Research Article

The Effect of Total Quality Management on Organizational Performance: Empirical Evidence from the Construction Sector in Sulaymaniyah City, Kurdistan Region – Iraq

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Abstract

This empirical study seeks to examine the effect of Total Quality Management characterized by (management-leadership, employee relations, supplier management, project design, training, quality data and reporting, process management, continuous improvement, and customer focus) via organizational performance in the sector of construction in Sulaymaniyah City - Kurdistan Region - Iraq. For conducting this study, the data was collected through primary sources using a survey questionnaire to collect data from (106) leaders, heads of departments, managers, and supervisors. The obtained data were analyzed using statistical analysis tools like SPSS and SEM. The results showed that all the principles of Total Quality Management have a significant positive impact on construction company performance. The proposed model showed an acceptable fit.

Keywords: Total Quality Management, Performance, Construction Companies, Managers, Supervisors.

1. Introduction

Due to competitive, environmental, economic globalization and technological changes, competition between firms has increased intensely. This leads firms to be more concerned about seeking a quality management concept to face competitive challenges and improve their performance. There are several quality management concepts, for example Total Quality Management, Lean Manufacturing (just in time), Business Process Reengineering, Six Sigma and others all of which aim to ensure quality competition. The current study focuses on Total Quality Management.

Deming, Juran and Feigenbaum, who are the founders of Total Quality Management, developed a new concept in the area of statistical quality control and quality assurance (Deming & Edwards, 1082). The theory was adopted in Japan in 1960 (Teoman & Ulengin, 2018). Total Quality Management (TQM) has been implemented in the construction industry in Japan since the 1970s (Arditi & Gunaydin, 1997). TQM started to affect the national business system in the 1980s and was seen as a "revolution in management" (Vouzas & Psychogios, 2007), which has been widely adopted in the construction sector in America since 1990 (Elghamrawy & Shibayama, 2008).

Ongoing consideration is given to Total Quality Management in developed countries such as USA, Japan, UK and other European countries, however, investigations of Total Quality Management are still limited in developing countries (Sadikoglu & Olcay, 2014; Baye & Raju, 2016; Othman et al., 2020). During the last few decades, the Total Quality

Management philosophy has been adopted successfully in different sectors such as services (Jaca & Psomas, 2015; Lam et al., 2011), education (Kanji &Wong, 1998), hospitality (Sripun & Ladkin, 2001; Camisón, 1999; Saunders & Graham, 1992; Xiaorong et al., 2013), health care (Short & Rahim, 1995; Rad, 2005), banking (Bilich & Neto, 2000; Vermeulen & Crous, 2000) and manufacturing (Öztas et al, 2004; Rahman & Bullock, 2005). Accordingly, researchers have suggested that implementing Total Quality Management in the construction industry can acquire similar benefits that have been obtained in other sectors (Pheng & Teo, 2004; Arditi & Gunaydin, 1997; Othman et al., 2020). Moreover, according to Oakland and Aldridge (1995) "if ever any industry needed to take up the concept of TQM, it is the construction industry".

The benefit of Total Quality Management practice in the construction industry can be embodied in decreasing costs of doing things right from the first time with no defect, higher efficiency, and lower waste of resources as well as time (Pheng & Teo, 2004; Sui Pheng & Ke-Wei, 1996; Harrington et al., 2012). Total Quality Management seeks employee job satisfaction and quality performance by emphasizing training, encouraging teamwork, improving employee relationships, and accepting their work for the first time without redo and rejection (Pheng & Teo, 2004; Sui Pheng & Ke-Wei, 1996; Haupt & Whiteman, 2003). Furthermore, Total Quality Management helps to achieve higher customer satisfaction by delivering high quality product or work (Kanji & Wong 1998; Wong, 1998; Haupt & Whiteman, 2003), obtaining a higher market share, competitive advantages, and a good reputation (Wong, 1998; Pheng & Teo, 2004). There is a progress in several construction companies that adopt Total Quality Management for their business operations (Kanji & Wong, 1998).

The relationship between TQM and organizational performance needs to be tested among various countries (Wong, 1999) and sectors (Hassan et al., 2012; Shafiq et al., 2019). However, the construction sector in the Kurdistan Region tries to follow the quality standards, but it still suffers from many restrictions that negatively affect a construction companies' outcomes. One of the main reasons for those problems is due to poor strategies and management practices (Othman, 2014). There is an ambiguity in the interest of these construction companies to recognize the importance of Total Quality Management outputs. Therefore, the study problem can be determined by the following question:

Does Total Quality Management affect organizational performance in the Kurdistan Region – Iraq?

