Original Research Article

Academic and Administrative Perceptions on Total Quality Management Practices

Abstract

Many studies in the field of TQM have been conducted in recent years. The majority of these studies have addressed the concept in manufacturing. Although few studies have considered the TQM in service sectors such as in the education section, none have considered the role of subculture in implementing TQM practices. This study aims to fill this gap by highlighting the role of subculture in the adoption of TQM practices. The study uses a questionnaire adapted from previous studies that were sent to 399 staff at the Community College of Qatar. The returned questionnaires represent 35% of the sample. The data were analysed by SPSS 20 version. After ensuring the reliability and validity of the data, an independent-samples t-test was conducted to determine if there is any difference between the two groups (academic and administrative staff) with regard to the implementation of TQM practices. The results revealed that the two groups agree only on the implementation of leadership and vision practice. The analysis showed a significant difference between the academic and administrative staff in regard to other dimensions of TQM implementation (quality management system recognition, stakeholders focus, and measuring and continuous improvement). The results open the door for future studies to consider the different cultures within the institution when studying or applying the concept of TQM.

Keywords: TQM practices, academician, administrative, differences.

1. Introduction

TQM is a systematic quality improvement approach for firm-wide management to improve performance in terms of quality, productivity, customer satisfaction, and profitability (Lemak, Reed & Satish, 1997; Mukhopadhyay, 2020; Sadikoglu & Zehir, 2010). The concept has attracted the attention of many researchers from different areas. The focus of this research was on using TQM as a tool for maintaining competitive advantage and ensuring the overall effectiveness in the manufacturing sector (Ahmed & Ferdousi, 2020; Alsughayir, 2014; Motwani & Kumar, 1997). Nevertheless, there is still a concern as to whether the concept is beneficial for the organizations or not. For instance, some organizations consider TQM as something critical to competitive advantages while others believe that TQM is merely a management fad (Hellsten & Klefsjö, 2000).

Additionally, TQM is a vague concept. As highlighted by Van der Wiele and Brown (1998), some companies consider themselves TQM organizations but they are only trying to create an image to market their brand and improve their image, while other organizations do not describe themselves as TQM but practice many principles related to TQM using their own terms. The concept might vary even within the same organization. For instance, Jaeger and Adair (2016) compared the total group of project managers with the total group of quality managers' representatives and found that the two groups disagree on their perception of the most important TQM benefit.

Although TQM practices have been discussed at length in the literature, the majority of studies were industry-oriented, (e.g.. CuaMcKone & Schroeder, 2001; Howard & Foster, 1999; Iqbal, Huq & Bhutta, 2018; Imran, Hamid & Aziz, 2018; Kaynak, 2003; Youssef & Youssef, 2018; Zatzick, Moliterno & Fang, 2012), and only a few studies

have been conducted in the educational field (Karageorgos, Kriemadis, Travlos & Kokaridas, 2021; Kanji, Malek & Tambi, 1999; Largosen, Seyed Hashemi & Leitner, 2004; Motwani & Kumar, 1997; Shauchenka & Busłowska, 2010; Psomas, Psomas, Antony & Antony, 2017). There are calls for the applicability of TQM in educational institutions. The literature indicates that there is a need for TQM in educational institutions (Azizov, 2022; Motwani & Kumar, 1997; Jasti, Venkateswaran, Kota & Sangwan, 2021; Kwarteng, 2021). Consequently, the concept has made its way into higher education institutions (HEIs) in many developed countries. For instance, the quality of education became "the heart of education that influences what students learn, how well they learn, and what benefits they get from their education" (Khurniawan, Sailah, Muljono, Indriyanto & Maarif, 2020, p 45)

In terms of practice, many higher educational institutions started implementing TQM in the early 1990s and have been successful. In UK higher education, the progress of TQM is rather slow, with examples represented by only a few new universities. These institutions have benefited from a TQM process similar to their counterparts in the US, such as improved student performance, better services, reduced costs, and customer satisfaction (Nasim, Sikander & Tian, 2020; Kanji, Malek, & Tambi, 1999).

Achieving the mission of any institution relies on multiple resources used by this institution. In the educational field, the administrators and academician staff are considered to be among the resources that play major roles in higher education institutions in full filling their mission, research advancement, and public services (Kuo, 2009). Although they usually behave toward each other by expressing a high degree of respect for their contributions, some argue that the two groups often lack sufficient appreciation of each other's job and they consider each other as (opposing camps) on campus (Holton & Philips, 1995). This could be influenced by the organizational culture or other related factors (Martínez-Lorente, Dewhurst & Dale, 1998).

