The mediating influence of organisational climate on the relationship between strategic leadership and quality management practice in Egypt public university.

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Abstract
The effectiveness of quality management initiatives resulting in sustainable competitive advantage and enhanced business performance has been a major subject of interest for businesses and academia alike. Quality management literature regularly refers to the importance of leadership**.** Nonetheless**,** few studies have been done to investigate the relationship between strategic leadership and quality management practice in Egypt context. This study examined the relationship between strategic leadership and quality management practice at Cairo University in Egypt. The study also examined the mediating effect of organisational climate on these relationships. This study adapted and integrated the critical success factor of quality management with SLEQ of organisational climate and individual characteristics of Strategic leadership. The cross-sectional survey method was applied in the data collection process. The instruments used to consist of four parts. A total of 150 respondents involving academic staff from the faculty of Cairo University. Quantitative data were analysed by SMART PLS,3 to measure the study hypothesis. While the Statistical Package for Social Science (SPSS),26 used to identify the Profile of respondents. Results of the study revealed that strategic leadership has a significant relationship with quality management practices. Also, the results showed that organisational climate has a mediating effect on the relationship between strategic leadership and quality management practices. Based on the results, it was proposed that universities hire leaders with a strategic style. Accordingly, approaches to strategic leadership practices, organisational climate, and quality management practices warrant due attention by the stakeholders in every stage of educational management.

Keywords: Strategic leadership, Organisational climate, Quality management practices, public universities

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1. Introduction

Higher education is the primary tool for building human capabilities and gaining the knowledge necessary to develop and qualify an individual to meet the requirements of the labor market fully (Sergeeva et al.,2018). This is true in large the quality of HE is one of the most significant aspects of the creation of knowledge, human resource development, and social force for any country (Nadim & Al-Hinai, 2016). In this regard, Marginson (2016) points out that to overcome current challenges, many countries around the globe are now moving towards mass higher education.

It is obvious that the role of HE in stimulating national economic growth and the value of international students to national economies exacerbates the need to ensure quality management practice within the higher education system, These forces demand that quality management practice processes are both rigorous and transparent and that quality enhancement initiatives are firmly embedded in any quality management program in HE (Adetunji, 2015& O'Sullivan, 2016). In light of that, Spanbauer (1995) the leaders of HEIs should monitor the ways that resources are used to bring about the changes necessary for the improvement of education. Leaders should be assured that any resource investment is in line with the improvement of quality education (Aly & Akpovi, 2001).

Khan (2011) and Donate and de Pablo (2015) argue that every organisation's main focus is for top management as a tool for competitive and business practice, which provides a clear direction to employees' satisfaction. Therefore, Dyer and Dyer (2017) mentioned strategic leadership has a great significance in developing the learning outcomes of

higher education institutions where these institutions face multiple challenges considering changes of the times imposed on them to bring about continuous change in line with the competitive environment, and this challenge requires strategic leadership capable of sustainability. Thus, the critical contribution of QMP, such as the strategic leadership to organisational outcomes, has been recognised to the extent that it has become one of the key research areas in the field of education management (Kharub & Sharma, 2016). Research by Cho; Thiagarajan; Chong; Perkins and White (2017) and Alayoubi; Al Shobaki and Abu-Naser (2020) on quality management practice and organisational performance have detected that improvement in organisational performance depends on their strategic leadership ability and effectiveness. Nevertheless, most of the previous studies have provided numerous positive and negative findings that have led researchers in the field of education management to conclude that more empirical studies are needed to determine and confirm these findings (Aboudahr, 2018; Gleason,2020; Ameen, Yousef Sandhu & Hussain Rana,2019; Sfakianaki, Matsiori, Giannias & Sevdali,2018; van Assen,2018; Ololube, Agbor& Agabi,2017). Recent studies under the crises in the field of higher education in Egypt have emphasised the necessity for strategic leadership, which is characterised by the ability to think and plan an effective strategy (Khalil,2017).