The importance of this study links between two important subjects, which are Total Quality Management and organizational performance in the construction sector being considered as the only study in the Iraqi Kurdistan Region (according to the knowledge of researchers). The findings of this study will provide insightful knowledge about TQM from the perspective of the construction sector. This can help academics and quality practitioners who want to support and promote TQM in the construction sector.

2. Literature Review and Hypotheses

2.1. Total Quality Management

There is no uniform definition of TQM (Bouranta et al., 2017), however, there are numerous definitions provided from different viewpoints (Bay & Raju, 2016). TQM is a management philosophy, which is concerned about management of quality rather than quality of management (Evans & Lindsay, 2008) via integrating all individuals from top management, employees, suppliers to clients (Wilkinson & Witcher, 1993; Jaca & Psomas, 2015; Sadq, 2019) with functions and processes (Omachonu & Ross, 2004) in an organization through continuous quality improvement (Sadikoglu & Olcay, 2014) to meet customers' needs in the most competitive and effective ways (Harrington et al., 2012).

Chowdhury (2014) suggested that TQM is a management concept that lies in the application of quality principles in all departments of any organization. The principles used to measure TQM vary from one study to another. Fening et al. (2013) and Hoonakker et al. (2010) suggested translating TQM principles used in manufacturing and the construction sector. Saraph et al. (1989) identified eight factors of TQM in the manufacturing sector, namely: management-leadership, employee relations, supplier quality management, product/service design, training, quality data and reporting, process management, and the role of quality department. Kayank (2003) conducted a study in the USA manufacturing and service industry. He used seven elements of TQM, namely: management-leadership, employee relations, supplier quality management, product/service design, training, quality data and reporting and process management. Yasamis et al. (2002) indicated seven quality-attributes in the construction sector: leadership, employee, empowerment, partnership development, information and analysis, project management process, continuous improvement, client focus. Koh and Low (2010) identified six TQM principles for the construction sector: top management-leadership, people management, supplier management, organization and learning, quality information management, process management, continual improvement, and customer management. The above-mentioned studies, as well as studies of Das et al. (2008), Ammar et al. (2017) and Panuwatwanich and Nguyen (2017) were used as the basis for building TQM principles used in the current study: management-leadership, employee relations, supplier management, project design, training, quality data and reporting, process management, continual improvement, and customer focus.

2.2. Organizational Performance

Performance can be defined as a result of organizational operation to meet the setting goals (Lam et al., 2011; Ahmad et al., 2019). Various perspectives on performance have been analyzed in relation to TQM, for financial performance (Hendricks & Singhal, 2001; Eriksson & Hansson, 2003) non-financial performance (Demirbag et al., 2006) operational performance (Samson & Terziovski, 1999) innovation performance (Hung et al., 2011; Ooi et al., 2012; Ali et al., 2018), and employee performance (Shieh & Wang, 2006; Aljaf & Sadq, 2015). Other researchers studied multiple performance indicators. Kayank (2003) studied financial and market performance, inventory management performance and quality performance, whereas Sadikoglue and Zehir (2010) focused on operational performance, inventory management performance and employee performance, while Jaca and Psomas (2015) considered the dimension outcomes of financial performance, customer satisfaction, product/service quality performance and operational performance. There are limited empirical studies to measure performance in the construction sector in relation to TQM implementation therefore, current study adopts the measurement of a construction company's performances from the study of Panuchwanchi and Nguyen (2017) that defined Key Performance Indicators (KPIs) as quality of work, external customer satisfaction performance, safety, market share, effectiveness of planning, labor efficiency, rate of successful tenders or quality contractor selected, competency in the human resource management and risk control.

Organizational performance is a vital sign of the organization, showing how well activities within a process or the outputs of a process achieve a specific goal. The opportunity for human resources to enhance career skills and develop jobs is a key factor in motivating employees. Opportunity must be given to employees to grow and develop (Omer et al., 2017). The most significant factors in employee motivation are training and development programs (Ahmed & Faeq, 2020). This will express the opportunity to generate, motivate, devote, and grow workers who will promote both the organization as well as the employees through training and development programs (Sadq et al., 2020).

