OBSTACLES TO THE TOTAL QUALITY MANAGEMENT PRACTICES IN OMAN'SCONSTRUCTION INDUSTRY

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ABSTRACT: Obstacles facing the construction industry in the world are a fundamental problem in the slow progress of some companies forward. In the Sultanate of Oman, construction companies are facing great challenges due to many obstacles. This study aims to find out important factors that regarded as obstacles faced by the construction companies in Oman and also this paper highlights important problems exist in the various grades of construction companies. A quantitative method was used in this study. This paper highlights obstacles to the five grades of companies. Chi-square test was used to presents the significance of obstacles, the result has been analyzed. The findings were the fourth grade facing more obstacles than other grades construction companies. In order to survive market competition, these companies must find solutions to these constraints.

***Keywords**: Introduction, Main obstacles, Companies grades, Challenges.*

1.0 INTRODUCTION

This paper investigates and presents the total quality management (TQM) obstacles facing by construction industry in the Sultanate of Oman via a questionnaire survey targeted to general and prime contractors. Quality is one of the critical factors in the success of construction projects, quality of construction projects, as well as project success, can be regarded as the fulfillment of expectations of the project participants (Ahmed et al., 2005). Total Quality Manager (TQM) has become a key philosophy to assist organizations in becoming the most efficient, the most competitive, and the most successful that it can be to minimize the existing obstacles and problems in the organizations. A study by Mathews et al. (2001) found that "top managers and shop-floor workers receive more training in the areas of "soft" quality tools, quality awareness and customer focus than in statistical approaches. Edmondson and Woolley (2003) found that new managerial skills introduced through corporate training programs took root in those sub-units whose leaders had the skill and will to embrace these new managerial behaviors. Though businesses must both exploit current opportunities and explore new ones, at any one point in time, only one of these strategic tasks may be the right focus for a company (Benner, Tushman and Saloner et al, 2001). TQM is a structured approach to improvement. If correctly applied, it would assist a construction company in improving its performance. While problems such as rework, scrap, delivery delays etc. may be minimized by adopting a Quality Assurance (QA) program, issues like unnoticed delays, frustration, redundant internal efforts, over-control, manpower inefficiency, low morale etc.,

which are largely hidden, can only be exposed and cured by adopting TQM (Ahmed, 1997). This paper first outlines the main quality obstacles facing construction industries in Oman then it ranked the obstacles moreover the construction companies regarding the most effectiveness obstacles. The strategic approach to quality management is not a new phenomenon (Leonard & McAdam, 2004). Tan, Kannan, Handfield and Ghosh (2000) stated that total quality management (TQM) forms strategy through providing the characteristics for responding to economic trends and impacts. Leonard and McAdam (2004) maintained that TQM could be integrated with strategic planning and with strategic architecture. Singh and Smith (2004) noted that elements of TQM and innovation are similar, for example, continuous improvement is a key concept of both. Thus, TQM may play a role in innovative industries and firms. One of the major elements of the human resource focus that has been identified by Mehra *et al.* (1998) as a critical success factor to the success of TQM programs is teamwork. For Mathews *et al.* (2001a, b) the training that underpins quality management determines the likely effectiveness of the quality initiatives undertaken. Zhang *et al.* (2000) consider investment in education and training vitally important for TQM success (also Cebeci and Beskese, 2002). Several recent empirical studies revealed that training and education are critical to successful TQM implementation (Zhang *et al.*, 2000; Pun, 2001; Calisir *et al.*, 2001; Dayton, 2001). The middle management have a particular role to play, since they must not only grasp the principles of TQM, they must go on to explain them to the people for whom they are responsible, and ensure that their commitment is communicated (Oakland, 2000). Promoting organizational commitment is achieved as a result of top management commitment (Everett, 2002; Buch and Rivers, 2002).

2.0 METHODOLOGY

This paper highlight a display of the results being reached which represent answers of the study objectives mentioned, it include also discussion of these results in the light of the theoretical framework and the previous studies. This paper focuses on the analysis of various obstacles after data has been collected from various graded companies in the Sultanate of Oman. The structured questionnaire has been distributed to three hundred and fifty construction contractors, out of the 350 questionnaire that have been circulated, 200 companies reply with the response rate of 57% There are five grades of construction companies and categorized as grade excellent, grade one, grade two, grade three, grade four as designated by Oman Chamber of Commerce and Industry. (OCCI Information centre 2006).The questionnaires were sent to the top, middle and lower managers and project

engineers of the organizations. The questionnaires consist of ten obstacles presents the parameters related to the problems in the implementation of TQM program. This in detail presents the variables /dimensions that help to identify the obstacles that have been faced by the organization. These obstacles are: 1. Changing behavior and attitude 2. Schedule and cost treated as the main priorities 3. Emphasis on short term objects. 4. Lack of education and training to drive the improvement process 5. too much documents are required (lack of documentation ability) 6. Lack of top management commitment/ understanding 7. Lack of employees commitment /understanding 8. Tendency to cure symptom rather than get to the root cause of a problem 9. Lack of expertise / resources in TQM 10. Current tendering /bidding climate.

