THE RELATIONSHIP BETWEEN STRATEGIC LEADERSHIP, ORGANIZATIONAL CLIMATE AND QUALITY MANAGEMENT PRACTICES IN EGYPT PUBLIC UNIVERSITIES

SHOROUK MOHAMED FARAG MOHAMED ABOUDAHR

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Awang Had Salleh
Graduate School
of Arts And Sciences

Universiti Utara Malaysia

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Abstrak

Visi Pendidikan Tinggi Mesir telah dilancarkan dengan tujuan untuk meningkatkan kualiti dan kelestarian sektor pendidikan tinggi. Tinjauan literatur berkaitan pengurusan kualiti membincangkan kepentingan kepimpinan dalam pendidikan tinggi. Namun, progress pengadunan pendekatan pengurusan kualiti dalam pendidikan tinggi Mesir berlaku pada kadar yang perlahan yang memerlukan usaha berterusan kepimpinan strategik dan iklim yang positif bagi melaksanakan pengurusan kualiti. Justeru, kajian ini bertujuan untuk mengenalpasti pengaruh kepimpinan strategik dan iklim organisasi terhadap amalan pengurusan kualiti di universiti awam Mesir. Selain itu, pengaruh iklim organisasi sebagai pemboleh ubah mediator terhadap hubungan kepimpinan strategik dan amalan pengurusan kualiti berterusan juga turut dikaji. Kaedah tinjauan secara keratan rentas diaplikasikan dalam proses pengumpulan data kajian. Sejumlah 429 orang responden yang terdiri daripada pensyarah universiti awam Mesir terlibat dalam kajian ini. Data kuantitatif kajian dianalisis menggunakan perisian *Statistical Package for Social Science* (SPSS) dan *SMART PLS*. Kajian ini membuktikan kesahihan tinjauan bagi setiap pengukuran yang dijalankan menerusi analisis faktor pengesahan. Dapatan kajian menunjukkan bahawa kepimpinan strategik tidak mempunyai kesan yang signifikan terhadap amalan pengurusan kualiti. Walau bagaimanapun iklim organisasi mempunyai kesan langsung ke atas amalan pengurusan kualiti, manakala kepimpinan strategik secara signifikannya memberi kesan terhadap iklim organisasi. Kajian ini juga mendedahkan bahawa iklim organisasi mempunyai pengaruh pengantara yang komprehensif terhadap hubungan antara kepimpinan strategik dan amalan pengurusan kualiti. Kesimpulannya, kajian ini memberikan kefahaman baharu tentang kepentingan iklim organisasi terhadap amalan pengurusan kualiti. Malah, kajian ini juga menawarkan pandangan teori tentang iklim organisasi sebagai satu mekanisme yang mana kepimpinan strategik boleh dikaitkan dengan amalan pengurusan kualiti. Di samping itu, hasil kajian dapat menyumbang kepada amalan berwawasan bagi meningkatkan kepimpinan strategik dan seterusnya mewujudkan iklim dan amalan pengurusan berkualiti dalam konteks pendidikan tinggi Mesir.

Kata Kunci: Kepimpinan strategik, Iklim organisasi, Amalan pengurusan kualiti, Universiti awam, Mesir.

Abstract

Egypt's Higher Education Vision was launched with a commitment to improving quality and sustainability in higher education. The quality management literature commonly cites the significance of leadership in higher education. However, the blending approach to quality management progress occurs at a slow pace in Egypt's higher education and that requires a continuous effort of strategic leadership and a positive climate to implement quality management. Thus, this study aimed to identify the influence of strategic leadership (SL) and organizational climate (OC) on quality management practices (QMPs) in Egypt's public university. In addition, the influence of organizational climate variable as mediator in the relationship between strategic leadership and quality improvement practices was also examined. The cross-sectional survey method was applied in the data collection process. A total of 429 respondents involving academic staff from Egypt's public universities took part in this study. Quantitative data were analyzed using Statistical Package for Social Science (SPSS) and SMART PLS software. The study established the validity of the survey for the measures through confirmatory factor analysis. The findings of the study indicated that strategic leadership had no significant impact on quality management practices. However, organizational climate had a direct impact on quality management practices, and strategic leadership impacted organizational climate significantly. This study also revealed that organizational climate had a comprehensive mediating influence on the relationship between strategic leadership and quality management practices. In conclusion, this study provides a new understanding of the importance of organizational climate to quality management practices. The study also contributes theoretical insights on organizational climate as one mechanism in which strategic leadership may associate with quality management practices. In addition, this study could contribute to visionary practices to enhance strategic leadership thereby creating a climate and quality management practices in the context of Egypt higher education.

Keywords: Strategic leadership, Organizational climate, Quality management Practices, Public university, Egypt.

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CHAPTER ONE
INTRODUCTION

1.1 Introduction

The real measure of the civilization of any nation is the capacity to educate the population sufficiently to meet contemporary challenges and make appropriate decisions to function as effective global citizens. This requires an educational process that is characterized by effective institutional leadership and a suitable climate in which to implement quality management (QM) (Allam, 2020; Sagendorf & Jackson, 2019). According to Brown and James (2020) and Okoro (2020), effective higher education provision is a vital mechanism for nurturing growth, poverty reduction, and improving prosperity and national development. According to Leiber (2019), recognition of this has brought quality management practices (QMPs) within higher education institutions (HEI) to the attention of academic scholars. Indisputably, the quality of the education offered to all stakeholders is linked to the climate within the educational environment (Martin, 2018). Therefore, it is essential to establish an atmosphere that is conducive to learning, to serve as a foundation for sustainable growth in the educational sector supporting human capital development (Rangou, 2017).

Reflecting the above, several environmental forces have been driving changes in QM practices within higher education worldwide. Such developments have identified QM challenges that need to be addressed within the higher education sector (Ali et al., 2016). In their research, Manatos, Sarrico, and Rosa (2017) indicated that the majority of educational institutions at all stages in a number of countries have sought to adopt QM approaches. As stated by Todorut (2013) and Nyamori and Bett (2018), research examining quality aims to predict how best to improve institutional performance and develop an institutional climate that uses all resources effectively and creatively. Doing

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so is anticipated to generate confidence among all workers employed in the administration of HEIs.

However, a study by Savga, Krykliy, and Kyrychenko (2018) pointed out that having mechanisms to assess quality in education is crucial, as HEIs are responsible to stakeholders, both internal stakeholders such as lecturers and other employees at the institution, and external stakeholders such as students and the job market. In this regard, Marginson (2016) indicated that many countries around the world are now directing attention towards improving higher education to navigate current challenges. Obeidat, Yousef, Hashem, and Masa'deh (2018) confirmed that QM has radically transformed management style, facilitated the introduction of novel procedures, and improved the services provided to beneficiaries. Migide (2018) hinted that the practice of QM within universities requires a thorough and in-depth preparation of their dimensions, elements, and mechanisms to conform to their environmental culture. In addition, Alnagar and Jawad (2014) emphasized that a culture of quality should be disseminated among faculties' administrative leaders after convincing them of the importance of QM in the context of change and improvement.

The main role of higher education is to promote national economic development, and as a consequence, the significance of QM in the higher learning sector has been intensified (Lomer, Papatsiba & Naidoo, 2018). Such roles require hard and transparent quality assurance mechanisms to improve quality programs, an integral component of QM systems (Adetunji, 2015; Bedri, 2016). Khan (2011) maintained that the primary focus of top managers in any organization is to install quality measures and tools for QMP that offer clear direction to guarantee employees' satisfaction.

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Undeniably, implementation of a QM program requires effective leadership (Ali & Zulkipli, 2017; Davies & Davies, 2004; Ismail, Kanesan & Muhammad, 2018). Several theoretical studies have recommended strategic leadership as the type of leadership that Deming and others consider the best for generating an effective QM program (Davies & Davies, 2004; Dean & Bowen, 1994; Waldman,1994). In research by Apoi and Latip (2019), Cilek (2019), Ruslan, Lian and Fitria (2020), and Asif, Qing, Hwang and Shi (2019), leadership is accorded the capability of motivating and encouraging individuals to work together to maximize productivity and accomplish key organizational goals. In addition, studies on organizational climate (OC) in the context of education, such as those by Al Shobaki Abu-Naser, Abu Amuna, and El Talla. (2018) and Al-Kurdi, El-Haddadeh, and Eldabi (2020) have observed that a strong OC might improve the outcomes of HEIs.

Discussing the creation of an ideal OC, Aldridge and Fraser (2018) emphasized the role of the environment in developing teachers and students. Also, Pérez-Vallejo and Fernández-Muñoz (2020) showed that interest in the working environment encourages problem-solving to overcome any barriers to fulfilling learning objectives, and helps to create security. Therefore, achieving general satisfaction within the staff at an institution leads to creativity, increases production, and promotes higher quality outcomes. According to Faradiba and Zet (2020), effective leadership is a core component of shared experience that creates a climate that is conducive to the pursuit of excellence. In this respect, Kawiana et al., (2021) recommended that organizations encourage leadership that focuses on achieving aims and promoting workers' realization of targeted quality outcomes.

In the context of Egypt, Waheish (2017) identified university education as the primary tool of change in the hands of society. Thus, universities have understandably adopted concepts of modern management to fuel improvements, including encouraging the continuous development of the educational product highlighting the outcomes of the educational process, and the efficiency of staff members, to ensure graduates have the necessary knowledge and skills to compete effectively at both local and global level (Saiad, 2015). Consequently, as Mohammed (2014) emphasized, developing management standards at Egyptian universities is linked to assuring their capacity to realize society's needs to assist in development.

The National Authority for Quality Assurance and Accreditation in Education (NAQAAE) is the accrediting agency that was established by the Presidential Decree to oversee all Egyptian educational institutions (higher education, pre-university, and Al-Azhar education); the primary objective of NAQAAE is to foster institutions' quality practices (NAQAAE, 2009). In reference to this, Abdel-Tawab (2019) argued that QM is implemented as a general management process when accrediting educational institutions' overall output.