There is a considerable amount of research on the antecedents and the results of organisational climate, strategic leadership, and quality management practice. For instance, Psomas and Antony (2017) stated that QM factors could lead to success and improved higher education. Furthermore, Hughes, Lee, Tian, Newman, AND Legood (2018) demonstrated that in view of strategic leadership prominent roles within organisations, analysing the effect of leadership on organisations, where leaders are uniquely able to understand environmental patterns and changes to launch creative initiatives to identify threats and respond to crises and achieve organisational efficiency.

However, the implementation of QM practices in service organisations is not always as effective as that in manufacturing organisations; therefore, studies on QM in service organisations related to the production context are limited (Psomas et al., 2017). hence, Successful implementation of QM requires top management commitment, employee engagement, empowerment, customer focus and continuous improvement, organisational-wide training for QM, and increased communication (Tuomi et al. 2013). Also, Azoz (2018); Sunder (2016), and Haerizadeh (2019) and accentuated that for institutions to achieve quality in education, it is necessary to support higher management to achieve the desired goals and to involve all workers in areas of work such as planning, implementation, problem-solving and improvement processes, in addition to creating an appropriate work environment for the practice of quality management

Accordingly, The practice of quality management requires the availability of characteristics and requirements the most important of these requirements is providing the appropriate organisational climate for the practice and leader should strive to provide adequate support and assistance for teamwork cooperation (Saffar & Obeidat, 2020; Msallam, Al Shobaki & Abu-Naser, 2020). Nonetheless, this study will expand the field of knowledge in the field of education by investigating the mediating influence of organisational climate on the relationship between strategic leadership and quality management practice in Egypt's public university. Similarly, the unique methodology shall also include a diverse range of leaders, climate, and quality issues absent in existing literature. Hence, it becomes imperative to address existing gaps in the literature by searching for quality management practices, to ensure continuous improvement among public universities in Egypt to access high-quality education.

2. Literature Review and Hypothesis

Researchers have consistently proven the significant relationship between leadership and quality management practice in higher education institutions. However, Several institutions that failed to adopt QM or faced difficulties in their implementation were the result of the inability of management leaders to change the prevailing organisational culture and achieve the transformation of total quality by prompting those in charge of these institutions and others interested in change to re-conceptualise leadership methods and search for leadership skills, consciously aware of the importance of quality and how to plan it (James, James & Potter, 2017; Sperber, & Linder, 2018).

Also, the literature suggests that many quality efforts do not reach their full potential due to insufficient understanding of the human dimension (Dahlgaard-

Park, 2011). FarajAllah et al. (2018) discovered that leadership and quality are two interrelated concepts that cannot be separated from each other. Also, Deeboonmee and Ariratana (2014) emphasised that leadership plays an important role in managing education quality. The study result of Lasrado, (2015) supported that the leadership and 'soft side' of quality need to be better managed for organisational performance and QM proponents believe soft aspects of QM are essential to the success of QM Furthermore, Aboudahr and Bin Mohamad (2020) indicated that leadership is an important factor in administration, which greatly enhances work effectiveness and efficiency also, their study found in their study that a strong and positive relationship between strategic leadership and quality management practice. Based on the empirical evidence from the prior studies mentioned above, the following hypothesis suggested in this study;

$H_0$1 There is no significant influence of strategic leadership on quality management practices.

The second hypothesis tests the relationship between organisational climate and quality management practice in Egypt's higher education institutions. Many studies on organisational climate revealed that successful implementation of quality management practice typically depends on a work climate conducive to innovation (Purvis, Zagenczyk & McCray 2015; Budihardjo, 2017; Weber & Sorensen, 1993). Purvis et al. (2015), revealed that the importance of strategic leadership has emerged through its active role in its success or failure. Besides, the study by Aboudahr and Bin Mohamad (2020) demonstrated that climate has a great important role in higher education institutions due to its prominent role in achieving employee satisfaction and development process. Based on the review of the previous studies explained above, the following hypothesis suggested in this study:

H02: There is no significant influence on organisational climate and quality management practices in Egypt's higher education institutions.