There is no single universal method that is able to utilize and assess the overall performance of the organization as clear as the literature on performance of organization that demonstrates a general consensus among theorists (Sadq, 2019). In addition, traditional financial methods are not accepted as the sole indicators for performance of the organization. The secret behind the success of many organizations is mostly because the employees continuously view methods to improve their work. Getting the employees to reach their full potential at work under stressful conditions is a tough challenge, but this can be achieved by motivating them (Sadq, 2019). Wali et al. (2016) states that the ultimate objective of a business organization is to maximize the wealth or financial performance for stakeholders. In general, the performance of the organization is indicated by efficiency (organization properly uses resources), effectiveness (achieves the organization objectives), employee satisfaction, quality of services or products, innovation and customers, and maintenance of a unique pool of human ability.

Predominantly, organizations seek to have an active and continuous enlargement through productivity, employee satisfaction and profit. The success or failure of an organization mainly pivots on the employees' capabilities (Khatab et al., 2019), while Sadq et al. (2020) pointed out that the role of workers in organizations can never be overemphasized. Consequently, applying adequate motivation of employees which will attain the desired organization's purpose must be effective. Moreover, an effective motivational method can be illustrated as the technique to influence and enhance employees towards the performance of an organization.

Based on the above literature, the following hypothesis based framework can be proposed in Figure 1.

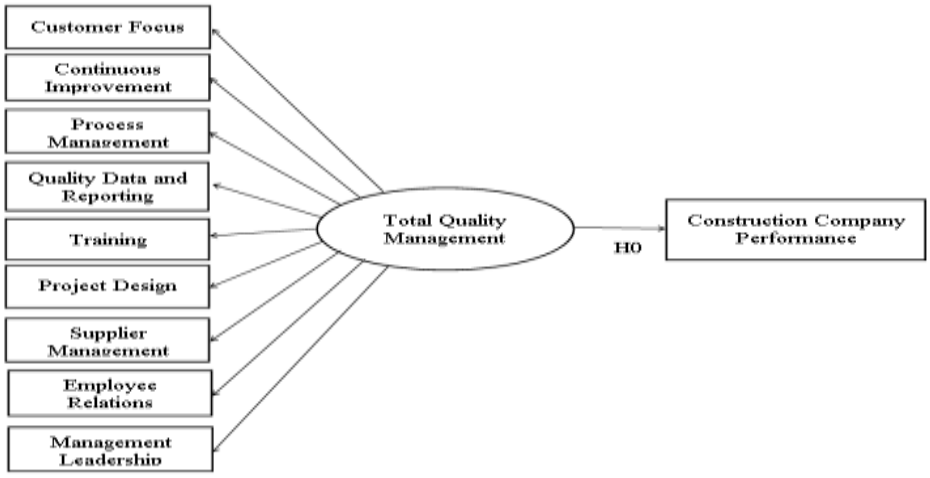

Figure 1. Theoretical framework (Source: proposed by researchers).

H0: There is a negative impact of Total Quality Management on organizational performance. This hypothesis is derived from the following sub-hypotheses:

H0 (a): Management-Leadership of TQM practice has a negative impact on construction company performance.

H0 (b): Employee Relations of TQM practice have a negative impact on construction company performance.

H0 (c): Supplier Management of TQM practice has a negative impact on construction company performance.

H0 (d): Project Design of TQM practice has a negative impact on construction company performance.

H0 (e): Training of TQM practice has a negative impact on construction company performance.

H0 (f): Quality Data and Reporting of TQM practice have a negative impact on construction company performance.

H0 (g): Process Management of TQM practice has a negative impact on construction company performance.

H0 (h): Continuous Improvement of TQM practice has a negative impact on construction company performance.

H0 (i): Customer Focus of TQM practice has a negative impact on construction company performance.

3. Methodology

3.1. Measurement Instrument

A survey questionnaire was used to collect primary data in order to complete the practical aspect of the study. The first section of the questionnaire contains the demographic information of the respondents namely age, gender, position, work experience, qualification, type and size of the company, as shown in Table 1. The second section contains 59 questions related to the study variables as shown in Table 2.

A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used. The Back translation method was also used to translate the questionnaire from English to Kurdish and Arabic.