Based on the above, Aquilani, Silvestri, Ruggieri, and Gatti (2017) stressed that quality is the goal of most organizations because it is synonymous with competitiveness and best business practice. Moreover, QM is thought to be a critical tool for ensuring superior performance. In this context, senior management support is key, as it is the most significant factor in QM in terms of providing a clear direction to support employee satisfaction (Donate & de Pablo, 2015). Thus, maintaining a high-quality education performance has become a primary concern for HEIs and governments; one that demands continuous assessment and government funding to ensure that colleges,

universities, and other educational institutions are successful (Özoğlu, Gür & Gümüs, 2016).

1.2 Research Background

The management process in 21st century Egypt is characterized by the requirement to observe change, follow up on developments, and updates to best practices (Ibraheem, 2016). According to Chen, Chen and Padro (2017), globally, higher education management is a booming industry and the foundation of a competitive market. Moreover, educational departments at different levels are seeking to reform education, improve conditions and keep pace with technological developments. (Selwyn, 2016).

Recently, Egyptian society has witnessed extensive changes at all levels of political, economic, social and educational development, especially since the revolution of 2011 (25 January 2011), which led to transformation across all sectors (European Commission, 2017). The majority of the changes made were in the field of education, due to the role of higher education, in underpinning society's development (El Said, 2014; Ahmed, 2015). Historically, the higher education system in Egypt has the longest history in the world (Abdel Hamid, Saad, Gomma, Khalifa, and Gadallah, 2010; Amira, 2017; Emira, 2014). It dates to 988AD and Al-Azhar University, which remains in operation as an HEI for Sunni Muslims. In 1908, the National Egyptian University and several other universities were established. After the events of the revolution in 1952, the government introduced a constitutional amendment stating the right of citizens to freely access education at all levels, including higher education. This right was included in a Presidential Decree in 1962 and later enshrined in the 1971 Constitution (Stopikowska & El-Deabes, 2012). This led to a rapid increase in higher education enrolment and the expansion of the sector (El-Badawy, 2017).

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According to Abdel-Tawab (2019), Egypt has grown internationally in terms of quality as attention has been paid to university education in the country since 1989. It then moved to the executive level, with strategic plans for developing higher education being issued by the National Conference for Higher Education held in February 2000, including 25 developmental projects to be improve quality at Egyptian universities (MOHE, 2014). Moreover, in 2017, Khalil described how Egyptian universities are making giant strides towards aligning with international institutions and are seeking to meet quality standards through strategic leadership and planning.

In 2007, the National Authority for Quality Assurance of Education and Accreditation established its central role in academic life through the development and application of quality standards, also fostering a culture of quality based on publications and continuous communication within educational contexts (Elabasy,2020). However, the issue of quality education in Egypt as regards quality culture and practice is still in a stage of a quagmire according to Mohamed Sherif Soliman (2019). As stated by the Minister of Higher Education and Scientific Report (Khalid Abdul Ghaffar) in April 2018, the most critical challenges facing Egyptian society are the absence of a quality culture, effective leaders, and associated practices (Kamel, 2018). Therefore, the state has chosen quality as its guiding pillar as it pursues modernization and development, hence the creation of the National Authority to disseminate quality throughout the country's higher educational institutions (Alsherif & Mahmoud, 2019).

Egypt HEIs held a conference with ministers in 2016 to map out a strategic plan for tertiary institutions to achieve by 2030. The conference reviewed the rules and regulations, as well as the guidelines for the accreditation of courses in higher institutions with the aim of improving the quality of education in Egypt to attain

international standards. The conference concluded that HEIs would not develop sufficiently without vibrant and competent leadership willing to push towards improving organizational structures for the Ministry of Higher Education and all tertiary institutions (Universities, Colleges and Polytechnics) in Egypt (Alsherif & Mahmoud, 2019; Taha, 2020). This was expected to enable the Ministry of Higher Education to guarantee maximum output in terms of the quality of education. The Egyptian higher education approach aligns with concerns expressed by Donina, Meoli, and Paleari (2015) and Ursin (2019), who stressed that the restructuring of the higher education system was imperative, and required a holistic approach to reform designed to cut across the educational structure. Indeed, education was expected to be improved with effective leadership and the application of QM in multiple areas. Thus, the Egyptian higher education sector realizes QM and its significance to attaining institutional goals and objectives.

Additionally, the 7th International Arab Conference on Quality Assurance in Higher Education (IACQA, 2017) stated the importance of continually updating the quality standards for higher education in Egypt. It urged institutions to keep well-informed about developments to educational processes, as well as offering financial and moral support to quality assurance units in Egyptian universities so that they can perform their tasks. Similarly, the 8th International Arab Conference of the Quality Assurance in Higher Education (IACQA, 2018) recommended that continuous development of quality standards to support innovation in educational institutions and expand regional and international partnerships, enhancing the quality of education by supporting exchanges of experience between HEIs.

Meanwhile, the Supreme Council of Universities issued a decision to establish a higher committee to develop performance measures and assess the standards for performance at each university, college and department (Agha, 2016; Mahmoud, 2018). The reports by the National Council for Education and Scientific Research ensured the need to establish a mechanism for the internal evaluation of quality within the colleges in each university , They established that each faculty will be responsible for applying quality assurance policies and controls within the university (Abdel-Tawab, 2019; Osman, 2016). Therefore, HEIs are expected to amend their graduate programs and courses as necessary to remain viable in the challenging labour market (Al-barbari, 2016).

According to Amer and Almasry (2014), Egypt's current higher education system is classified utilizing eight criteria: quality, equity, external efficiency, financing, scientific research and innovation internationalization, internal efficiency, and management and governance. Based on these, and in line with Egypt Vision 2030, the Ministry of Higher Education formulated its own Strategy to develop Higher Education in Egypt between 2015 and 2030. It is responsible for education and training, which have been identified as the most important of the four target areas under the social dimension. The aim is to create an enabling environment to support an effective, equitable, sustainable and accessible institutional framework and a training system that enhances high-quality education for workers without discrimination or bias. This permits both trainees to acquire the basic skills to carry out their duties objectively and judiciously (JICA, 2017; Singer, 2020).

In light of this, educational institutions have started to pay attention to QM, aiming to improve their reputation by working well, delivering strong output to the community in the form of effective graduates meeting the requirements for scientific, technological

progress, and following developed countries in the application of total quality as an indicator to meet the needs of the community (Nyamori & Bett, 2018). Therefore, engaging universities' interest in the principle of QM is an important step in safeguarding the investment in human capital, benefitting from the targeting of energies and innovations to deliver high-quality university education (Mukhopadhyay, 2016; Shehabat & Berrish, 2021).

Meanwhile, the practice of QM in Arab universities requires a thorough and in-depth understanding of key dimensions, elements, and mechanisms that conform to these universities' environment and climate (Badrakhan, 2012); challenges observed could affect administrative systems regulations, or organizational structures. Ajami and Hakim (2016) stated that the methods for practicing the principles of QM in higher education in European countries had been redesigned, and methods are pursued to achieve the highest levels of excellence through best practices and exchange.

Ali and Shastri (2010), Papanthymou and Darra (2018) stated that the benefits of QM implementation include enhanced employee confidence, continuous development, improved service satisfaction, and bridging the gaps between Academic-staff's functions and improvements in teamwork. Additionally, Zakuan et al. (2012); In'airat and Amer (2014) established that QM in many organizations has been widely recognized and successfully applied, delivering advantages in international and local markets by creating high-quality services or products that meet customers' needs. Moreover, implementing QMPs also assisted various institutions in developing their image, employee satisfaction, and quality consciousness (Kipngetich & Bett, 2018).

Additionally, several studies, such as those by Chalaris and Poustouril (2012), Antoniadou and Hatzipanayiotou (2012), Oluseye, Borishade, Adeniyi and Chinelo

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(2014), Svensson et al. (2015), Papanthymou and Darra (2018) in various countries have exposed the significance of implementing QMPs in HEI settings.

In the context of the above, managerial ability coupled with an environment conducive to learning is expected to substantially impact on university's academic improvement in Egypt. This corresponds to Alalfy and Elfattah (2014) justifications of strategic leadership application as highly imperative for Egyptian universities, due to the leadership problems that arise in most Egyptian universities limiting their efficiency and effectiveness. Kok and McDonald (2017) revealed that the issue of university management is one of the most accurate educational management topics, such that the head of the department used to develop and upgrade staff's capabilities to achieve desired goals. The head of the department is considered the most influential figure in terms of maintaining responsibility for the quality of the programs. Educational activities and different objectives pertaining to excellence reflect positively on academic programs' internal and external efficiency (Tasopoulou & Tsiotras, 2017). Thus, the department head must understand the nature of human behaviour, and the best way to motivate staff to work enthusiastically and effectively (Black, 2015; Osborne & Hammoud, 2017).

In summary, the Ministry of Higher Education in Egypt expects to resolve its setbacks in the area of education by improving learning environments, teaching methods, parental participation, and improving school strategies and policies. Additionally, the most essential tools to consider are strategic leadership, improving the OC, training teachers, providing learning materials, supporting supervision, monitoring, and evaluating systems. Similarly, creating a positive organizational environment helps stabilize university life, allowing lecturers opportunities to master their teaching,

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supervisory and administrative roles, as well as supporting students by encouraging them to identify appropriate solutions to their academic and social problems, and assisting top management in effective decision making.

1.3 Problem Statement

Quality management issues are among the most fundamental ingredients and strengths of HEIs worldwide, especially in Arab countries (El Hawi & Alzyadat, 2019). Additionally, Alauddin and Yamada (2019) and Al-Subaie (2014) confirmed that managing quality has become one of the most important strategies implemented by HEIs to enact change, modernize, enhance competitiveness through excellence, encourage participation, and ensure continuous improvement to generate outstanding performance, which is the ultimate goal of quality. Ahmed (2015), Al Shobaki and Abu-Naser (2017) argued that the future of any nation depends to a large extent on the quality of its higher education system.