3.0 DATA COLLECTION AND ANALYSIS

Data from the different grades of companies has been collected, table no 1 show the total number of questionnaires have been distributed and gathered.

Table 1 Total Number of Questionnaire Distributed to the Contractors

Grade of Companies	No. of Questionnaires distributed	No. of Questionnaires Returned & Analyzed	Response Rate (%)
Excellent	21	10	48
First	114	67	59
Second	52	35	67
Third	45	17	38
Fourth	118	71	60
Total	350	200	57

3.1 Analysis of Various Grades of Companies

To achieve the objective of this paper, chi- square test, frequency and the percentage was used on each variable for all categories of contractors to establish the significances of these variables. The result revealed that values extracted for each category shows that the fourth grade occupied rank one which means that this category was very much influenced by these obstacles and difficulties more than the other categories. The result of chi-square value is 112.5 which mean that this category does not have enough capabilities to succeed better than other categories. This reflects the real situation that most of these companies lack capabilities despite its large in numbers and effective control. Then category two obtained the second rank with a value of 29.14 this shows also that category two is suffering from real

difficulties in the local market and then followed by rank three with a value of 27.5 and category one with value of 23.9 respectively. It is obvious from the results that grade excellent obtained the lowest value 18 which means facing less difficulties and obstacles. This reflects their quality management improvement and commitment of the leadership towards the benefits of implementations the total quality management programs and continuous improvement. Table 2 shows the significances of obstacles in different categories and tables 3 shows the frequencies and total percentages of the obstacles and table 4 Ranking of obstacles regarding grades of construction contractors.

Table 2 Significance of Obstacles in the Implementation of TQM

Grade of Company	Mean Value	Chi-square Value	significance
Grade 4	7.1	112.5	1
Grade 2	3.5	29.14	2
Grade 3	1.7	27.5	3
Grade 1	6.7	23.9	4
Excellent	1	18	5

Table 3 Obstacles in the implementation of TQM program

			Total no of construction companies 200					
NO	Obstacles Factors		Grades of Companies					Total
			Excellent	1st	2nd	3rd	4th	
			10	17	67	32	71	
1	Changing behavior and attitude	F	1	12	4	0	0	8.5%
		%	10	17.9	11.4	0	0	
2	Schedule and cost treated as the main priorities	**F**	0	16	11	4	32	31.5%
		%	0	23.8	31.4	23.5	45.1	
3	Emphasis on short term objects.	**F**	0	12	1	0	0	6.5%
		%	0	17.9	2.86	0	0	
4	Lack of education and training to drive the improvement process.	**F**	4	4	4	8	20	20%
		%	40	5.97	11.3	47.6	28.1	
5	Too much documents are required (lack of documentation ability	**F**	0	0	1	0	0	0.5%
		%	0	0	2.86	0	0	

6	Lack of top management commitment/ understanding	**F**	1	8	3	2	0	7%
		%	10	11.9	8.57	11.7	0	
7	Lack of employees commitment /understanding	**F**	1	0	0	0	0	0.5%
		%	10	0	0	0	0	
8	Tendency to cure symptom rather than get to the root cause of a problem	**F**	0	5	2	0	10	8.5%
		%	0	7.46	5.71	0	14.1	
9	Lack of expertise / resources in TQM	**F**	0	5	9	3	9	13%
		%	0	7.46	25.7	17.6	12.6	
10	Current tendering /bidding climate.	**F**	3	5	0	0	0	4%
		%	30	7.46	0	0	0	
	General Arithmetic Mean Value		1	6.7	3.5	1.7	7.1	Total 100%
	Chi-square Value		18	23.9	29.4	27.5	1125	

Table no 4 shows the arrangement of obstacles according to all categories shall be as follows; the dimension Schedule and cost treated as the main priorities obtained the first rank at 32 % whereas dimension Lack of education and training to drive the improvement process occupied the second obstacle has been faced by all construction companies with the value of 20%, followed by the obstacle lack of expertise / resources in TQM at 13% then followed by tendency to cure symptom rather than get to the root cause of a problem and changing behavior and attitude at 8% and lack of top management commitment/ understanding at 7% respectively, which means that those companies has facing terrible because of the lack of training and education moreover Lack of expertise / resources in TQM, in general all of the companies have not facing problems towards lack of employees commitments

Table 4 Ranking of Obstacles According all Grades of Companies.