SEM was used to test the hypothesis and examine the relationships between unobserved or multidimensional variables as generally leaner modeling (GLM) such as ANOVA or multiple regressions cannot be applied (Lei & Wu, 2007).

3.2. Sample Size and Data Collection

The target population of the current study consists of (leaders, heads of departments, top and middle managers, supervisors) working at the construction company located in Sulaymaniyah City/ Kurdistan Region- Iraq. At the time of conducting this study, there were (40) construction companies registered with the Board of Investment of Kurdistan-Iraq and had permission to operate in Sulaymaniyah City.

135 questionnaires were distributed among 25 companies out of which a total of 106 were usable. The usable questionnaire rate was 78%, which is consistent with the response rate provided by the study of Panuwatwanich and Nguyen (2017).

In order to avoid bias, the following steps were taken: firstly, informing questionnaire receivers by telephone, or a face-to-face conversation (Sadikoglu & Olcay, 2014). Secondly, sending questionnaires with a cover letter and using a face-to-face method for data collection (Baye & Raju, 2016; Sadikoglu & Olcay, 2014). Thirdly, obtaining the response after one month vis a face-to-face meeting.

A total of 60% of the participants were in the position of department heads, 38% of them have 10-19 years of work experience and 32% of them has 5-9 years of work experience. The majority of respondents, as many as 70% have a Bachelor's degree through which 83% of participants work in local companies, the rest work in international companies. 28% of the participants work in medium size companies that have 150-199 employees, while 31% of the participants work in companies which have above 200 employees. As shown in Table 1.

Table 1. Participant Demographic Data Analysis.

		Frequency	Percentage %
Gender	Male	85	80
	Female	21	20
	Total	**106**	**100**
Age	18- 30 Years	32	30
	31-40 Years	42	40
	41-50 Years	21	20
	51 Years and above	11	10
	Total	**106**	**100**
Position	Top executive	18	17
	Department head	64	60
	Other	24	23
	Total	**106**	**100**
Work Experience	Under 5 years	19	18
	5-9 years	34	32
	10-19 years	40	38
	Above 20 years	13	12
	Total	**106**	**100**
Qualification	NO Degree	10	9
	Diploma	15	14
	Bachelor Degree	74	70
	Masters and PhD	7	7
	Total	**106**	**100**
Type of the company	Local	88	83
	International	18	17
	Total	**106**	**100**
Size of the Company	Under 50 staff	8	8
	50-99	19	18
	100-149	16	15
	150-199	30	28
	Above 200	33	31
	Total	**106**	**100**

4. Data Analysis and Findings

4.1. Measurement Model

The Initial analysis for confirmatory factor analysis of items shows the standardized loadings more than 0.50 in Table 1. The overall model fit supported the measurement model ($\chi^2 = 36.91, df = 33, p - value = .293, \chi^2/df = 1.09$, RMSEA = .049, NFI = .90, TLI = .98, CFI = .99, IFI = .99). As reported in Table 2, in the CFA application, larger standardized loading estimates confirm that the indicators are strongly related to their associated constructs and are indications of construct validity (Hair et al., 2010). All loadings were greater than 0.50, which were significant. The average variance extracted (AVE) was also greater than 0.50. These findings collectively revealed that convergent validity was achieved (Fornell & Larcker, 1981). Discriminant validity was checked through Fornell and Larcker's (1981) method.

The AVE values between the continuous improvement and process management, employee relations, quality data and reporting, management-leadership, customer focus, supplier management, project design, training, construction company performance were greater than the squared correlation between the relevant latent constructs. CFA provides a way of assessing discriminant validity and according to Hair et al. (2010) comparing the average variance-extracted (AVE) values. Passing this test provides good evidence of discriminant validity (Hair et al., 2010). Convergent validity

of the CFA result has to be supported by item (α) reliability, construct reliability, variance extracted, and average variance extracted (Hair et al., 2010). All the factor loading results are found to be significant ($\varrho < 0.001$). In addition, construct reliability estimates ranging from 0.61 to 0.90 which are exceeding the critical value of 0.7 recommended by Hair et al. (2010) indicating it was satisfactory. In summary, it appeared that discriminant validity was achieved.

All measures were reliable because each of which has composite reliability (>0.60) as well as coefficient alpha (>0.70) according to Bagozzi and Yi, (1988), and Hair et al. (2010). The results for the reliability scores of measures are reported in Table 1, summary statistics and correlations of observed variables are given in Table 2.