At present, the higher education sector is subject to several challenge in the Middle Eastern context; problems specific to Egypt include, inadequate financial resources, huge demographic pressures, weaknesses in administrative leadership, and poor management practices within the higher education system (Eltemamy, 2019; Dahdouh, 2019). According to Ghabbour (2013, 2019), Egyptian universities are coming under pressure to adapt their nature and traditional approach to work in the area of management, education, and university structures.

Despite growing interest in improving the quality of higher education, Egyptian HEIs are impeded by challenges with the creation of a climate that supports effective leadership and staff development (Dahawy & El-Said 2010; Al-barbari, 2016). In addition, HEIs in Egypt are currently being expected to engage considerable effort into

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developing and revitalizing their courses and other offerings, in order to achieve core objectives and increase competitiveness (Waheish,2017; Badawey & Mustafa, 2018).

A further consideration is that different societies, especially those in Arab countries, need to develop higher educational institutions that will meet the needs of the local labour market of the future. Meanwhile, they are facing criticism for not keeping pace with developed countries (Khoja, 2016; Alsaudey, 2019). A study by Ali (2015), Alshrbeny (2021) and Ibrahem (2012) also identified difficulties such as an inadequate OC in higher educational institutions and failure to meet QM requirements at the level of leadership. Donate et al. (2019); Hickman and Akdere (2017); Patyal and Koilakuntla (2018) accentuated that the introduction of a quality practice relies on adherence to core values, such as training, teamwork, employee participation, strategic plan, customer focus, and information and analyses.

In their research, Shehata (2017), Mohamed (2013) and Harb (2010) stressed that although the universities' regulations include values and indicators of quality related to discipline within academic departments and management, the level of application and practice of these is low. Indeed, the predominant method for managing departments in some universities is the traditional management style which does not prioritize quality. The resistance of department heads to change and their reluctance to develop and initiate quality practices suggests the need for an organizational culture for QM comprised of senior managers who can develop the vision and mission of universities' departments as they introduce QMPs (Abdel-Satar, 2013).

In 2015, the president of Cairo University (Jaber Nassar) stated that defective leadership is the most serious problem faced by the HEIs in Egypt. He also mentioned that weak leadership affects the value attached to universities. Furthermore, El-Bana (2016)

pointed out that Egyptian universities frequently encounter problems choosing leaders, as was also confirmed by research completed by Al-Sisi (2014), Anany (2015) and Shehata (2017). These failures affect universities' capacity to achieve their goals and, without leadership, strategic planning is non-existent.

Al-Araby (2020) and Ibrahem (2016) highlighted that the need for strategic planning has increased due to the development and modernization processes that universities face, such as the teaching and learning process, as students suffer from stereotypical curricula and the use of traditional methods, then, an urgent need of a strategic plan to improve the infrastructure in order to attract the educational climate at the university and to fix the weakness of formulating current and future goals for the development of university education. Furthermore, Bnwan (2020) stress that the strategic planning of public universities in Egypt is inconsistent with the strategic objectives of sustainable development for Egypt's Vision 2030 due to universities' limited capabilities and resources, insufficient government funding for public universities, and the failure to provide appropriate facilities for supporting the educational process for implementing quality management.

In reference to the efficiency and effectiveness of top management in Egyptian universities, Ahmed (2018), Ibraheem (2016) and Mohamed (2014) highlighted the need to identify new approaches and develop a clearer leadership strategy to eliminate problems. Hence, only strategic leadership can address the confusion that characterizes the current situation within universities. A clear strategic plan, with top management commitment, intellectual capacity, strategic orientation, and competency as well as a preparedness to adopt change, are vital (Alalfy, 2014; Anany 2015; Salama et al., 2018). Besides, The OECD (2010) suggested that to improve the quality of education in

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universities, it is imperative to adopt a system of merit when recruiting staff; i.e. one based on employment according to qualifications and experience. Surprisingly, many universities have failed to follow this proposal, with those at the helm preferring to pursue self-interest (Azoz, 2018).

Al Shobaki & Naser (2016) and Schomaker (2015) explained that the effect of poor-quality higher education is that a considerable proportion of the workforce lacks the skills and expertise the market requires. The World Bank report (2018) indicates that Egypt is ranked second in the Middle East for the highest level of unemployed graduates after Yemen. Therefore, the weaknesses in higher education are increasingly acknowledged to be a huge problem in Egypt, adversely affecting college graduates seeking for opportunities to work (O'Neill, 2020). The overall low quality of higher education, and in particular lack of employability skills, can be identified as the root cause of the problem: Teamwork, training, customer focus, as well as HEIs, have failed to produce the required skills, as shown in Appendix D.

Ismail (2015) pointed out that although teamwork is one of the most important factors for quality management success, higher education institutions in Egypt contradict this by prioritising reward and appreciation for individual work rather than an evaluation based on teamwork. Al- Asamy (2020) indicated that the lack of training in higher education institutions is one of the most critical challenges that impede quality management practice due to the lack of sufficient support from top management and inadequate financial resources available for training. In the same way, Eltemamy (2019) pointed out that Egypt's HEI also continues to suffer from limited financial resources and governance problems due to weaknesses in the higher education system that are creating instability. These researchers have concluded that in Egypt, top management

and academia in general have failed to develop the requisite skills to ensure good management practices to accomplish university goals. Consequently, in higher education lecturers need appropriate training that qualifies them to work collectively and follow each other's recommendations as a team to develop their abilities to make decisions that lead to the continuous improvement of the university's educational system (Ismailova, 2020).

According to middle-east brief (2015), the low quality of university education in Egypt is one of the reasons why university graduates their cannot find adequate employment. As noted in their report, nearly 50% of Egyptian firms identify deficiencies in the skills of new graduates, which limit their business development (El-Halawany, 2018; Alsaied, Zakey& Abdelaal, 2018). In addition, many college graduates from colleges of education are engaged each year. Still, many are not ready for a professional career (Al bhnasawey, 2018). Moreover, Aboelkhair (2018), there is a lack of knowledge of the characteristics of the quality of the university education service that works to meet the requirements of students, such as their needs and expectations; therefore, top management must focus on providing the ideal service to students and satisfying them in all ways as well as giving attention to customer focus (students). In view of the high level of competition in the domestic labour market and the competitiveness of Egyptian students internationally, ensuring the high quality of study programs and the guarantee that graduates will have the necessary skills to meet the expectations of employers is a pressing issue for Egyptian policymakers (Abdel-Aziz, 2016).

In 2019, the Director of the Quality Support Project (Mr. Abdulaziz) established that the Project's mission is to upgrade public and private HEIs through the dissemination of quality concepts, that will raise performance efficiency at Egyptian universities, and

improve academic quality at institutions, to boost confidence within society regarding the ability of graduates to perform at national, regional and the global level. The mission also aims to develop an HEI infrastructure to create a positive environment in which to nurture quality and efficiency throughout the higher education system (MOHE, 2019). Alongside this, Hassan (2014) and Ramadan (2013) reinforced the point that Egyptian universities need to make considerable efforts to attract quality applications to ensure the upcoming generations can benefit the community and contribute to the country's growth scientifically and economically.

On the issue of leadership, Zuraik and Kelly (2019) asserted that the most important task for leaders is to ensure a positive OC regardless of the type of institution. Additionally, several recent studies such as Berberoglu (2018), Kasemsap (2017), Maamari and Majdalani (2017), Hanafi (2016) pointed to a relationship between the effectiveness of an organization and the dominant climate within it. In this sense, Osman and Kamis (2019) stated that leadership is one of the most critical factors in promoting organizational climate. Therefore, this study examines the mediating effect of school climate on the relationship between strategic leadership style and QMPs at Egyptian Higher institutions.

Evidence from the previous studies, such as those be Alsharqawi (2003), Alharbi (2012), Alalfy and Elfattah (2014), reveals that effective leadership is the key to improving the quality of university education. If the administrative process is efficiently managed, strategically planned, organized, and formulated, it will lead to better preparation of the student, lecturers, and the teaching process. Describing strategic leadership, Ussahawanitchakit (2011) stated that strategic thinking and innovation consist of the ability to adapt to the conditions within the environment, and administrative wisdom

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arising when taking critical actions based on changes within the climate and effective response. Additionally, Aydin, Guclu, and Pisapia (2015) indicated the consensus in the previous educational literature regarding the role of strategic leaders in building sustainable learning environments and laying the foundations of an organizational culture characterized by continuous learning at the institutional level.

By reviewing previous studies (conferences, reports, and journals) in the field of university education, and based on the issues identified above, this researcher has identified a consensus regarding the challenges HEIs in Egypt face that constrain them from keeping pace with the rapid progress being made elsewhere. Although these factors have been empirically examined previously, they have never been integrated into a single research framework as this study will systematically do. Integrating all these variables into a single structural model in intended to allow the researcher to identify the degree of predictive power each variable has on the achievement of QMPs.

In addition, for this study OC was chosen as a mediating factor, because many prior studies have generated contradictory evidence concerning the predictors of success when implementing QMPs (Alharbi, Yusoff & Al-Matari, 2017; Al Shobaki, et al., 2018; Salama et al., 2018; Mahmood, Ismail, and Omar-Fauzee, 2019). Moreover, minimal research has analyzed the direct and indirect relationships between strategic leadership, OC, and QMPs as variables. This study aims to fill these research gaps by reviewing the conceptual and empirical literature on how OC serves as a mediating influence on the relationship between strategic leadership and QMPs. Thus, introducing a mediator will enable the researcher to explain the relationship between the independent variables and QMPs better, thereby confirming or invalidating previous findings. The researcher was encouraged to conduct the current study to examine the

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relationship between strategic leadership and the quality of management practices in HEIs in Egypt, considering the mediating effect of OC.

