coincides with Dean and Helms [14] study on the public sector agencies. In terms of the reason of implementing TQM, many of the employees perceived that organizations implement quality system mainly to increase their efficiency and productivity and this has been supported by Beshesti and Lollar [16]. Surprisingly, they neither perceive continuous improvement as one of the important component of TQM nor as the reasons for its implementation. One possible reason why continuous improvement is perceived less by the employees may due to the lack of emphasis of long-term implementation in TQM. Probably, it may also owe by the fact that some organizations implement TQM in order to gain ISO certification or other quality certification. Importantly, training and education, followed by service/product design and quality system improvement are regarded as the most important factors perceived by employees among the 11 dimensions of critical success factors of TQM implementation in the automobile industry of the SMEs. The findings however did not support Eng and Yusoff [19] study where they mentioned that training and education for the implementation of TQM practices tend to be successful only in large companies compared to SMEs. The other factors that are perceived important are service/product design and quality system improvement and this has been supported by Thiagarajan, *et al.* [15] who also did a study on TQM implementation in Malaysia.

Table 6. Perceptions of Employees on the Importance of TQM Implementation

Items	%	N
To be competitive	12.0	18
To increase efficiency and productivity	54.6	82
Better utilization of resources	9.0	13
For a high level of service to the customers	16.4	25
For continuous improvement	8.0	12

Table 7. Other Measurements Employed by SME

Measurements	%	N
Six Sigma	15.2	23
Balance Scorecard	12.0	18
Total Quality Mgt	54.8	82
Others	18.0	27
Total	100.0	150

CONCLUSION

Even this study presents a general framework for advancing the knowledge and perception of the employees on TQM, it may help the automobile industry to improve their service to the customer. In fact, quality control is much required in small firms as to emulate the big companies as well as to match the quality to differentiate their product or services from their competitors. Furthermore, TQM will give an impact towards significant returns, performance improvements, better teamwork and decision in services.

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The Indian automotive industry is witnessing a phase of rapid transformation and growth, mainly driven by stable economic growth and infrastructure development (Wipro 2013). Figure 4 shows Indian automobile industry exports from year 2007 to 2013. A continual increase in Indian automobile industry exports is observed. According to India Brand Equity Foundation (IBEF) (2014), the overall automobile exports grew by 2.03 percent during April–August 2013. According to IBEF (2014), India is set to be among top five automobile producers by 2015. Total quality management (TQM) is a structured approach to overall organizational management. The focus of the process is to improve the quality of an organization's outputs, including goods and services, through continual improvement of internal practices. The standards set as part of the TQM approach can reflect both internal priorities and any industry standards currently in place. Industry standards can be defined at multiple levels and may include adherence to various laws and regulations governing the operation of the particular business. Industry standards can also include the production of a core definition of total quality management (TQM) describes a management approach to long-term success through customer satisfaction. In a TQM effort, all members of an organization participate in improving processes, products, services, and the culture in which they work. Primary elements of TQM. Benefits of TQM. Primary Elements of tqm. TQM can be summarized as a management system for a customer-focused organization that involves all employees in continual improvement. It uses strategy, data, and effective communications to integrate the quality discipline into the culture and activities of the organization. Many of these concepts are present in modern quality management systems, the successor to TQM. Here are the 8 principles of total quality management Incumbents in the automotive industry should prepare for a changing landscape as India grows into the world's third-largest passenger-vehicle market and global trends disrupt the sector. DOWNLOADS. Open interactive popup. Mini cars and hatchback cars have been the mainstay for the automobile industry in India, with share around 50 percent and growth of 6 to 7 percent between financial year 2014 and 2017. These segments will continue to maintain a dominant position, but the majority of growth is expected to come from new segments such as compact SUVs, sedans, and luxury vehicles.