The third hypothesis tests the mediating influence of organisational climate on the relationship between strategic leadership and quality management practice in higher education institutions in Egypt. The consensus of many scholars on organisational climate for any establishment such as a university is that it provides the administration with the necessary information about the conditions so that the management can determine the appropriate time to make the required changes in the climate (Al Shobaki, Abu-Naser, Amuna & El Talla, 2018; Salama, Amuna, Al Shobaki & Abu-Naser, 2018). The study by Ibidunni et al. (2018) revealed that managers must pay serious attention to the strategic leadership quality and organisational processes since these factors of organisational climate are statistically significant to attract the connection between strategic leadership style and quality management of the organisation. In addition, Mahmood, Ismail & Omar-Fauzee (2018) indicated that the school climate mediates the association between quality management and the student's academic performance. Yasir, Imran, and Irshad (2013) revealed the partial mediation of the organisational climate between transformational leadership and employee performance. Based on the study identified on the mediating effect above, the study proposed the hypothesis as follows:

$H_0$3: Organisational climate does not mediate the relationship between strategic leadership and higher education institutions' quality management practices in Egypt.

3. Methodology

3.1 Sample and data collection

As this study concerns quality management practices in higher education institutions, the sample consists of university lecturers. In particular, the academic staff was the targeted population of the study. To decide on the respondents' sample size for this study, the researcher first used the Gpower software to calculate the minimum sample size required. Since the model had a maximum of 2 predictors, the study set the effect size as medium (0.15) and power needed as 0.95. The sample size required was 107. Hence, we set out to collect data equal to or slightly larger than the required number.170 responses were collected from 26 faculty,s lecturers of Cairo university.

4. Materials

The quality Management practices were measured using 13 items of three factors: Training and Education, Customer Focus, and Continuous improvement. The items were collected from different sources that developed based on Critical success factors (Shortell et al., 1995& Douglas & Fredendall,2004). At the same time, Strategic leadership was measured by using 14 items of 4 factors of individual characteristics of strategic

leadership, Resettlement, Absorptive capacity, Adaptive capacity, and Wisdom which were adopted from Ali (2012). Finally, the organisational climate was measured through the School Level Environment Questionnaire (SLEQ) instrument by Johnson, Steven, and Zvoch (2007) the questionnaire consist of 21 items of five factors.

A five-point Likert-type scale was used for dependent variables and mediating ranging from 1 "Strongly disagree" to 5 "Strongly agree". Meanwhile, the independent variable used a seven-point Likert-type scale.

5. Respondents' Profile

The demographics of the respondents presented in table 1. Male (60.6%) were more than females (38.4%). The majority of the respondents had from 31 to 40 years old (44.7%

) and held their Doctor Degree (44.1%). About (29.4%) were lecturers.

*Table*1 Profile of respondents

Information	Frequency	Percentage
i) Gender		
Male	103	60.6
Female	67	38.4
Total	170	
ii) Age (years)		
20 to 30	27	15.9
31 to 40	76	44.7
41 to 50	59	34.7
51 and above	8	4.7
Total	170	100.0
iii) Rank		
Professor	31	18.2
Associate Professor	31	18.2
Lecturer	50	29.4
Assistant Lecturer	28	16.5
Teaching Assistant	30	17.6
Total	170	100.0
i) Highest Education Qualification		
Bachelor Degree	26	15.3
Master Degree	69	40.6
Doctor Degree	75	44.1
Total	170	100.0

6. Result

To test the model, the study used the Partial Least Squares (PLS) analysis technique using the Smart PLS 3.0 software (Ringle et al. 2015). The study analysed the measurement model (validity and reliability of the measures) followed by an examination of the structural model (testing the hypothesised relationships) as recommended by (Hair et al. 2014; Ramayah et al. 2011, 2013). To test the significance of the path coefficients and the loadings, a bootstrapping method (500 resamples) was used to determine the significance levels for loadings, weights, and path coefficients (Hair et al. 2014).