1.4 Research Aims

This study examines the relationship between strategic leadership, OC, and QMPs with the aim of delivering evidence and recommendations to support improvements to universities in Egypt.

1.5 Research Objectives

The specific objectives are as follows:

1. To identify the level of strategic leadership in Egyptian public universities.

2. To identify the level of organizational climate in Egyptian public universities.

3. To identify the level of quality management practices in Egyptian public universities.

4. To identify the differences in the perceptions of strategic leadership based on respondents' demographic factors (gender and work experience) in Egyptian public universities.

5. To identify the significant differences in the perceptions of organizational climate based on respondents' demographic factors (gender and work experience) in Egyptian public universities.

6. To identify the significant differences in perceptions of quality management practices based on respondents' demographic factors (gender and work experience) in Egyptian public universities.

7. To examine the relationship between strategic leadership and organizational climate at Egypt's public universities.

8. To examine the relationship between strategic leadership and quality management practices at Egypt's public universities.

9. To examine the relationship between organizational climate and quality management practices at Egypt's public universities.

10. To investigate organizational climate as a mediator of the relationship between strategic leadership and quality management practices at Egypt's public universities.

1.6 Research Questions

Based on the discussion presented in the preceding section, the following research questions have been formulated:

1. What is the level of strategic leadership in Egypt's public universities?

2. What is the level of organizational climate in Egypt's public universities?

3. What is the level of quality management practices in Egypt's public universities?

4. Is there a difference in the perception of strategic leadership, organizational climate, and quality management Practices based on respondents' demographic factors gender in Egypt's public universities?

5. Is there a difference in the perception of strategic leadership, organizational climate, and quality management Practices based on respondents' demographic factors work experience in Egypt's public universities?

6. Is there a relationship between strategic leadership and organizational climate in Egypt's public universities?

7. Is there a relationship between strategic leadership and quality management Practices in Egypt's public universities?

8. Is there a relationship between organizational climate and quality management Practices in Egypt's public universities?

9. Does the organizational climate mediate the relationship between strategic leadership and quality management Practices within Egypt's public universities?

1.7 Research Hypothesis

The study hypotheses for this research are divided into three groups. The first group assessed the differences in the levels of strategic leadership, OC and QMPs. It is based on demographic factors, such as work experience, age, and the gender of lecturers at Egypt's public university. While the hypotheses in the second group examine the relationship between strategic leadership and OC and QMPs in Egyptian higher education contexts, exploring the influence of strategic leadership and OC on QMPs. The third section examines OC as a mediator of the relationship between strategic leadership and QMPs at Egypt's public universities.

H₀1a: There is no significant differences between strategic leadership and 'gender of lecturers' at an Egyptian public universities.

H₀1b: There is no significant differences between strategic leadership and 'work experience of lecturers' at an Egyptian public universities.

H₀2a: There is no significant differences between organizational climate and 'gender of lecturers' at an Egyptian public universities.

H₀2b: There is no significant differences between organizational climate and 'work experience of lecturers' at an Egyptian public universities.

H₀3a: There is no significant differences between quality management practices and 'gender of lecturers' at an Egyptian public universities.

H₀3b: There is no significant differences between quality management practices and 'work experience of lecturers' at an Egyptian public universities.

H₀4: There was a significant relationship between strategic leadership and organizational climate at an Egyptian public universities.

H₀5: There was a significant relationship between strategic leadership and quality management practices at an Egyptian public universities.

H₀6: There is a significant relationship between organizational climate and quality management practices at an Egyptian public universities.

H₀7: organizational climate mediates the relationship between strategic leadership and quality management practices at an Egyptian public universities.

1.8 Conceptual Framework

This section explains the research framework, designed to measure the relationships between the study variables. This corresponds to work by Baron and Kenny (1986), Kenny (2014) and Muller et al. (2005) regarding how to use investigate the relationship between endogenous (IV) and exogenous (DV) and mediating variables. The research model was developed from Deming theory (1986), Davies and Davies (2004) and Gagnes cognitive theory (1984). Additional theories were also adapted to contribute to the theoretical framework of this study. Quality management (QM) theory based on Deming's principles (1986) relating to management theory in the quality field are extensively acknowledged. Demings proposes a method of continuous improvement within an organization and among individuals themselves, developing their relationships, products and services and processes. He believes in teamwork and continuous improvement. Deming's work and writing constituted a philosophy of management in the context of QM, one that focuses on quality and continuous improvement with a broad influence (Redmond, Curtis, Noone & Keenan, 2008).

The study framework (see Figure 1.1) links strategic leadership to QMP and assesses OC as the mediating variable, utilizing the cognitive theory of the environment. Thus, it views strategic leadership, disseminated according to the OC, and employee behaviour as strong determinants of QMPs. Hence, it is hypothesized that: QMP,

strategic leadership, and OC will significantly influence the outcome variables of the school setting and School improvement in Egyptian Universities.

Figure 1. 1. The Conceptual Framework of Study

In this context, the focus of improvement efforts is on areas such as leadership direction, organizational management, educational program management, and student development. Based on this, leaders will be responsible for planning and implementing activities continuously in the university environment to strive for excellence. This planning and implementation process demand strategic leadership ability among university leaders, to create a climate for change and support lecturers, students, parents, and the department of education at state and district levels. In light of QMPs, a QMP framework should be developed based on essential values and concepts. These values and concepts provide a basis for combining key performance requirements within a quality framework. A set of essential core values that form the proposed QM framework's building blocks include, training and education, teamwork and

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involvement, strategic quality planning, customer focus, information and analysis, and continuous improvement.

Furthermore, the independent variable for this study is strategic leadership, which refers to the ability to anticipate and enable others to create strategic change and transform the institution from its current state to what the leader wants it to be. Alzahrani (2018) indicated that leadership without execution creates an empty vision, whereas management without leadership is myopic. In their research, Aydin, Guclu and Pisapia (2015) express a consensus in the prior educational studies regarding strategic leadership roles building sustainable learning environments laying the foundations of an organizational culture featuring continuous learning at the institutional level. This study measures strategic leadership according to two categories:

First, the component of organizational ability assesses strategic leaders' capacity to implement strategic orientation, strategic translation, strategic alignment, strategic interaction, and the ability of leaders to act strategically. The second individual components emphasize anxiety over current achievement improvement, information absorption ability, adaptation improvement strategies, and leadership wisdom. Continuous quality improvement practices are assessed based on the dimensions of internal customer focus and teamwork, understanding of quality improvement work processes, use of data in decision making, and understanding (Mohd Ali, 2012).

The mediating variable is the OC, which refers to an educational institution that provides the administration with the necessary information about the conditions and organizational characteristics that must be available within the school environment, so that it is possible to determine the time required to make the specified changes in climate (Johnson, Stevens & Zvoch 2007). This will influence the behaviour of workers

and affects the extent to which an institution can achieves its set targets (Purvis, Zagenczyk & McCray, 2015; Salama et al., 2018). Gagne (1984) proposed that to develop the climate, it is necessary to move toward a conceptually based classification scheme of learning based on a multidimensional perspective that assists in improving the organization's climate. Thus, the ecological link of this theory is that learning settings created around this paradigm encourage curiosity, provide study-oriented schemes, and depicts understanding in a dramatic framework. Handelman and Arnold (1999) emphasize that the relationship between the organization and the environment, and incorporates cognitive, rules, norms, beliefs shared by relevant members. When the organization is inclined to form a climate of cooperation and reciprocal knowledge sharing, employees will comply with common organizational values. The OC is measured in terms of student support, collaboration, resources, decision making, and instructional innovation.

This primary focus of the study is to examine the influence of OC on the relationship between strategic leadership and QMPs at a public university in Egypt. The analysis of critical success factors conducted by Saraph et al. (1989); Anderson et al. (1994&1995); Flynn et al. (1995) lists several dimensions leading to excellent QM Practices. Notably, the leadership style adopted by an institution's leaders must correspond to these dimensions to obtain the expected results. According to Alauddin and Yamada (2019), the philosophy of QM, as supported by Deming, emphasizes that the element of continuous quality improvement necessitates strategic planning. Meanwhile, Eacott (2006) stressed that to ensure the smooth running of strategic management and strategic planning to drive excellence in QM, strategic leadership needs to be adopted. To better understand strategic leadership this study draws on the dimensions of Davies and Davies' (2004, 2006) strategic leadership model.

Considering the above, certain variables and theories were reviewed, including strategic leadership for independent variables and QMPs that served as dependent variables. A gap affects the studies previously conducted, as recommendations were made to introduce variables of interest and modify these to suit the research context. To address these gaps, OC served as a mediator that had not been tested previously to examine the relationship between the constructs of the research model.

1.9 Significance of the Study

The study is significant as it addresses three key constructs in educational management. One of these is quality management practices (QMPs) in higher education, which plays an important role in leading societies, due to the many services it provides to different sectors of the economy (Abou Hashish, 2017; Al Shobaki et al., 2018). Meanwhile, strategic leadership (SL) and organizational climate (OC) are of increasing interest because of their connection with multiple organizational variables that impact on the behaviour of individuals as well as decision making in organizations, and thus affect final outputs (Chanpoom & Intrawong, 2019). Although Deming (1982, 1986) considers leadership to be of critical importance in quality-focused organizations, he does indicate specific leadership approaches when implementing his Fourteen Points (Sosik & Dionne, 1997). This is an important omission that needs to be revisited because the effectiveness of leadership styles varies across situations and contexts (Sosik & Dionne, 1997). In addition to the above, the study has practical and theoretical significance (Swanson & Chermack, 2013) in five major areas set out below.