Kuo (2009) mentioned that academic and administrative staff could be considered as two cultural organizations that communicate and interact with each other regularly. The difference between the two cultures might raise a degree of conflict between academic and administrative staff.

The conflict has been addressed in the research on organizational conflict and attributed to that differences in individual personalities, values, goals, and interests contribute to conflict, as do subunit differences in cultures, values, goals, interests, and opinions about the proper allocation of organizational resources (Hearn & Anderson, 2002). Additionally, different jobs and activities create separate and distinct cultures which might affect the way used to sustain and survive (Holton & Philips, 1995; Kuo, 2009). Many researchers agree that TQM needs an organizational culture where all employees are concerned with quality and want to produce quality products (Reed, Lemak & Mero, 2000; Ugboro & Obeng, 2000). Therefore, the question that arises here is how does each group consider and perceive the implementation of TQM practices?

2. Research methodology

The study adopts a survey questionnaire design using an email survey. The email survey requires that the respondents have email access and the researcher has access to the targeted network (Hair et al., 2007; Thach, 1995;

Watson, 1998). All CCQ staff have valid and accessible email addresses. Therefore, the email survey is appropriate for this study.

The questionnaire is adopted from previous related literature to measure the variables of this study. It contains two sections. The first section represents the sample characteristics (Gender, position, experience, and qualification), while the second section covers the items of TQM. Total quality management implementation will be measured using 64 items adopted from Almurshidee (2017). The respondents are asked to rate the extent to which they agree/disagree with the statements of the questionnaire on a five-point Likert scale ranging from1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly agree).

Additionally, the study uses exploratory factor analysis to identify the most important factors that form the TQM practices. Factor analysis is the most commonly used test to determine the construct validity of the data (Bhattacherjee, 2012; Pallant, 2011; Sekaran, 2006; Sekaran & Bougie, 2009). It takes a large set of variables and looks for a way the data may be "reduced" or summarised using a smaller set of factors or components (Pallant, 2011). The study applies the independent-samples t-test to investigate if there are any differences between the two groups.

3. Analyses and results of the study

Analyzing the data requires that it reflects the phenomena under study. Screening the data considers aspects such as the response rate, non-response bias, and outliers. All previous tests were conducted, and data validity and reliability are confirmed. The following sections discuss the results of analyzing the data.

There was a legitimate concern as to whether non-respondents did not respond due to a systematic reason which might raise a question about the validity of the results (Bhattacherjee, 2012). As Armstrong and Overton (1977) recommended, the study considered the last respondents as a prediction of the non-respondents for cases in which there were a priori grounds. A Non-response bias was tested using SPSS version (18). The result showed that there were small deviations between the early and late respondents. Such a result reduced the probability of the existence of a systematic reason for the non-respondents (Roscoe, 1975; Armstrong & Overton, 1977; Bhattacherjee, 2012).

Table 1
Descriptive Statistics of Response Bias

	Response bias	N	Mean	Std. Deviation
TQM1	Early response	66	3.1797	.95511
	Late response	72	3.1993	.92771
TQM2	Early response	66	3.3000	1.01727
	Late response	72	3.4541	.87006
TQM3	Early response	66	3.3625	.93317
	Late response	72	3.3243	1.02886

TQM4	Early response	66	3.3375	.90081
	Late response	72	3.3243	.91330

In addition, Armstrong and Overton (1977), Hair et al., (2006), and Bluman (2011) suggested using the p-value to determine if there are any differences between the two samples (early and late). An independent-samples t-test was conducted to investigate the differences between the early and late respondents. The results showed that the p-value was greater than 0.05 for all continuous variables, which indicated that there were no systematic differences between the early and late respondents.

Table 2.
An Independent-sample t-test (response bias)

Continues variables	Levene's Test for Equality of Variances	
	F	Sig. (*p*-value)
TQM recognition	0.026	0.871
Stakeholders focus	1.204	0.276
Leadership and vision	0.408	0.525
Measuring and continues improvement	0.071	0.791

3.1 Response rate

After using the reminders and follow-up by email, 138 questionnaires were returned, which represented a response rate of 35% of the sample of the study. According to Bhattacherjee (2012), a response rate of 15-20% is typical for mail survey (Bhattacherjee, 2012). Therefore, the response rate of 35% used in this study can be considered a good response rate, specifically with respect to developing countries in which the response rate is lower than that of developed countries (World Bank, 1997). Additionally, the sample size of 138 can be considered enough, according to the rule of thumb of Hair, Black, Babin, Andersen and Tatham (2010), who said that for maintaining power at 0.80 in multiple regressions, a sample size of 50 is required and preferably 100 observations for most research situations. The amount and proportion of the distributed and returned questionnaires are elaborated in Table 3 below.

