Relationship Between Total Quality Management Practices and Contractors Competitiveness

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ABSTRACT

Total quality management is basically about continuous organizational success through the employment of customer satisfaction and by basing it on the contribution of all the employees constantly working to enhance processes, services and products. The competitiveness concept has been defined in multitude of ways; in the individual firm's context, industries context and nation's context. The aim of the study is to identify the relationship between total quality management practices and contractors competitiveness. In order to achieve the study objective in the present study, a survey conducted. Questionnaires distributed to the contractor's managers in Saudi Arabia. The findings of the study turn out to be true; the study will contribute to both theory and practice. Through the present study, the researcher expects the findings to shed light on the research conducted hierarchical regression to analyse the relationships amongst different total quality management practices and practices of competitiveness.

Keywords: Relationship, Quality Management Practices, Competitiveness

1. INTRODUCTION

Total Quality Management (TQM) is considered as a philosophy that is basically about continuous organizational success through the employment of customer satisfaction and by basing it on the contribution of all the employees constantly working to enhance processes, services and products (Al-Asiri, 2004). In other words, it is an all-encompassing effort expended to bring about customer satisfaction through continuous improvement (Torbica, 1997). In addition, its definition has also been provided as satisfying or exceeding the satisfaction of the business stakeholders' needs and expectations (Steele, 1993). TQM's definition covers the entire critical success factors including aspects of leadership elements, hard elements and soft elements.

Several researchers including (Hill, 2008), also provide several definitions of TQM. Other researchers provided that TQM is a method to taming the usefulness, effectiveness and flexibility of a whole organization' requiring all aspects of planning, organizing and understanding every single activity. Still other researchers consider it as a process of constant improvement in the quality aspect of the entire processes, people, products and services within an organization and its core goal is to improve the value for the customers through continuous improvement of organizational processes and systems (Hill, 2008). Total quality is the inflexible and repeatedly refining exertion by everyone in an organization to comprehend, meet and exceed the expectations of customers (Hoang, 2009).

It can be argued that (Anderson *et al.*, 1994) study concentrated on organizations desirous of implementing TQM and not for those who aren't. Therefore, it may be

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said that the theory may be invalid for some organizations. Review of literature reveals that the initial effort expended to synthesize quality management theory from research based on Delphi's method was conducted by (Anderson *et al*., 1994). They included both managers and academic officers in their study relating to quality (Rungtusanatham *et al*., 1998; Fisher *et al*., 2005a; 2005b; Douglas and Frendendall, 2004; Singh *et al*., 2007).

The competitiveness concept has been defined in multitude of ways; in the individual firm's context, industries context and nation's context. Porter (1998) stated that "national prosperity is created and not inherited. It does not grow out of a nation's natural endowments, its labour pool, its interest rates, or its currency's value, as classical economics insists. A nation's competitiveness depends on the capacity of its industry to innovate and upgrade". Competitiveness at the firm level can be described as the firm's ability to thrive in a competitive environment with its rivals. Companies from all over the world gain competitive edge over their rivals withstanding the pressure and challenge. The existence of strong local rivals, aggressive local suppliers and demanding customers perpetuate the competitiveness of companies meeting them with the help of innovation.

According to Porter (2008) competitiveness remains a concept that is not well understood, despite the widespread acceptance of its importance. The term "competitiveness" stems from the Latin word "compete", meaning involvement in a business competition in the markets (Ambastha and Momaya, 2004). This definition is similar to the definition provided in the ODE 2002 which states that it is, "the ability to compete in markets for goods or services". This definition has its basis on the combination of price and quality. It states that, with equal quality as well as an established reputation, suppliers are competitive only if their prices are as low as those of rivals.

2. MATERIALS AND METHODS

2.1. Research Design

Research design is the blueprint of how the research should be conducted and it includes the methods used therein. In this stage, the concern lies in the purpose of collecting data, the type of data to be collected and the way of collection. This will assist the researcher in developing the theoretical framework.