Obstacles	**F a t e**	**F a r k**
Schedule and cost treated as the main priorities	3 2 %	1
Lack of education and training	2 0 %	2
Lack of expertise / resources in TQM	1 3	3

	%	
Tendency to cure symptom rather than get to the root	8%	4.5
Changing behavior and attitude	8%	4.5
Lack of top management commitment/ understanding	7%	6
Emphasis on short term objects.	6%	7
Current tendering /bidding climate	4%	8
lack of documentation ability	1%	9.5
Lack of employees commitment /understanding	1%	9.5
Total	100%	

3.2 Obstacles in Grade Excellent

It has been noticed from table 5 that the arrangement of difficulties in category excellent shall be as follows: according to weighs percentage of each variable(4,10, and 1,6 and 7 in the same level of significance respectively. the dimension lacks of education and training obtained the first rank at 40% whereas dimension current tendering occupied the second obstacle has been faced by this grade with the value of 30% ,followed by the obstacle changing behaviour and attitude ,lack of top management commitment at and lack of employees commitment at 10%. which means this grade has facing terrible because of the lack of training and education moreover the tendering situation are so bad, it is advised here to change the current quality procedures and policies and this confirmed what is said in this field by Page (2000).

Table 5 Obstacles arrangement in Grade excellent

Obstacles	Freq	Rate	Rank
Lack of education and training	4	40%	1
Current tendering /bidding climate	3	30%	2
Lack of top management commitment/ understanding	1	10%	4
Lack of employees commitment /understanding	1	10%	4
Changing behavior and attitude	1	10%	4
Schedule and cost treated as the main priorities	0	0%	8
Emphasis on short term objects.	0	0%	8
lack of documentation ability	0	0%	8
Tendency to cure symptom rather than get to the root	0	0%	8
Lack of expertise / resources in TQM	0	0%	8
Total	10		

3.3 Obstacles in Grade One

It has been noticed from table 6 that the arrangement of obstacles in category one shall be as follows: according to response rate of each obstacle

(2,1,3,6,8,9,10,4,5 and 7) respectively. whereas the dimension schedule and cost treated as the main priorities occupied the first rank at 24% , followed by obstacle changing behaviour and attitude and variable emphasis in short term projects at 18% and lack of top management commitment at 13% respectively, obstacles 8, 9 and10 obtained 7%, then followed by obstacle 4,5 and 7 at 6%, respectively, schedule and cost treated as the main priorities and changing behaviour and attitude are two of the basic critical factors which affect the production of organization which is confirmed by Dale et al.(2001)and Parzinger & Nath (2000).This shows that this grade has many obstacles which are retarding up the improvement of the organization.

Table 6 Obstacles arrangement in Grade One

Obstacles	**Freq**	**Rate**	**Rank**
Schedule and cost treated as the main priorities	16	24%	1
Changing behavior and attitude	12	18%	2.5
Emphasis on short term objects.	12	18%	2.5
Lack of top management commitment/ understanding	8	13%	4
Tendency to cure symptom rather than get to the root	5	7%	6
Lack of expertise / resources in TQM	5	7%	6
Current tendering /bidding climate	5	7%	6
Lack of education and training to drive the improvement process.	4	6%	8
Too much documents are required (lack of documentation ability	0	0%	9.5

Lack of employees commitment /understanding	0	0 %	9.5
Total	6.7	100 %	

3.4 Obstacles in Grade Two

It has been noticed from table 7 that the arrangement of difficulties in category two shall be as follows: according to respondents rate of each obstacle (2, 9, 1,4,6,8,3,5,7 and 10) respectively. whereas the dimension schedule and cost treated as the main priorities occupied the first rank at 31%, followed by obstacle lack of expertise and resources in TQM at 26% then followed by variable lack of education, training and changing of behaviour and attitude at 11%, employees attitude and behaviour is one of the critical factors which affect the production of organization which is confirmed by Dale et al.(2001).This shows that there are lots of problems in the estimating of the tasks and materials and lack of human and financial resources, which is confirmed by Ang, Davies & Finly (2001).