Table 3 ***Response Rate of the Survey Study***

Questionnaires	Rate
Distributed questionnaires	399
Returned and questionnaires	138
The response rate of the sample	(138/399) = 35%

In addition to the points noted above, for Arabic countries, Rettab (2009) used a response rate of 13% to study corporate social responsibility in Dubai. Such a case might give strong evidence that the response rate used in this study is large enough to analyse the data. Additionally, Roscoe (1975) recommended that a sample size larger than 30 and less than 500 was appropriate for most researchers. Tables 4, 5, 6 and 7 show the characteristics of the sample included in this study.

3.2 Characteristics of the sample

The questionnaire was sent to the sample population to be answered by fullfull-tim employees at CCQ. As mentioned earlier, only 138 employees returned their questionnaires. The respondents were classified according to their gender, job, qualification and, experience. Tables 4, 5, 6 and 7 show the characteristics of the sample included in this study.

Table 4

Gender of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	72	52.17	52.17	52.7
Female	66	47.83	47.83	100.0
Total	138	100.0	100.0	

Table 5

Job of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Academician	66	47.83	47.83	47.83
Administrative	72	52.17	52.17	100.0
Total	138	100.0	100.0	

Table 6

Qualification of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Phd and above	38	27.5	27.5	27.5
Master	32	23.2	23.2	50.7

Diploma	22	15.9	15.9	66.7
Others	46	33.3	33.3	100.0
Total	138	100.0	100.0	

Table 7

Experience of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than one year	36	26.1	26.1	26.1
1year to less than 5 years	60	43.5	43.5	69.6
5 years to less than 10 years	42	30.4	30.4	100.0
Total	138	100.0	100.0	

3.3. Factor analysis for TMQ practices

Table 1 illustrates the results of factor analysis. To determine whether factor analysis was appropriate for TQM, KMO and Bartlett tests were applied. The results in Table 8 indicate that the KMO measure for the items has a value of 0.850 which indicated meritorious adequacy (Hair et al., 2010), and thus was appropriate for using factor analysis. The value of Bartlett test was also very large (3438.500) and its associated significance level is very low (0.000). Both the KMO measure and the Bartlett test of Sphericity results showed that the items used in the instrument met the conditions for factor analysis. This meant that factor analysis could be applied to the variable.

Table 8

KMO and Bartlett's Test for TQM Practices.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.850
Bartlett's Test of Sphericity	Approx. Chi-Square	3438.500
	df	253
	Sig.	.000

According to the rule of thumb of Hair et al. (2010), for practical significance, the factor loadings should have values greater than 0.50. They recommended that the sample size could be a determinant of the accepted value of factor loading. In other words, when the sample size was small, a higher value is required for significant factor loadings. Table 9 summarises the relationship between sample size and factor loadings values according to Hair et al. (2010).

Table 9

The Relationship between Sample Size and Factor Loadings Values

Factor loading	Sample size needed for significance
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100
0.60	85
0.65	70
0.70	60
0.75	50

Source: Hair, et al. (2010: p.116)

Following the criteria listed in Table 9, the factor loading values for the analysis in this study should be higher than 0.50 because of the sample size s 138. Therefore, items exhibiting low factor loadings (< 0.50), high cross-loadings (> 0.50), or low communalities (< 0.30) were candidates for elimination (Hair et al., 2010). Conducting a factor analysis resulted in four factors that explained variance of 75.095%. These factors were quality management system recognition (8 items), stakeholders focus (5 items), leadership and vision (5 items), and measuring and continues improvement (5 items). Some items were deleted due to having either a low factor loading, low communalities, or high cross-loading (for the loading of items, refer to Table 10).

Table 10

Rotated Component Matrix[a]

Dimensions	Code	Factor analysis				Cronbach alpha	Descriptive statistics	
		1	2	3	4		Mean	Std
Quality management	Q35	.820				0.942	3.19	1.102
	Q47	.775						

system recognition	Q46	.766			
	Q38	.764			
	Q21	.715			
	Q40	.694			
	Q18	.625			
	Q27	.592			
Stakeholders focus	Q64	.851	0.883	3.384	1.1056
	Q63	.817			
	Q57	.766			
	Q60	.757			
	Q61	.737			
Measuring and continues improvement	Q4	.784	0.981	3.328	1.0696
	Q1	.740			
	Q2	.695			
	Q16	.692			
	Q53	.540			
Leadership and vision	Q34	.758	0.873	3.342	1.1188
	Q24	.636			
	Q51	.628			
	Q49	.606			
	Q43	.576			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalisation.
a. Rotation converged in seven iterations.