Table 1. Reliability analysis of the total quality management practices factors

Variable	Factors	No. of items before reliability	No. of Items after reliability	Alpha before reliability	Alpha after reliability	Overall reliability
Total	ET	4	4	0.930	0.930	0.855
Total quality management practices	CF	6	4	0.566	0.851	
	IA	6	4	0.637	0.854	
	CI	3	3	0.806	0.806	
	PM	6	4	0.591	0.831	
	ER	8	7	0.669	0.759	
	TMC	6	4	0.388	0.951	
	MS	4	4	0.953	0.953	
Total	8	43	34			

Table 2. Reliability analysis of the competitiveness factors

Variable	Factors	No. of items before reliability	No. of items after reliability	Alpha before reliability	Alpha after reliability	Overall reliability
Competitiveness	D	5	5	0.912	0.912	0.806
	TE	6	6	0.848	0.848	
	CIM	3	3	0.909	0.909	
	TI	4	4	0.827	0.827	
	MC	4	4	0.874	0.874	
	FC	4	4	0.960	0.960	
	PMS	5	4	0.664	0.898	
	OHR	4	3	0.632	0.860	
Total	8	35	33			

2.2. Total Quality Management Practices (TQMP)

A reliability test is performed on the Total Quality Management Practices variable (TQMP).

The total quality management practices variable consisted of eight factors namely Education and Training (ET), Customer Focus (CF), Information and Analysis (IA), Continuous Improvement (CI), Process Management (PM), Employee Relation (ER), Top Management Commitment (TMC) and Management Supplier (MS).

In terms of Total Quality Management Practices (TQMP), the results of the tests are exhibited in **Table 1**. It is seen that all items for Education Training (ET), Continues Improvement (CI) and Management of Supplier (MS) are included. However, item CF5, CF6, IA5, IA6, PM5, PM6, ER8, TMC5 and TM6are not included because it makes the construct unreliable.

2.3. Competitiveness

The Competitiveness (C) consisted of eight factors, namely Description (D), Task Environment (TE), Corporate Image (CIM), Technology and Innovation (TI), Marketing and Capability (MC), Financial and Capability (FC), Project Management Skill (PMS) and Organization and Human Resource (OHR). They have five items, six items, three items, four items, four items, four items, five items and four items respectively.

In terms of Competitiveness factors, the results of the tests are exhibited in **Table 2**. It is seen that all items for Description (D), Task Environment (TE), Corporate Image (CIM), Technology and Innovation (TI), Marketing and Capability (MC), Financial and Capability (FC) are included. However, item PMS5 and OHR4 are not included because it makes the construct unreliable.

3. RESULTS

3.1. Factor Analysis for Total Quality Management Practices

Researchers such as Everitt and Dunn (1983) stated that the PCA with an Eigenvalue exceeding 1.0 is thought to be important and can be used to determine the factors to be extracted. The outcomes of the test in this research revealed eight factors with an Eigen value of more than 1. The screen plot in **Fig. 1** reveals that the plot declines steeply downward from one factor to seven factors before it gradually becomes an approximately horizontal line.
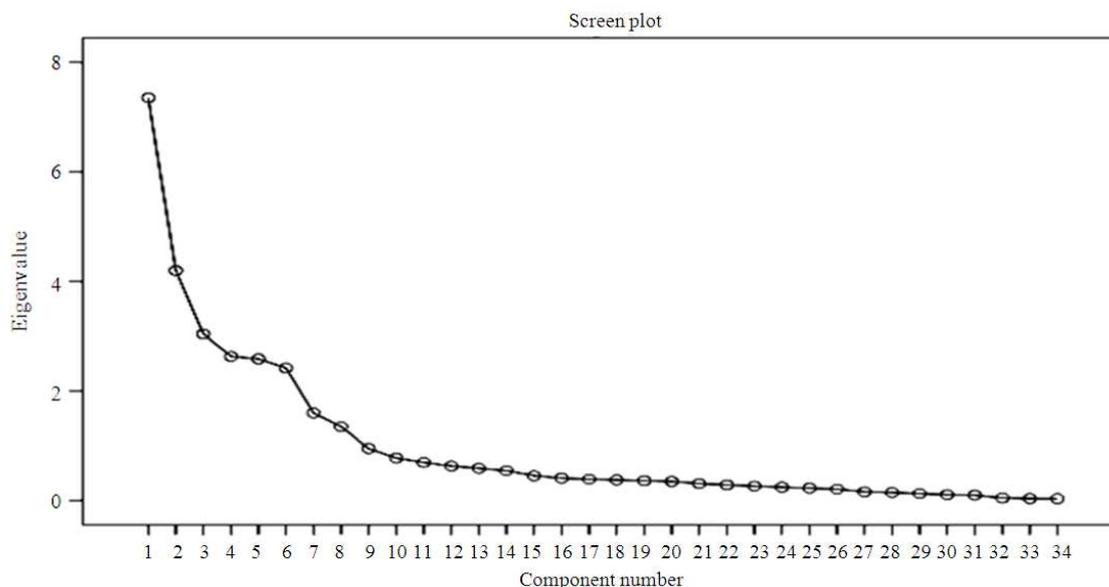