Table 2. Scale items and their sources and confirmatory factor analysis results.

Scale Items	Factor loading	t-value
Management Leadership (AVE =. 91, CR =. 86, α =. 975, Skew. = -1.2, Kurt. = . 11) (Aammer et al., 2017)		
TQM 10		7.916
TQM 11 Organization's top management has objectives for quality	0.878	6.611
TQM 12	0.81	5.558
TQM 13	0.933	7.104
TQM 14	0.941	7.744
TQM 15 Major department heads within the organization participate in the quality improvement process	0.966	8.542
TQM 16	0.93	8.217
TQM 17		
Employee Relations (AVE =. 98, CR =. 74, α =. 986, Skew. = -. 99, Kurt. = -. 22) (Panuwatwanich and Nguyen, 2017)		
TQM 18 Communication links are established between employees and top management	0.993	6.697
TQM 19	0.979	6.575
TQM 20	0.971	6.262
TQM 21		
Supplier Management (AVE =. 86, CR =. 80, α = .944, Skew. = -. 92, Kurt. =. 22) (Koh & Low, 2010)		
TQM 22	0.877	11.593
TQM 23 implementation is considered in the project design process	0.873	11.593
TQM 24	0.794	10.176
TQM 25 Resources are available for employee education and training in our company	0.877	9.067
TQM 26	0.868	9.599
TQM 27		
Project Design (AVE =. 90, CR =. 78, α =. 958, Skew. = -1.1, Kurt. =. 22) (Kaynak, 2003)		
TQM 28		
TQM 29	0.848	8.565
TQM 30 Quality data are reported and recorded timely.	0.944	9.846
TQM 31	0.915	8.460
TQM 32	0.902	9.986
Training (AVE =. 96, CR = .79, α = .985, Skew. = -. 91, Kurt. = .22) (Das et al., 2008)		
TQM 33 Prevent faulty works from being worked on		
TQM 34	0.97	6.506
TQM 35	0.967	6.450

TQM 36	0.96	5.735
TQM 37	0.956	5.802
Quality Data and Reporting (AVE =. 93, CR =. 61, α =. 925, Skew. = -1.14, Kurt. = .75) Panuwatwanich and Nguyen (2017),		
TQM 38 Analyze performance and cost data to support improvement		
TQM 39	0.929	9.546
TQM 40	0.928	9.866
Process Management (AVE=. 88, CR =. 82, α = .960, Skew. = -1.02, Kurt. = .55) (Koh & Low, 2010)		
TQM 41 Adopt programs to find time cost losses in all processes		
TQM 42	0.885	8.169
TQM 43	0.848	8.928
TQM 44	0.802	6.738
TQM 45	0.928	7.278
TQM 46	0.924	7.177
TQM 47	0.909	6.705
Continuous Improvement (AVE =. 89, CR =. 83, α = .964, Skew. = -. 98, Kur. = .16) (Koh & Low ,2010)		
TQM 48	0.9	7.528
TQM 49	0.921	7.582
TQM 50	0.917	8.812
TQM 51 Number of complaints against your organizational work has reduced over the last five years.	0.899	7.693
TQM 52	0.906	7.779
TQM 53	0.807	4.596
TQM 54		
Customer Focus (AVE =. 91, CR =. 71, α =. 956, Skew. = - .72, Kurt. = -.41) (Das et al., 2008)		
TQM 55		
TQM 56	0.9	5.731
TQM 57	0.929	4.638
TQM 58	0.913	3.696
Construction Company Performance (AVE =. 93, CR =. 90, α =. 986, Skew. =-. 78, Kurt. = -.51) (Nguyen, 2014)		
CCP 59 Quality of work done by your organization is accepted by the client at the first time		
CCP 60	0.917	5.197
CCP 61	0.916	4.792
CCP 62	0.945	6.684
CCP 63 Number of projects managed/constructed by your organization is increasing.	0.946	6.008
CCP 64 The estimated cost and time to complete project work is not significantly different from the actual values	0.93	5.039
CCP 65	0.932	5.017
CCP 66	0.945	4.729
CCP 67	0.932	5.297
CCP 68 Risk management is applied effectively to projects	0.944	5.660
CCP 69	0.931	5.175