6.1 Measurement model

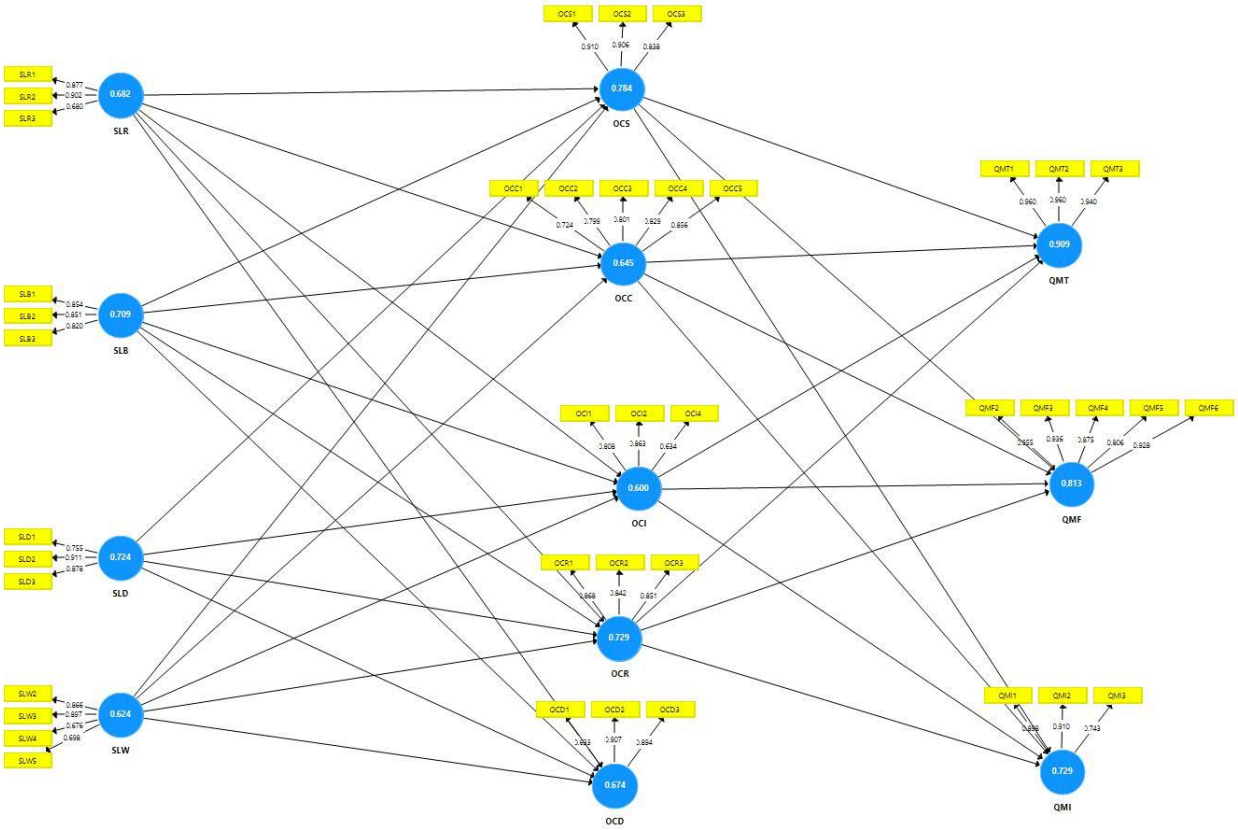

Figure 1

Measurement model

Note. Values inside constructs = AVE. Values on arrows = factor loadings

To assess the measurement model Gholami et al. (2013) recommended 2 types of validity were examined, (1) being convergent validity and (2) being discriminant validity. First, Convergent validity is the degree to which multiple items to measure the same concept agree. As suggested by Hair et al. (2010, 2013) we used the factor loadings, composite reliability (CR), and average variance extracted (AVE) to assess convergent validity. The recommended values for loadings are set at 0.5, the AVE should be 0.5 and the CR should be 0.7. The minimum requirement of convergent validity for a construct is to have at least AVE of 0.50 (Fornell & Larcker, 1981; Hair, Hult, Ringle, & Sarstedt, 2014),see Figure 1. Thus, we followed the method suggested in the literature in PLS which is a repeated indicator approach to model the second-order factors in the PLS analysis. Table 2 shows that the results of the measurement model exceeded the recommended values.