Firstly, the research will provide essential recommendations to help avoid the negatives and shortcomings of university leaders with regard to QMPs. The study assists university administrations in Egypt to identify the OC that prevails in universities,

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which in turn helps with adopting new administrative policies that will enhance positive aspects and reduce negative aspects. This will improve the OC within universities and improve the mental health of employees as well as their morale and determination. Secondly, this study fills a gap in the literature, addressing the lack of field studies dealing with this topic in the context of the Egyptian higher education sector.

Thirdly, it aims to direct the attention of educational decision-makers in the Ministry of Higher Education towards the development of policies to guide in the selection of university leaders. The practice of total quality in educational institutions has been a great success and contributed greatly to the quality of many educational systems in several countries in advanced and developing countries alike (Al-Qaisi 2013), but in Egypt, previous studies have failed to study the variables affecting its adoption. Most of the efforts exerted have been limited to formal procedures of self-study by institutions, failing to address the basic factors that limit the quality of university education (Mahmoud, 2019). Fourthly, this study will attract the attention of key players in the Ministry of Education and Higher Education, to address leadership and its relationship to the OC when conducting decision making. Fifthly, undoubtedly the study will enrich the educational process and improve the performance of both educational planners and school principals, providing appropriate services and access to a better educational reality. Finally, the study will contribute to the opening up of new horizons for further study in the field of educational management aimed at the development of performance.

1.10 Scope and Delimitations of the Study

The current study will investigate the mediating influence of OC on the relationship between strategic leadership and QMPs in Egyptian public universities. The reason for

studying this variable is its apparent importance, as highlighted by numerous studies (Alalfy,2014; Schomaker, 2015; Al-Dahshan,2009; Alsharqawi 2003; Mohammed, 2015; Mostafa, 2016; Omar, 2012) that vividly indicate a need for further investigation of QMP in the context of Egypt. The influence of strategic leadership and OC on management practice is not only an issue in Egypt but is also a global issue. The study will be conducted via a quantitative survey distributed to male and female lecturers at public universities in Egypt.

Delimitations refer relatively frequently to the choices made by researchers. They provide boundaries to determine what aspects of the research will be pursued and which will not. Those that apply to this study are as follows: The trial is restricted to academic staff members in the Greater Cairo and Delta region at a public university in Egypt (the region includes nine universities). The investigation was carried out with all the lecturers from the departments within the faculty. The study does not contain everyone within the academic setting. Moreover, stakeholders other than lecturers and professors at the academic institution were excluded.

1.11 Operational Definitions of Terms

To ensure easy assimilation of this research by readers, this section clarifies key terms, as they are used in the research.

1.11.1 Higher Education

Savery (2015) defines HE as a level education that is above high school, and results in the acquisition of qualifications from colleges, trade schools, graduate schools and vocational schools and other tertiary institutions responsible for awarding an academic degree or professional certificate.

1.11.2 Quality Management Practices

Quality management Practices (QMP) refers to the process whereby the universities transform the strategically to support continuous accomplishment of customer needs by using specific techniques, and lecturers training that concentration on essential of continuous improvement of higher education sector. The method of (QMPs) basically set up through the top management of the universities. This study considered this to be most relevant to the concept of quality management defined by Andersons, Rungtusanatham, and Schroeder (1994); Deming (1986), which refers to crating the higher education institution system to boost learning and teaching to facilitate process management practices' implementation that in turn reflect constant improvement of educational processes. In the current study, the QMPs include training, teamwork, customer focus, strategic plan, information, and continuous improvement as acritical success factor need to universities survival.

1.11.3 Strategic Leadership

Kotelnikov defined strategic leadership as "the vision, direction, the purpose for growth, and context for the success of the HEIs, strategic leadership also initiates 'outside-the-box' thinking to generate future growth" (Kotelnikov, 2001).

Davies (2004) explains that "strategic leadership is the central activity that facilitates and drives the strategic cycle". Furthermore, Davies and Davies (2004) suggested the characteristics of strategic leadership include five dimensions of organizational strategic ability and four dimensions of individual characteristics. Davies and Davies (2004) also emphasized that strategic leadership is a critical factor in school leaders' effective development of schools, also one that is instrumental in strategizing strategic leadership efforts.

1.11.4 Organizational Climate

Organizational climate has been defined as a multidimensional construct that refers to various individual evaluations of the work environment (James and James, 1989; Neal et al., 2000). In their work, Forehand and Gilmer, (1964) defined the organizational climate as a set of characteristics that describe an organization and distinguish it from other organizations. These are stable characteristics that over time inform the behavior of individuals working within the organization. Meanwhile Brookover et al. (1978) referred to the concept of organizational climate in the field of education when describing the social system of shared standards and expectations held by teachers and their students. in the current, former conceptualizations of the school climate are integrated with the widely accepted view of the school environment as the psychosocial context in which teachers work and teach (Fisher & Fraser, 1990). For the purpose of this study, collaboration, student relations, university resources, decision making, instructional innovation adapted to examine organizational climate.

1.12 Chapter Summary

This chapter has outlined the research, to be undertaken into the influence of strategic leadership on QMP in HEIs in Egypt, with consideration of the mediating effect of organizational climate. It commenced by introducing the study, and then set out the background to the study, a statement of the problem, research questions, research objectives, and research hypotheses. In addition, the study explained the significance of the study, the research framework, scope, study limitations and delimitation. Finally, the operational definition, definition of terms, and justifications for the study were given. The next chapter reviews previous literature and describes theories related to the study.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This study examines the relationship between organizational climate (OC), strategic leadership, and QM (QM) practices in Egypt by reviewing extant literature on the various dimensions of quality management practices (QMPs) and its drivers in business organizations and institutions of learning. The previous chapter provided an introduction and background to the study, the research problems, and the study's significance. It also presented some theories relating to the variables in this study. This chapter reviews theory related to strategic leadership, OC, and QMPs and discusses the underpinning theory that encompasses salient aspects of the variables and how they relate to one another. This chapter also addresses the conceptual frameworks of each of the constructs used in this study.

The objective of this investigation was to reveal the relationship btween strategic leadership and OC on QMPs in public universities in Egypt. A literature review of studies associated with strategic leadership, OC, and QMPs within education at the university level was carried out to define the problem and develop a framework that would help address the research questions and explain how this study can help fill some of the gaps in the literature.

This chapter has three sections. The first section discusses QMPs, their importance, QM practice in Egyptian education, and the theoretical framework that guides QMPs. The second section offers an explanation of strategic leadership and OC. The third section investigates the relationship between strategic leadership, OC and quality of university education. The chapter ends with a conclusion and a brief summary.

2.2 Theoretical Framework

Generally, the purpose of a model or theory is to understand the basis behind the research. It provides a logical and clear picture of the connection among different constructs to better define their relationship (Sekaran & Bougie, 2016). Theories also elucidate, forecast and conceptualize occurrences. Often, a theory is used to contest and build upon existing knowledge within boundaries full of critical assumptions (Swanson, 2013). Theoretically, the theoretical structure presents and refers to the theory explaining the problem's existence in research. Within the context of this study, the critical theoretical framework that is applied is Deming's (1986) QMPs model that explains QM practice; the cognitive theory of environment Gagne (1984)is used to explain OC; and, the strategic leadership model is applied to the independent variable which is strategic leadership (Davies & Davies, 2004).

2.2.1 Quality Management Practices (QMPs) Theory

Several empirical studies have been carried out to identify the key features of QM in order to establish its potential as a method and contribute to a theory of QM (Saraph, Benson and Schroeder,1989; Flynn, Schroeder and Sakakibaru, 1994; Anderson et al.1994; Badri, Davis and Davis, 1995; Ahire, Golhar and Waller, 1996; Black and Porter, 1996; Grandzol and Gershon, 1998). Other studies have focused on particular aspects including the contribution of quality leaders (Crosby, 1979; Deming, 1982; Ishikawa,1985; Juran, 1988; Feigenbaum, 1993) and formal evaluation models (European Quality Award, Malcolm Baldrige National Quality Award, The Deming Award).

Deming (1989), one of the proponents of QM, proposed 14 imperative statements that are known as the Deming Management Method (Anderson et al., 1994). Deming

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employed illustrations, stories, and moral examples to explain the 14 imperative statements of QM to ensure that everyone within the organization understands what it entails. The statements are referred to as principles of transformation as they focus on how top management can implement QMPs to ensure sustainability (Deming, 1982; 1986).

The Deming approach represents one philosophy of QM that could be taken as a general philosophy of management (Chileshe, 2007). It can be tailored for a particular environment or organization (Gani & Qazi,2018). The Deming approach requires a long-term commitment by the top management of an organization to be successful (Mahibha, 2021). The Deming approach of QM insists on the constancy of purpose within the realities of its climate (Σιούτου, 2020). Consequently, the Deming approach adopts a new philosophy intended to transform the western style of management. This philosophy, entitled "profound knowledge" has four components, namely: appreciation for a system, knowledge about variation, theory of knowledge and psychology.