Model fit statistics: $\chi^2 = 36.91, df = 33, p - value = .293, \chi^2/df = 1.09$, RMSEA=.049, NFI=.90, TLI=.98, CFI=.99, IFI=.99
Note: All loading results are significant at the 0.01 level. AVE = Average variance extracted; CR = Composite reliability; α = Coefficient alpha; CFI = Comparative fit index; NFI = Normed fit index; IFI = Incremental-fit index, TLI = Tucker-Lewis index, RMSEA = Root mean square error of approximation

Testing the Hypotheses

The measurement model was subjected to confirmatory factor analysis for convergent and discriminant validity as well as composite reliability (e.g., Bagozzi & Yi, 1988; Fornell & Larcker, 1981; Hair et al., 2010). Skewness is ranged from (-1.18 to -0.719) and the values of kurtosis ranged from (-0.513 to 0.753), as reported in Table 2. This result suggests that the distribution of the data is considered normal (Field, 2013; Panuwatwanich et al., 2008).

The results in Figure 2 explain that each of continuous improvement ($\lambda_8 = .85, t = 7.84$) and process management ($\lambda_7 = 0.85, t = 8.47$) appear to be more reliable indicators, followed by employee relations ($\lambda_2 = 0.84, t = 6.51$), quality data and reporting ($\lambda_6 = 0.84, t = 10.45$), management leadership ($\lambda_1 = 0.83, t = 8.09$), customer focus ($\lambda_9 = 0.79, t = 4.96$), supplier management ($\lambda_3 = 0.76, t = 11.38$), project design ($\lambda_4 = 0.74, t = 10.23$), and training ($\lambda_5 = 0.74, t = 6.39$). The empirical data support hypothesis as TQM exerts a strong positive impact on CCP ($\beta = 0.86, t = 9.48$). In light of these results the null hypothesis is rejected.

The results reported in Figure 2 illustrate that TQM also influences construction company performance (z = 6.68), followed by continuous improvement (z = 6.53) and process management (z = 6.45), employee relations (z = 6.42), quality data and reporting (z = 6.23), customer focus (z =5.83), supplier management (z = 5.49), project design (5.21), and training (z = 5.17). The control variables do not exert any significant impacts on the study variables and do not lead to any statistical confounds. The results explain 75% of the variance in construction company performance (CCP).

The p-value of each principle of TQM is significant, thus it can be concluded that all nine principles are significantly related to the TQM, then the accuracy model can be satisfied when the variance proportion value of observed variables is greater than 0.50 (Koufteros, 1999). The variance proportion value of each observed variable has exceeded the critical value 0.50 and are ranged from (0.54 – 0.72).

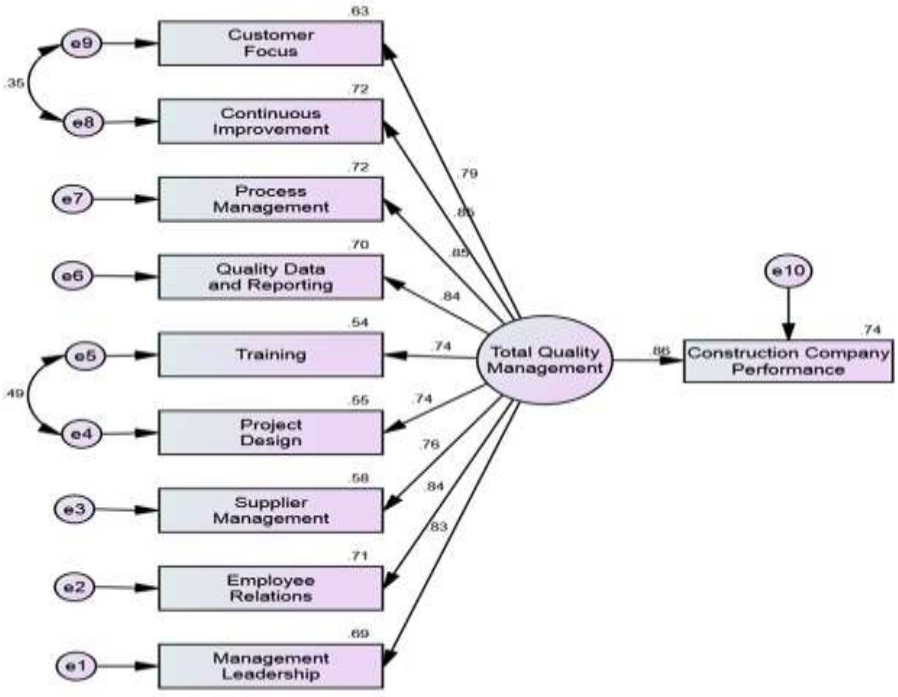

Figure 2. Structural model for the impact of TQM on Construction Company Performance.