Fig. 1. Screen plot of quality management practices

4. DISCUSSION

4.1. Factor Analysis for the Competitiveness

The factor analysis in this study was run by using Principle Component Analysis (PCA) along with Varimax rotation in association with Kaiser Normalization practices (Anderson *et al.*, 2006). Everitt and Dunn (1983) state that the PCA with an Eigenvalue larger than 1.0 is believed to be important and can be used to ascertain the factors to be of an extract nature. In this research, the outcomes of the tests demonstrated eight factors with an Eigenvalue exceeding 1. The screen plot in **Fig. 2** reveals that the plot sloped steeply downward from one factor to eight factors before slowly becoming an approximately horizontal line.

4.2. Correlation Analysis

Correlation analysis can be defined as the statistical method that is adopted in describing the strengths and direction taken by the linear relationship amongst two different variables (Pallant, 2001).

It is evident from **Table 3** that total quality management practices are related with competitiveness. The correlation coefficient values relative to the examined relationships amongst the two was found to be 0.412, which can be termed as a positive moderate correlation at the given levels whereby ($p<0.01$). As a significant positive relationship exists, therefore, there is a support for this hypothesis.
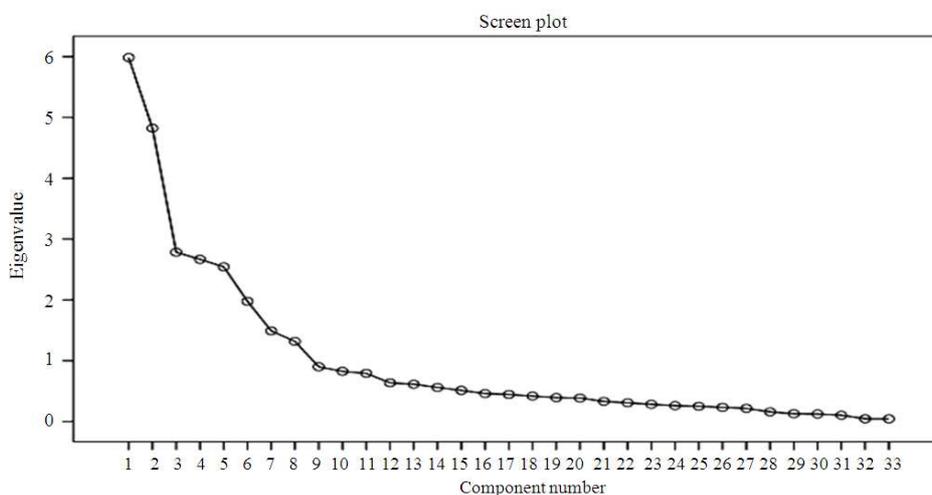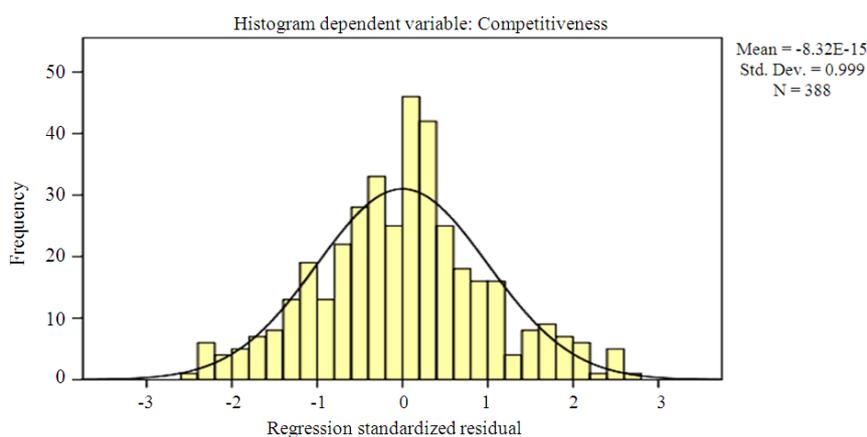
Fig. 2. Screen plot of competitiveness