Deming's theory centers on the internal role of the organization (Ngambi & Nkemkiafu, 2015). Deming's work and writing constituted a philosophy of management in the context of QM that focuses on quality and continuous improvement. Deming created the system of profound knowledge that clarify the ability of leader to make predication and focus on how top management can practiceto ensure the sucusess of the organization quality management (Warm et al., 2019). Deming (1986) argue that for anything that need to improve there are aspects of system that need to understand. The theory proposed a system of profound knowledge therefore, leader must understand all spects related to QMNPs in the university through the following four points:

1. System appreciation: which entails a proper understanding of how processes and systems within the organization work.

2. Variation knowledge: an adequate awareness of the causes and existence of variations in an organization.

3. Knowledge theory: an adequate knowledge of what is knowable.

4. Psychology knowledge: an understanding of the nature of human beings.
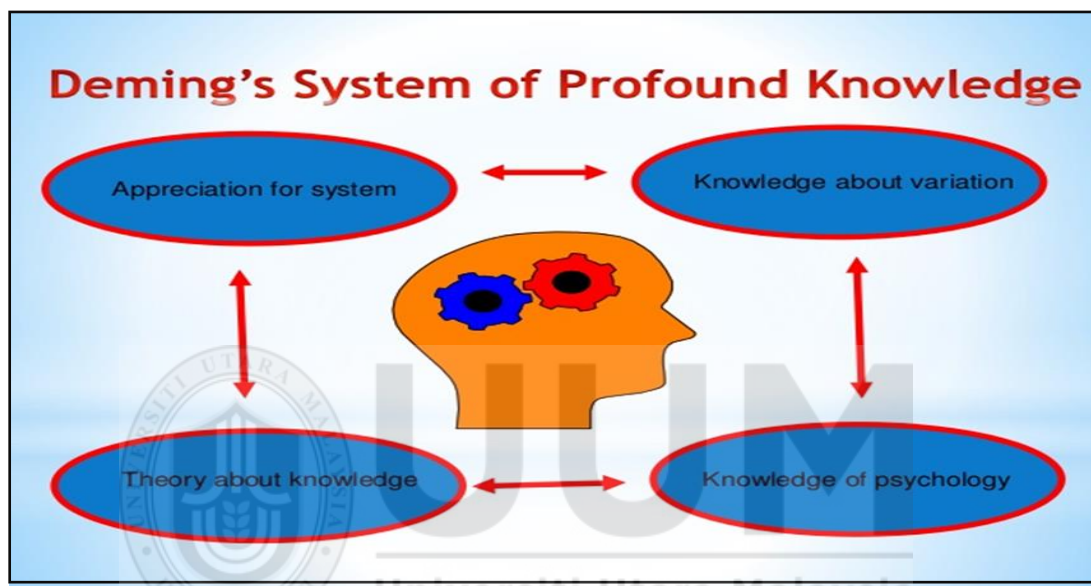
Figure 2.1. Deming theory of Profound Knowledge

The profound knowledge philosophy proffers an awareness of various types of knowledge within the organization. The theory incorporates the Deming's Quality Cycle: Plan-Do-Check-Act, a cyclical flow of improvement (Bowen & Scudder, 2013; Ross & Neuteboom, 2020). The cycle involves planning and setting objectives and an action plan and then implementing the action plan. The next step is to compare standards against performance, correct deviances and determining the changes needed to enhance continuous improvement before returning to the planning stage. The cycle is also known as Deming's Quality Cycle (Ivasciuc & Epuran, 2015; Ross & Neuteboom, 2020).

Deming's 14 points of QM that define the procedures for accomplishing work and evaluating performances are based on the assumption that variability is embedded in all occurrences and propose ways to manage such variability (Gartner, 1993). The Deming approach to systematic problem solving gained widespread recognition and became central to the quality movement and Deming's philosophy of transformational management. The 14 points are:

1. Establish constancy of purpose with the aim of improving product and service competitiveness and ensuring the survival of the business.

2. Embrace the new philosophy to fit in with new economic trends.

3. Ensure that quality is built into the product right from the initial stage; hence, enhance quality and avoid the need for inspection of product on a mass base.

4. Do not use price as the only criterion for selecting suppliers. Instead, consider also total cost minimization, suppliers' relationship management, loyalty and trust.

5. Focus on continuity in the system of production and productivity, services improvement, quality and cost minimization.

6. Introduce innovative on-the-job training.

7. Introduce progressive leadership methods.

8. Promote the effectiveness of workers in the organization by abolishing fear.

9. Promote inter-departmental cooperation and team spirit and embrace common goal across the departments within the organization.

10. Eliminate setting quantity-based and zero-defect targets for workers as these often result in intense competition among co-workers, since low productivity and low quality are often due to system defects and are beyond the control of the workers.

11. Substitute leadership and get rid of quotas and management by objectives and numbers.

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12. Promote and recognize pride in craftsmanship.

13. Make education and training programs are sacrosanct.

14. Make transformation processes everybody's responsibility, including top management.

The 14 points embedded in the theory provided a paradigm shift in QM. They encompass training, quality, leadership and culture change (Ali & Ivanov, 2015). The 14 points also enhance the achievement of improved quality in an organization (Mokamba, Gakure & Keraro2013; Sunder, 2016). The theory also advocates for organizations to be customer-centric to promote customers' satisfaction, consumers' loyalty, profitability, efficiency and profitability and increase market share (Martin, 2013). The theory's advocacy for increased workforce participation at all levels in the quality management practices to processes improves knowledge and information transfer and enhances problem-solving skills (Schalk, &Dijk, 2005).

Deming's theory was widely accepted, but it did receive critique from some scholars for its noticeable pitfalls. For instance, Chorpa and Singh (2015) argued that the theory does not reduce the cost associated with low quality. Similarly, Sander (2008) claimed that a focus on QM could have a harmful effect on the organization's innovation and sustainability as it strongly advocates standardization and shuns deviation. Additionally, the adoption of this theory by the organization could result in increased operational costs and decreased profitability (Kafetzopoulos, Psomas,& Gotzaman, 2015) as it involves higher costs related to prevention and appraisal (Grbac, Car & Huljenić, 2015), auditing activities and the checking of the quality level of products (Kondic, Miletic & Bojanic, 2016).

In Egypt, there has been increasing awareness of the need to improve higher education processes and an increased commitment to provide a better quality of service. Although practicing QM in the service of education is complicated, recent studies of QM practice in higher education in several countries have indicated that it has had a positive impact. Therefore, the concern of the basic premise of Deming's management method is that an strategic leadership is necessary in the creation of an organizational (university) system that promotes the implementation of quality management practices such as training, teamwork, continuous improvement, and customers focus (Anderson et al., 1994; Saraph et al).

The framework of Deming Management Method expresses effectiveness of the model through concerted leadership efforts toward the establishment of cooperative and learning organization systems that facilitates achievement of efficient quality management practices (Deming, 1986). This study implements the Deming's management method and the potential of their implementation in the higher education sphere to develop a comprehensive and convenient QM model that is specifically tailored for higher education services.

2.2.2 Strategic Leadership (Davies & Davies Model)

A number of theories related to leadership were identified through the literature review including, the Contingency Leadership Model (Fiedler, 1964), the Leader-Member Exchange Model (Graen & Uhl-Bien, 1995), the Transformational Leadership Theory (Bass & Avolio, 1994) and the Strategic Leadership Theory (Adair, 2010, Hambrick &Pettigrew, 2001, Davies, 2003, 2004, Davies & Davies, 2004, 2005, 2006, 2009, 2010, Eacott, 2010, Coban, Ozdemir & Pisapia, 2019). All these theories revolve around the ability of leaders to influence the members of an organization to achieve organizational

goals. Strategic leaders are often in charge of performing tactical tasks. They control and influence the institution's progress by establishing and communicating persuasive ideas and visions. Also, support from these leaders has a massive impact on their subordinates. It inspires them to be more creative by learning from their past mistakes and developing the attitude necessary to actualize all that is expected of them (Naim & Lenka, 2018, Năstase, 2010).

House and Aditya (1997) pointed out that many researchers eschewed supervisory leadership theories in favour of strategic leadership theories, which focused on developing the aim and meaning of organizations. Supervisory leadership theories are centred on the duty, behaviours and orientation of individuals. Finkelstein and Hambrick (1996) state that strategic leadership theory was built upon Hambrick and Mason's (1984) Upper Echelons theory to investigate how top leaders influence strategic decision making. Hambrick and Mason (1984) were the first scholars to define the concept of strategic leadership in a study of top management in organizations. Hamrick and Mason's (1984) upper echelon theory is the main theory behind strategic leadership, their research revealed that the factor that has a significant effect on the performance of an organization is strategic decision making of senior managers. Also, Wheelen and Hunger (1986) revealed that an institution's leader is a key factor in the organization's climate.

Hambrick and Mason (1984) conclude that the essence of strategic leadership involves learning, the ability to change and management wisdom that is more focused on the criteria of strategic leaders and actions to be taken to address challenges. Research in the last decade, Adair (2010), Davies (2003, 2004), Davies and Davies (2004, 2005, 2006, 2009), Eacott (2010) and Coban, Ozdemir & Pisapia (2019) is considered

important for highlighting futuristic and practical strategic leadership theories and models.

Davies and Davies' (2004) strategic leadership theory states that leader plays an important role in influencing employees in an institution to achieve their aims and objectives. Davies (2004) states strategy is a duty of management, to strategize is part of the process of leadership. Strategizing requires the sharing of information and communication among leaders and their subordinates in every rank. Boal and Hooijberg (2000) discuss the fundamental responsibility for strategic leadership to ensure the organization's continued existence and maintenance of a competitive advantage (Davies & Davies, 2004).

Within the context of education, Davies and Davies (2004) suggests four individual attributes that enable a school manager to meet new challenges and develop a strategically focused school. The first characteristic is that of being dissatisfied or restless with the present. This is the visioning aspect of being strategically minded. The second is that strategic leaders must have absorptive capacity, that is, they should be able to absorb new information, assimilate it, filter it, and use the information to form organization direction. This facet is similar to the environmental scanning aspect of strategic planning. The third characteristic is that of adaptive capacity. This characteristic is the ability of a leader to learn and adapt continuously. The last characteristic is wisdom. Wisdom, in this context, is the ability to determine an accurate decision within the appropriate period. A further breakdown of this characteristic suggests that leaders need to bring together their practical, analytical, and emotional intelligence skills. Davies and Davies' (2004) study focused on secondary and primary schools, but their findings are relevant to the context of higher education. Mohd Ali

(2012) suggests that to ensure long-term excellence and the success of educational institutions, the leadership must give due focus and attention to strategic leadership dimensions.