Table 3. Summary statistics and correlations of observed variables.

	Mean	SD	ML	ER	SM	PD	T	QDR	PM	CI	CF	TQM	CCP
ML	3.96	1.22	1										
ER	3.81	1.29	0.67	1									
SM	3.95	.86	0.673	0.629	1								
PD	4.03	1.04	0.541	0.696	0.66	1							
T	3.67	1.08	0.566	0.633	0.664	0.83	1						
QDR	3.99	.98	0.678	0.78	0.784	0.765	0.784	1					
PM	3.83	1.01	0.751	0.726	0.763	0.742	0.745	0.881	1				
CI	3.81	1.06	0.782	0.775	0.715	0.67	0.684	0.829	0.814	1			
CF	3.54	1.13	0.702	0.725	0.58	0.56	0.572	0.713	0.709	0.841	1		
TQM	3.85	.93	0.855	0.846	0.829	0.814	0.818	0.913	0.92	0.923	0.825	1	
CCP	3.65	1.19	0.846	0.762	0.695	0.578	0.63	0.721	0.783	0.883	0.834	0.884	1

5. Discussion

The current study gathered data from leaders, heads of departments, managers and supervisors who work in the private construction companies. The result of the structural equation model indicates that those practices data fit to the model and reject the null hypothesis, and in turn, supports our research alternative hypothesis. The findings also support other studies in the literature that investigated the impact of TQM on organizational performance in different industries: manufacturing, service, hospitality, banking and education in both developed and developing countries (Nancy & Evangelos, 2016; Jaca & Psomas, 2015; Lam et al., 2011; Fotopoulos & Psomas, 2010; Yusuf et al., 2007; Rahman & Bullock, 2005; Kaynak, 2003), and studies conducted in the construction sector (Panuwatwanich & Nguye, 2017; Elghamrawy & Shibayama, 2008).

The findings of this study indicate an interesting pattern of the relationship between TQM principles and construction company performance. Continual improvement, process management and quality data reporting have the highest positive relationship with company performance supporting the study of Shafiq et al. (2019) who reported that hard TQM principles have a higher positive relationship with financial and non-financial performance. In the construction sector, employee relations has a crucial role in organizational success as most of the work is done via teamwork. In addition to this, the current study reports that training and supplier management have the weakest positive relationship with performance. As explained by Salaheldin (2009), training and supplier management as a tactical strategy have a weak positive relationship with financial and non-financial performance. The study by Rahman and Bullock (2005) reported that hard TQM elements affect organizational performance through supporting it by soft TQM elements, which is in line with current findings.

6. Conclusion

This study provides an empirical foundation for obtaining and improving construction company performance using TQM practices. Explanation of nature of TQM in developing countries, using practical implications as it explains TQM implementation in terms of management-leadership commitment, employee relations, supplier management, project design, training, quality data and reporting, process management, continuous improvement and customer focus as important factors that contribute towards the development of organizations working in Northern Iraq.

The findings of this study indicate that TQM has a strong positive impact on construction company performance, which supports the argument of TQM practices leading companies to achieve higher levels of performance, including the quality of work, external customer satisfaction, safety, market share, the effectiveness of planning, labor efficiency, the rate of successful tenders or quality contractor selected, competency in managing human resources, risk control, and manager's competency. Thus, this study shows that the construction industry can achieve similar benefits from TQM implementation as those obtained from other types of industries in both developed and developing countries. Managerial decisions to invest in TQM are supported by empirical results showing that TQM principles lead to improved performance.

7. Limitations and Future Research

The present study focused on the private construction companies and hence cannot be generalized to public construction organizations or other different sectors. To enchase the database for a generalization to allow comparisons, future studies may obtain data from other sectors. Cross-sectional comparisons should also be investigated. It is also suggested that the future studies may explore the role of moderating variables like organizational learning, change management and organizational culture in the relation between TQM and performance.

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