Table 2

Internal consistency reliability and convergent validity results

Constructs		Items	Loadings	ρ_c	AVE
LOC	**HOC**				
Training and Education (QME)		QMT1	.960	.968	.909
		QMT2	.960		
		QMT3	.940		
Customer Focus (QMF)		QMF2	.955	.889	.729
		QMF3	.936		
		QMF4	.875		
		QMF5	.806		
		QMF6	.928		
Continuous Improvement (QMI)		QMI1	.897	.956	.813
		QMI2	.910		
		QMI3	.743		
	Quality Management Practices (QMPS)	**QMT**	.913	.774	.542
		QMF	.521		
		QMI	.728		
Resettlement (SLR)		S	.877	.864	.682
		S	.902		
		S	.680		
Absorptive Capacity (SLB)		S	.854	.879	.709
		S	.851		
		S	.820		
Adaptive Capacity (SLD)		S	.755	.887	.724
		S	.911		
		S	.878		
		S	.866	.867	.676
		S	.897		
		S	.689		.542
	Strategic Leadership (SL)	**S**	.690	.822	.540
		S	.802		
		S	.586		
		S	.836		
Student Support (OCS)		OCS1	.910	.916	.784
		OCS4	.906		
		OCS3	.838		
Collaboration (OCC)		OCC1	.724	.901	.645
		OCC2	.799		
		OCC3	.801		
		OCC4	.829		
		OCC5	.856		
Resource (OCR)		OCI1	.808	.816	.600
		OCI2	.863		
		OCI3	.634		
Decision Making (OCD)		OCR1	.868	.890	.729
		OCR2	.842		
		OCR3	.851		
Instructional Innovation (OCI)		OCD1	.633	.858	.674
		OCD2	.907		
		OCD3	.894		
	Organisational Climate (OC)	**OCS**	.681	.844	.519
		OCC	.719		
		OCI	.738		
		OCR	.761		
		OCD	.702		

Note. QMT4, QMF1, SLW1, OCC6, OCS4, OCR4, AND OCI3 were deleted to pass the convergent validity requirement.

which is to compare the square root of the AVE with the correlations. The criteria is that if the square root of the AVE, shown in the diagonals, is greater than the values in the row and columns on that particular construct, then we can conclude that the measures are discriminant. From Table 3, it can be seen that the values in the diagonals are greater than the values in their respective row and column, thus indicating that the measures used in this study are distinct, demonstrating adequate discriminant validity. In sum, both the convergent and discriminant validity of the measures in this study were valid.

Second, the discriminant validity of the measures (the degree to which items differentiate among constructs or measure distinct concepts) was examined by following the Fornell and Larcker (1981) criterion of comparing the correlations between constructs and the square root of the AVE for that construct. Discriminant validity is the degree to which items differentiate among constructs or measure distinct concepts. The criterion used to assess this is by comparing the AVE with the squared correlations or the square root of the AVE with correlations. As shown in Table 3, we have used the second method

Table 3 Discriminant validity of the measurement model

	OCC	OCD	OCI	OCR	OCS	QMF	QMI	QMT	SLB	SLD	SLR	SLW

OCC	**0.803**											
OCD	-0.028	**0.821**										
OCI	-0.024	0.477	**0.774**									
OCR	0.293	0.029	0.056	**0.854**								
OCS	0.254	0.025	0.143	0.238	**0.885**							
QMF	0.021	0.403	0.172	-0.079	0.144	**0.902**						
QMI	-0.156	0.033	0.052	-0.086	0.079	0.311	**0.854**					
QMT	-0.029	0.276	0.118	-0.028	0.065	0.459	0.078	**0.953**				
SLB	-0.096	0.169	0.153	-0.102	-0.117	0.400	0.242	0.247	**0.842**			
SLD	-0.066	0.250	0.098	-0.062	-0.172	0.496	0.128	0.339	0.494	**0.851**		
SLR	-0.050	0.028	0.041	0.225	0.013	0.029	-0.003	0.035	0.026	0.045	**0.826**	
SLW	0.122	0.314	0.112	0.054	0.256	0.640	0.386	0.376	0.276	0.368	0.103	**0.790**

Diagonals (bolded) represent the square root of the average variance extracted while the off-diagonals are correlations among constructs. Diagonal elements should be larger than off-diagonal elements to establish discriminant validity.