This study considers the characteristics which should be present in strategic leaders, as suggested by Davies and Davies (2004, 2005). The nine-dimensional model of strategic leadership (Davies & Davies, 2004, 2006) was adapted to include five dimensions of strategic organizational ability and four dimensions of individual characteristics. Davies and Davies (2004) also emphasize the fact that the framework is not intended to define a novel leadership style such as transformational leadership or teaching but should rather be used to analyse the strategic elements of leadership. He defines leadership as a process of influence leading to the achievement of desired purposes. It involves inspiring and supporting others towards the achievement of a vision which is based on clear personal and professional values.

Empirical studies have established the credibility of strategic leadership in the context of positive outcomes being obtained between leaders in education and their various subordinates. Furthermore, from the perspective of leadership theory, Dyer and Dyer (2017) state that strategic leadership helps develop the learning outcomes of higher educational institutions that face multiple challenges posed by a competitive environment. Such challenges require strategic leadership to help ensure sustainability.

Strategic leadership applications can be adopted by educational leaders to motivate subordinates to improve performance (bin Mohd Ali & Zulkipli, 2019). Leaders who want to increase participation and motivation often set higher standards for their subordinates. Equally, subordinates are motivated by shared responsibility, by the avoidance of problems, and the drive to ensure the organization's success (Hairuddin,

2012). In stressful working environments, there is a need for strategic leaders to ensure that their subordinates have job satisfaction to ensure productive results.

Leaders in education need to be more encouraging, most specifically when the organization's system is complex. In this model, a strategic leader should be able to develop effective strategies and skills capable of dealing with the environmental effect that could affect the mode of operation within the institution in the context of education to fulfil management practice. Hence, leaders must establish a good relationship with subordinates at work, lift morale and limit the burden of work and boredom at the workplace. A strategic leadership model can help the education sector adapt better to a new climate and affect the practice of QM, which improves performance (bin Mohd Ali & Zulkipli, 2019). The model of strategic leadership emerged as the strategic leader in the environment of a learning institution (Davis & Davis, 2004).

In this study, strategic leadership (top management) developed a comprehensive approach to change, internally to bolster performance by supporting employees with resources, bureaucracy, and the skills to accomplish set targets. Strategic leaders, according to Davies and Davies (2004), have organizational capabilities that include (1) strategic orientation capabilities, (2) ability to translate strategies into actions, (3) ability to coordinate people and organizations, (4) ability to determine effective intervention and strategic approaches (5) ability to develop strategic competencies. At the same time, the strategic leaders identified the following individual characteristics that strategic leaders should exhibit: (1) resettlement, (2) absorption capacity, (3) adaptability, and (4) wisdom.
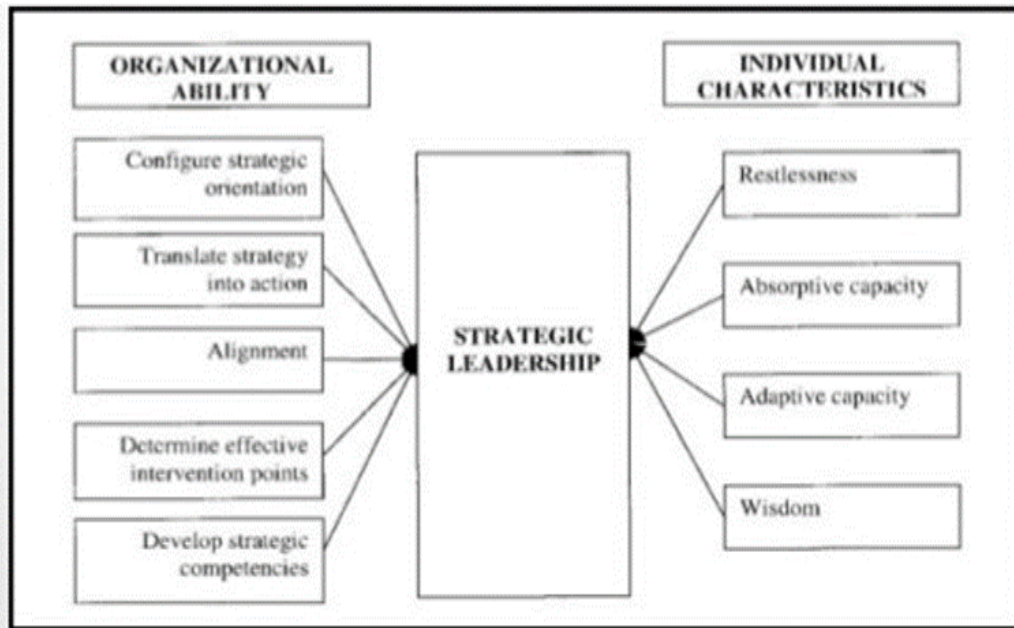
Figure 2. 2. Strategic Leadership Concept

In light of the above, this study used Davis and Davis' (2004) study as a supporting theory. This study proposed that strategic leadership and OC will predict QMPs. The study considered organizational capabilities and individual characteristics as strategic leadership factors driven by a vision of the future. Moreover, applying the strategic leadership model in this study was fundamental to the higher education institution achieving its goals efficiently and effectively and creating a positive climate by involving all subordinates in decision making. Hence, it helps to have all the institution's employees on board to implement and practice QM to achieve the desired outcomes.

2.2.3 Cognitive Theory of Environment

The cognitive theory focused on the way individuals learn, thereby reducing learning to perceived changes only in the behaviour. To explain and understand knowledge, cognitivist focus on studying mental processes and performance. According to Gagnes (1984), the cognitivist school was chosen to explain the theory of the environment through an assessment performed. Gagnes (1984) further described that the cognitivist

was initiated from the early-mid of the 1950s at a time the scientists discovered that all forms of knowledge couldn't be justified by behaviourism alone. This means that the knowledge is referred to as the schematic, i.e., symbolic mental creations that are managed in mind, education emerges at the point of change in a learner's schemata. Hence, such practice in education entails the pupil's contribution, and their actions are the result of thoughts. Therefore, cognitivist discard the behaviourist techniques that reject mental measures such as problem solving, retention, significance and intelligence.

The learning settings formed around this paradigm encourage curiosity, depict understanding in a dramatic framework, and provide study-oriented schemes. In a similar vein to behaviourism, cognitivism was arranged similar to campus and is not often surrounded. They are often a story or two-story structures joined with different sidewalks that offer accessible chances for students to interconnect with the outdoors intermittently and encourage the new technique of learning principles. Therefore, this cognitive theory of environment explains the organizational climate, which happens to be the mediating effect of this study. The learning climate for both lecturers and students are crucial to quality management in a higher institution, as explained by the prior studies (Leithwood & Jantzi, 1990, Schein, 1992). Hence, this is only an illustration of physical and academic settings that react to learning's cognitive theory. The previous research established the connection among leadership ability, academic setting, and quality management of the higher institution. In this study, the scope of managerial abilities and measures of the academic environment (academic settings) in the higher institution were compared, which revealed that academic settings and strategic leadership are intimately connected (Kelly & Lester, 2005).

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In a thriving institution, shared vision, right-hand management, and shared attitudes are entwined. Hence, favourable academic settings keep work absorbed on meeting and exceeding customer success and satisfaction (Saphier & King, 1985). Therefore, the leaders who are thoughtful in role modeling, teaching, and coaching encourage a positive environmental climate. Building collegiality and teamwork on the shared goals and values, cheering staff growth that is student-oriented, demonstrating quality management that encourages academic improvement, rejoicing and satisfying tutors by the distribution stories of success and accomplishments are also positive steps toward the building of academic environment. Hence, this study purposely adapts the cognitive theory of environment to explain university climate as a mediating construct on the relationship between strategic leadership and quality management practice.

2.3 Quality Management Practices (QMPs)

2.3.1 Quality Management Definition

Quality is an ambiguous, multi-faceted term and is not defined because of its intangible nature. QM experts have divergent opinions on what constitutes quality, resulting in an inconclusive definition of quality, although there are some elements that can be used in the interpretation of quality (Ooi, 2013). Numerous experts have defined QM, including Crosby (1979), Ishikawa (1985), Deming (1986), Groocock (1986), Goetsch and Davis (1997) and Juran (1999). These experts' efforts serve as a foundation upon which to explain the theory of QM. According to Crosby (1979), "Conforming to own organization's quality requirement" improves quality and removes difficulty simultaneously. Ishikawa (1985) identifies different facets of quality including product quality, work quality, service quality, information quality, process quality, division quality, people quality (e.g., employees, managers, engineers, executives), system quality, company quality and objectives quality (p.45). In comparison, Feigenbaum

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(1983) explains that product or service quality is providing a product or service that meets customer expectations. Deming (1986) defines it as exceeding customer expectations. Juran (1999) defines quality as fit for use, which can only be measured through an in-depth understanding of particular customers and their requirements.

Dimming's (1984) view is that quality is more ambiguous and less specific in the world of higher education because it concerns human beings and their social activities that are linked to the central values and objectives that are to be achieved in higher education institutions. Furthermore, QM is a management practice that can help expand higher education institutions' performance with so many definitions and dimensions of quality, even though the concept of quality remains vague (Taskov & Mitreva, 2015). In Deming's (1986) view, QM is described as the principles of management centred on the customer's satisfaction to fulfil the customer's demands and all expectations both at the present and in the future.

Jablonski (1994) explains that QM is an administrative philosophy that seeks to find and develop fundamental values and beliefs that make all employees of the organization accept that the primary goal of the organization is aimed at satisfying the beneficiary through collective work characterized by cooperation and participation. It is also defined as a distinct culture of performance where all the organization's employees work continuously for the single purpose of achieving and fulfilling consumer demand (Schuster, 1992). In another debate, Crosby (quoted in Nguyen, 2014) proposed that there are four "absolutes to quality". In their opinion, quality conforms to what is required, without perfection. This suggests that quality can only be actualized at the point when a product or its outcome aligns with the prescribed value or standard.