4. T-Test for the difference between groups (Academic and administrative staff)

This paper investigates for differences between academic and administrative staff in their perceptions of the implementation of TQM practices. The study uses the t-test method to identify such differences which resulted in the following:

Table 11
Group statistics

	Job	N	Mean	Std. Deviation	Std. Error Mean
TQMRECOGN	Academician	66	3.5322	1.01368	.12478
	Administrative	72	2.8472	.72500	.08544

LEADVISION	Academician	66	3.2909	1.10115	.13554
	Administrative	72	3.4194	.83052	.09788
MEASURIMPROV	Academician	66	3.6242	.85899	.10573
	Administrative	72	3.0806	.97499	.11490
STAKEFOCUS	Academician	66	3.4818	.92552	.11392
	Administrative	72	3.1583	.85246	.10046

An independent-samples t-test was conducted to compare perceptions of implementing TQM practices of the academic and administrative staff of CCQ.

Table 12
An independent-samples t-test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
	Equal variances	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
TQMRECOGN	Assumed	18.145	.000	4.594	136	.000	.68497
	Not assumed			4.529	116.749	.000	.68497
LEADVISION	Assumed	11.817	.001	-.778	136	.438	-.12854
	Not assumed			-.769	120.473	.444	-.12854
MEASURIMPROV	Assumed	.114	.736	3.463	136	.001	.54369
	Not assumed			3.482	135.795	.001	.54369
STAKEFOCUS	Assumed	.111	.740	2.137	136	.034	.32348
	Not assumed			2.130	132.208	.035	.32348

The test indicated different results. First, in term of leadership and vision, there was an insignificant difference between academicians (M=3.2909, SD=1.10115) and administrative (M=3.4194, SD=0.83052), p=.0438 (p >0.05). However, the results of other TQM practices show differences between the perceptions of the two groups. First, in the TQM recognition dimension, there was a significant difference between academicians (M=3.5322, SD=1.10368) and administrative (M=2.8472, SD=0.72500), p=.000 (p < 0.05). Second, in the measuring and continuous improvement dimension, there was a significant difference between academicians (M=3.6242, SD=1.85899) and administrative (M=3.0806, SD=0.97499), p=.001 (p < 0.05). Third, with regard to the stakeholders' focus dimension, there was a significant difference between academicians (M=3.4818, SD=1.92552) and administrative (M=3.1583, SD=0.85246), p=.034 (p < 0.05)

The result of t-test shows that academic and administrative staff have different perceptions of the implementation of TQM practices except for leadership and vision. Such results could be indicators that CCQ management has succeeded in integrating its leadership and vision into the perceptions of all staff. However, the result clearly indicates that both groups perceive the implementation of other practices differently.

5. Conclusion

The study investigates differences between academic and administrative staff regarding the implementation of TQM practices in the Community College of Qatar. Such an issue has been widely neglected in the previous literature. The study relies on the call that academic and administrative staff reflect two cultures within the organization. Therefore, their perceptions might be different due to their types of activities.

Using a self-reported questionnaire, the data has been collected from 66 academicians and 72 administrative staff. The result of the independent-samples t-test revealed that both groups have the same perception with regard to leadership and vision implementation as a dimension of TQM. However, the groups have different perceptions regarding the implementation of other dimensions of TQM practices (recognition of TQM, measurement and continues improvement practices and stakeholder focus). The results support previous studies that organisational culture plays a major role in implementing TQM (Martínez-Lorente, Dewhurst & Dale, 1998; Reed, Lemak & Mero, 2000; Ugboro & Obeng, 2000).

This is the first study to consider the role of subculture in influencing the implementation of TQM. Doing so will help decision-makers in choosing the right practices that fit with each group. Additionally, researchers have to rethink about implementing a new approach to study TQM, and the difference in the results of previous studies might be because they have ignored the difference in the subcultures and their roles in determining the effects of TQM practices on different outcomes.

Although this study provides many contributions to the field of TQM, it suffers from some limitations. Despite its contributions, the paper has several limitations that should be taken into consideration. First, the study used a self-reported questionnaire filled in by staff in TQM and, therefore, the survey data might be subject to social desirability bias (Sharma, 2001; Baba, 2004). Second, since this study was conducted in Qatar, which is considered a developing country, caution should be taken when generalizing the results of the study, and the results may be generalized only to a similar environment and stage of development. Finally, although 168 respondents can represent an acceptable sample size for this type of study, future studies should increase the sample size.

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