Table 4 Results of the Structural Model Analysis (Hypotheses Testing)

Hypothesis	Relationship	Std Beta	Std Error	t-value	P-value	Decision	R2
$H_0$1	SL →QMP	0.640	0.058	11.104	0.001	Supported	
$H_0$2	OC →QMP	0.175	0.069	2.522	0.012	Supported	0.506
$H_0$3	SL →OC →QMP	0.317	0.099	3.217	<0.001	Supported	

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. Conclusions and managerial implication

The main objective of this study is to investigate the mediating influence of organisational climate on the relationship between strategic leadership and quality The existing relationship between SL and QMP shows that the top management of the faculty at Cairo University has the individual characteristics of strategic leadership. This finding is consistent with Cho; Thiagarajan; Chong; Perkins and White (2017) and Alayoubi; Al Shobaki and Abu-Naser (2020) that demonstrated quality management practice and organisational performance has detected that improvement of organisational performance depends on their strategic leadership ability and effectiveness. Furthermore, the finding is confirmed with Alayoubi, Al Shobaki, and Abu-Naser, (2020); Ameen,Yousef Sandhu, and Hussain Rana (2019); Aboudahr (2018) and a study of (Mataria, 2016) that emphasised leadership is a key factor for applying quality management in an educational institution in order to improve the quality of education.

management practices. The result of this study found that SL has a significant relationship along with QMP; Hence, $H_0$1 was supported.

The study also in line with the study of Aboudahr and Bin Mohamad (2020) that recommended that the necessity of paying attention to the strategic leadership from the different colleges to take advantage of their strategic role in decision-making and developing the educational institution through applying and practice of quality management While the study contradictory with Dajani, and Mohamad, (2017) dedicated to university leaders, who need to adjust their leadership styles to support the creation of an organisation that is conducive to learning outcomes. For this reason, top managers of higher education are advised to focus more on improvements in quality of education, with specific emphasis on strategic leadership characteristics to increase the practices of quality management.

The relationship between OC and QMP was significant, and $H_0$2 was supported. This finding is

consistent with prior studies that found organisational climate has enhanced quality management in the education sector Al Shobaki, Abu-Naser, Amuna & El Talla (2018); Salama, Amuna, Al Shobaki & Abu-Naser (2018); Purvis et al. (2015); Al Damoe, Hamid & Sharif, (2017) and Budihardjo (2014). For instance, Al-Subai (2014) and Budihardjo (2014) hinted that successful implementation of quality management practice mostly depends on a work climate conducive to innovation. Therefore, officials at Cairo university should provide the appropriate climate for academic members and students to increase the level of quality management practices that reflect the improvement of educational outcomes. As suggested by McMurray and Scott (2013) within an academic higher education environment in particular that employees were more sensitive to organisational climate and that it should be improved to ensure that any barriers to effective participation were removed. For this aim, the top management must have the initiation to offer an appropriate climate for fulfilling the institution's goals.

Meanwhile, OC mediated the relationship between SL and QMP, and H3 was supported. This study reveals the indirect influence of SL on QMP partially mediated by OC and highlights the importance of Sl in the sustainability of quality management practice in the university. The result of this study is the line with Aiyadh et al. (2014); Alotaibi et al. (2015); Suleiman (2019) and Mahmood, Ismail, and Fauzee (2019) and clarify that OC plays a mediating role in the relationship between Sl and QMP that found organisational climate a necessary element to achieve the needed rapprochement between achieving the objectives of the organisation to develop all different dimensions within it and increase quality management practices. For this reason, Mwaura (2018) suggested that a supportive climate and effective leadership significantly predict employee involvement and organisational effectiveness that influence quality management practices in each faculty in the university. As a result, the higher is strategic leadership implemented educational, in organisational climate, the more willing a university is to implement organisational climate.

8. Limitation of the study

Even though this study's empirical result contributes to the existing literature, the finding of the current study can not be generalised. The proposed research should be adopted for further studies with more universities to generalise the result.

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