Fig. 3. Normal probability plots (P-P plots) for total quality management practices as independent variable and competitiveness as dependent variable
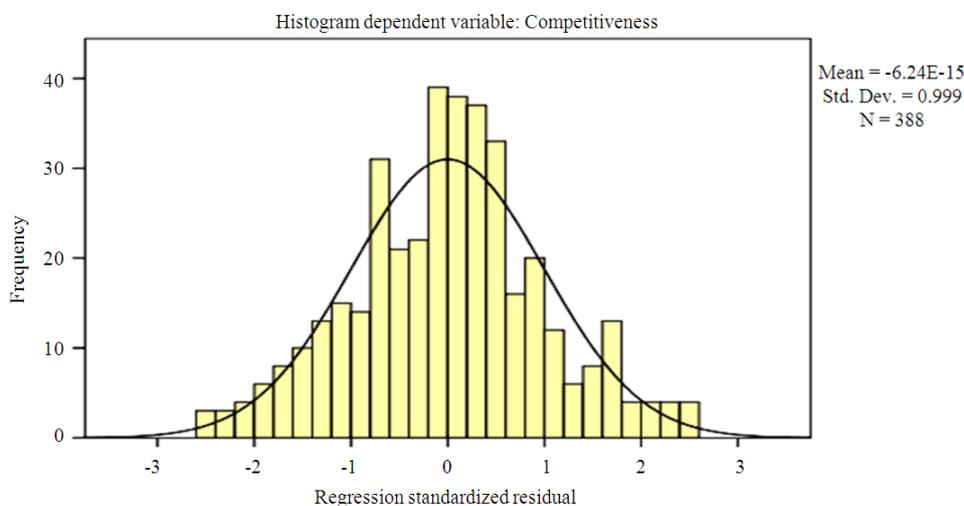
Fig. 4. Normal Probability Plots (P-P plots) for quality culture as independent variable and competitiveness as dependent variable

Table 3. Summary of correlations of variables

		Competitiveness	Total quality management practices	Quality culture
	Pearson Correlation	1.000	0.412**	0.353**
	Sig. (2-tailed)		0.000	0.000
Competitiveness	N	388.000	388.000	388.000
Total quality management practices	Pearson correlation	0.412**	1.000	0.762**
	Sig. (2-tailed)	0.000		0.000
	N	388.000	388.000	388.000
Quality culture	Pearson correlation	0.353**	0.762**	1.000
	Sig. (2-tailed)	0.000	0.000	
	N	388.000	388.000	388.000

Table 4. Simple linear regression analysis between Total Quality Management Practices (TQMP) as IV and Competitiveness as DV

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate		
Model summary						
1	0.412(a)	0.17	0.168	0.3348		
ANOVA(b)						
Model	Sum of Squares	df	Mean Square	F	P.1	
	8.859	1	8.859	79.018	0.000(a)	
	43.277	386	0.112			
	52,136	387				
Coefficients(a)						
Model		Unstandardized	S.zed			
		B	Std. Error	Beta	t	P.
1	(Constant)	2.536	0.161		14.63	0.000***
	TQMP	0.385	0.043	0.412	8.889	0.000***

*** p <0.001

4.3. Regression Analysis

A number of assumptions need to be checked before conducting multiple regression analysis. These assumptions are linked with normality, linearity, homoscedasticity, independence of errors terms and multicollinearity (Hair *et al.*, 1998; Pallant, 2001; Coakes and Steed, 2003). Normality was examined in the present study by using normal probability plots (P-P plots) as shown in **Fig. 3 and 4**. Examination of data was based on the above guidelines and is considered to be acceptable.

The coefficient of determination (R^2) measures the proportion of the total variance of the dependent variable about its mean that is explained by the independent or predictor variables (Hair *et al.*, 1998). The higher the value of R^2, the greater the explanatory power of the regression model. It is found that the regression model

R^2 value for the dependent variable total quality management practices is 0.170, meaning that 17% of the total variance in competitiveness are explained by the regression model. This value is considered good and thus the power of the regression model is good. This implies that the model is statistically significant (F = 7 9.018, p<0.001). In a short, referring to the data in **Table 4**, the regression model support hypothesis 1.

5. CONCLUSION

In a summary, this study has provided specific inputs relative to contractor competitiveness in Saudi Arabia. The researcher used a sample population of 388 contractors' managers in carrying out an exploratory factor analysis to determine the factor structure of instruments that had 92 items. The factors examined in this context were total quality management practices, quality culture and competitiveness. A test of reliability was also run in the context of all the interval scale variables in order to ascertain the extent to which they are free from casual errors.

In addition to the above, the research conducted hierarchical regression to analyze the relationships amongst different total quality management practices, quality culture and practices of competitiveness. In view of the outcomes that emerged from the research, it can be said that the hypothesis was supported the mediating effect of quality culture on the relationship between total quality management practices and competitiveness. The independent variable also revealed a pattern whereby they sufficiently contributed to the competitiveness.

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