Table 7 Obstacles Arrangement in Grade Two

Obstacles	**Freq**	**Rate**	**Rank**
Schedule and cost treated as the main priorities	11	31%	1
Lack of expertise / resources in TQM	9	26%	2
Changing behavior and attitude	4	11%	3.5
Lack of education and training	4	11%	3.5
Lack of top management commitment/	3	9	5

understanding		%	
Tendency to cure symptom rather than get to the root	2	6 %	6
Emphasis on short term objects.	1	3 %	7.5
lack of documentation ability	1	3 %	7.5
Lack of employees commitment /understanding	0	0 %	9.5
Current tendering /bidding climate	0	0 %	9.5
Total	35	100%	

3.5 Obstacles in Grade Three

It has been noticed from table 8 that the arrangement of top difficulties in category three shall be as follows: according to weighs percentages of each variable (4, 2, 6 and 9) respectively, table 7 shows the obstacles order in grade three. whereas the dimension lack of education and training to drive the improvement process occupied the first rank at 47 % which shows that there is a critical obstacles in the training and education which confirmed by the concept of Rooney, Heuvel & Lorenzo (2002). Whereas dimension schedule and cost treated as the main priorities occupied the second obstacle has been faced by this grade with the value of 23 % ,the other obstacles in order are lack of top management commitment/ understanding at 18% and Lack of expertise / resources in TQM at 12% ,which means this grade have a series problem in the lack of education ,training and resources and lack of top management commitment and schedule and cost treated as the main priorities , this is exactly confirmed what said in the concept of commitment by Parzinger & Nath (2000).

Table 8 Obstacles arrangement in Grade Three

Obstacles	**Fr**	**F**	**Fa**

	e c	a t e	r k
Lack of education and training	8	4 7 %	1
Schedule and cost treated as the main priorities	4	2 3 %	2
Lack of top management commitment/ understanding	3	1 8 %	3
Lack of expertise / resources in TQM	2	1 2 %	4
Changing behavior and attitude	0	0 %	7 . 5
Emphasis on short term objects.	0	0 %	7 . 5
lack of documentation ability	0	0 %	7 . 5
Lack of employees commitment /understanding	0	0 %	7 . 5
Tendency to cure symptom rather than get to the root	0	0 %	7 . 5
Current tendering /bidding climate	0	0 %	7 . 5
Total	1 7	1 0 0 %	

Obstacles in Grade Four

Table 9 shows the arrangement of difficulties in category four shall be as follows: according to weightage percentage of each variable (2, 4, 8, 9, 1, 3, 5, 6,7and10) respectively and table 9 also shows the obstacles orders in grade four whereas the dimension schedule and cost occupied the first rank at 45% which shows that there are organizational obstacles in the timetables and assessing the general value of the project, whereas dimension lack of education and training to drive the improvement process occupied the second obstacle has been faced by this grade with the value of 28% which means this grade have a real situations because of the management, it is advised here to change the current organization structure and cultures to a well qualified managers to know how to fix the priorities in the organization and how to lead it towards the success which is confirmed by Evans & Dean (2003).

Table 9 Obstacles arrangement in Grade Four

Obstacles	Frec	Rate	Rank
Schedule and cost treated as the main priorities	32	45%	1
Lack of education and training	20	28%	2
Tendency to cure symptom rather than get to the root	10	14%	3
Lack of expertise / resources in TQM	9	13%	4
Changing behavior and attitude	0	%	7.5
Emphasis on short term objects.	0	%	7.5

lack of documentation ability	0	%	7.5
Lack of top management commitment/ understanding	0	%	7.5
Lack of employees commitment /understanding	0	%	7.5
Current tendering /bidding climate	0	%	7.5
Total	7.1	100%	

4.0 CONCLUSION

It is noted that the construction industry companies in Oman suffer from the presence of a number of obstacles in quality management, they vary depending on the category of the company, as the company means the category of capital, techniques and devices and other sources. It was noted that the fourth category are those most affected by these obstacles, followed by the second category, first and third then finally excellent respectively. This means that the fourth category and second category faces serious obstacles which prevented the development of these categories or retard the development of these companies. The category excellent and the first grade obtained the least share in the proportion of the existence of obstacles on quality management practices which may be due to the existence of rules and availability of financial and human resources (Ang, Davies & Finly 2001). It has been concluded that schedule, cost and lack of education and training to drive the improvement are the key obstacles faced by construction companies in Oman. In the excellent category, second and fourth face obstacles, such as lack of education and training to drive the improvement .The obstacle schedule and cost common to all groups except the excellent category.

This research found that the issue of obstacles to TQM implementation needs to change radically by changing the culture of leadership and staff by following the

rules and principles of total quality management for improvement of quality in construction in the Oman construction industry.

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