In Mabitsela's (2012) view, QM is a unique technique that involves the engagement of management and workers to continually progress on the construction of goods and services. It also has to do with connecting quality and management methods targeted at elevating businesses, thereby decreasing or eliminating loss due to wasteful performances. In a similar vein, Oduwaiye, Sofoluwe, and Kayode (2012) described QM as a procedure which deals with the act of assimilating every performance, functions, and processes in an institution so as to actualize a progressive development in the quality, cost, utility and distribution of goods and services to meet the satisfaction of their customers.

In education, it is difficult to ascribe a definite meaning to quality individually, the definition of quality must comprehensively meet the requirements of beneficiaries, decision-makers, parents, the university administration, lecturers, students and various community institutions (Arcaro, 2007). El Leithy, Boraei, and Hussein (2017) defined the quality of education as a set of inputs, processes, and outputs for an educational system that meets the internal and external public's strategic aspirations. The central idea of total quality is described as a set of principles and attributes which have to do with ensuring a supportive interaction between internal and external investors in a climate or setting which depends on the inclusion and participation of notable investors in the process of planning in order to use every available material and resource to facilitate understanding and enhance the skills of both students and lecturers. The QM model relies on the management's ability to initiate groundbreaking reform and improve the existing relationship between inputs, processes, and outputs. In order to actualize its long-term objective, there should be a particular aim established to serve as a guide and focus (Hassan, 2014).

Furthermore, QM can also be explained as a general idea that directs and dictates the experts' input and educational organizations' policy to help meet the needs of various stakeholders, including students, parents, society, and the sector (Ali & Shastri, 2010). Several scholars in the area of QM (e.g., Sahney, Banwet, and Karunes, 2004, Sahu, Shrivastava and Shrivastava, 2013) view QM in education as a broad management system which is comprehensive and deals with the planning and strategizing of quality inputs as established by the institute, the students, and the support staff. This quality is manifested in the education organization's (learning and teaching) undertakings and in the students' skills and knowledge. Galavandi, Khodabandeh, Alavi and Asemi (2011) state that QM creates a mechanism of initiating change in education. Also, it is a well-grounded principle that establishes a form of continuous progress. It proffers methods that can be practiced serving the purpose of any form of education in the present and in the future. Hence, this model for management initiates ground-breaking reform into the education system and has a huge impact on other models' management models.

According to Tasar and Celik (2011), QM is a principle which deals with continuous interaction with the climate. It takes into consideration the environmental requirement, the effect of the regulatory components on the school, it is open to change and helps create cooperation among staff, teachers and students, thus enabling positive relations and making use of available materials efficiently. It does an excellent task of ensuring that all management, staff, and non-staff are fully aware of their duties and of establishing communication with students. Saleki, Sabet, Roumi, and Dezfoulian (2012) define QM as a standard or policy designed by the management of an institution which provides a mechanism that uses and explores all resources, including human, financial, educational and technological resources in that particular organization. The

primary purpose of the QM models in education is to involve stakeholders from all ranks in the planning and implementation of activities pertaining to education.

On the basis of the many definitions of QM, Dribe (2015) identifies the key characteristics that reflect the concept of QM in educational institutions, namely:

Excellence: Educational institutions cater for the community's desires and needs and its institutions and design their plans and educational strategies to meet the community's expectations by responding to feedback. QM puts an emphasis on quality in its broadest sense. It sets targets for the educational institution that can be measured and take into account the needs of the labour market and the various organizations of society.

Continuous improvement: The organization focuses on continuous improvement in all operations and various administrative and academic fields. QM emphasizes collaborative teamwork and gives space to people's abilities within educational institutions to highlight their talents and abilities for development purposes. The decision-making process of the educational institution is based on recorded and accurately documented data analysis to ensure continuous improvement. It promotes training for all personnel serving as lecturers, assistants and staff to furnish them with the appropriate techniques and the potential to upgrade the quality of their performance and creates a system of incentives and rewards that guarantees creativity from the individuals working in the educational institution. QM promotes effective leaders that present a role model for the workers who are characterized by objectivity and prioritize action over talk.

In addition, QMPs has gained particular attention in the last century because as an application, it is capable of changing and developing the organizational patterns of work (Alnagar & Jawad, 2014). On the basis of the definitions given above, it can be deduced

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that it is quite difficult to attribute a particular definition to QM as an idea or notion. Researchers such as Sciarelli, Gheith, and Tani (2020) and Gordiychuk (2020) have shown that it has quite a broad application. It can be defined as ensuring an efficient, productive group able to work together in a given working environment to actualize outstanding results. As highlighted by Juneja, Ahmad and Kumar (2011), Lenka, Suar, & Mohapatra (2010), in the QM application model, services tend to be slightly different from products. Services are immaterial and quality measures rely mostly on the valuation of customers, making the service industry a customer-led industry. Table 2.2 below shows the difference between QM practices in Service and in Manufacturing Organizations. It shows that there is no variance between key QM characteristics such as leadership, customer focus, top management, and strategic management.

Table 2. 1

Difference Between QM Practice in Service and Manufacturing

QM Practices in Service Organizations	QM Practices in Manufacturing Organizations
Human focus	Product/technology focus
Focus on top management commitment and visionary leadership	Focus on top management commitment and visionary leadership
Continuous improvement	Continuous improvement
Emphasis is on interpersonal relationships and communication skills	In recruitment and selection, the emphasis is on technical skills
Statistical process control is inappropriate in professional services	Statistical process control is prescribed universally
Checks customer defections	Elimination of product defects
Quality measurement through customer satisfaction	Quality measurement by statistical techniques
Physical evidence has an impact on service quality	Physical evidence is not applicable

Source: Adapted from Lenka et al. (2010)

Table 2.2 clarifies that service-oriented institutions adopt less rigorous QM practices, such as information and analysis and statistical process control. Instead, they tend to depend mainly on the customer base's judgment on the quality of services. In contrast,

the emphasis of manufacturing firms is on the relationship between suppliers and contractors. Training is prioritized in manufacturing firms, especially training in high level of statistical techniques. In contrast, service firms tend to focus their training on communication and interpersonal skills (Lenka et al., 2010, Juneja et al., 2011, Talib et al., 2012). According to Gupta (2019), achieving quality in education requires integration and interaction of all human resources, policies, systems, curricula, and infrastructure to create an effective environment for creativity and innovation. Consequently, this study adopted training, customer focus, continuous improvement, strategic planning, teamwork and information and analysis as an essential aspect of quality management practice in higher education to improve the characteristics and advantages of the educational product to be able of meeting the labour market requirements and society and the educational sector's beneficiaries.

2.3.2 Quality management (QM) principles

Over the years, scholars have prominently used QMP measurements which are an extension of Deming's 14 points Anderson et al., 1994; Flynn et al., 1995; MBNQA, 2007; Saraph et al.,1989) to study QM and theory. Table 2.1 below provides an overview of some of the critical success factors of quality management.

Table 2. 2

Critical Success Factors of QM

No	Authors	QM
1	Ahire et al. (1996)	Top management commitment, customer focus, supplier QM, design QM, benchmarking, internal quality information usage, employee involvement, employee training, product quality, and supplier performance.
2	Anderson et al. (1994&1995)	Visionary leadership, internal and external cooperation, learning, continuous improvement, employee fulfilment, process management, and customer satisfaction.

Table 2.2 continued

3	Flynn et al. (1994)	Top management support, customer relationship, supplier relationship, workforce management, work attitudes, process flow management, statistical and reporting control and feedback and product design control process.
4	MBNQA (2007)	Leadership, customer and market focus, workforce focus, strategic planning process management, information and analysis, business performance.
5	Saraph et al. (1989)	Management leadership, supplier's QM, employee relations training and education, the role of the quality department, process management, quality data and reporting and design and measurement control.
6	Subba et al. (1997)	Top management support, information and analysis, strategic quality planning, human resource development, quality assurance, supplier relationships, quality results, customer orientation.
7	Sun (2000)	Leadership, information, strategy, human resources, process, suppliers, business results, customer focus.
8	Zhang et al. (2000)	Leadership, supplier QM and quality policy, vision and plan statement, evaluation, process control, and improvement, product design, quality system improvement, employee participation procedures, recognition and reward, education and training, and customer focus.

Source: Author's computation (2019).

Table 2.2 lists the most popular models that were developed on the basis of Deming's 14 points of QM. The model built by Deming was improved by Saraph et al. (1989), who added eight critical success factors. Flynn et al. (1994) also developed eight critical success factors, while Anderson et al. (1994,1995) and MBNQA (2007) created seven critical success factors each to execute the 14 points of quality management recommended by Deming (1986).

Furthermore, Table 2.2 above presented the model of QMP for the Deming management technique and verified the model by using path analysis. The challenge of Deming's management method's basic premise is that effective leadership is essential to develop an organizational system that encourages the application of QM strategies such as teamwork, continuous improvement, and customer attention (Anderson et al., 1994, Saraph et al., 1989). The Deming Management Model structure, therefore,

communicates the model's efficacy through concerted leadership efforts to build cooperative and learning organizational frameworks that promote the achievement of effective QMPs (Anderson et al., 1995, Douglas & Fredendall, 2004, Fisher et al., 2005, Khan, 2010). As a consequence of this inconsistency in previous research, it is hard to identify the specific dimensions of QMP (Hoang, Igel, &Laosirihongthong, 2006). However, the majority of the investigators approve that the most substantial dimensions of QMP are leadership support, customer focus, employee participation, training and education, continuous process improvement, strategic planning, effective communication, and decision-making based on data and information (Corbett & Rastrick, 2000; Hackman & Wageman 1995; Lewis, Pun & Lalla, 2005; Ooi, Arumugam, Safa & Bakar, 2007; Ramli, Zen, Mustafa &Yusoff, 2017; Sadikoglu & Zehir, 2010; Sayyad, 2017). In this study, QMP is addressed as a multidimensional construct to investigate the aim of the study. The following six points are integral to the Deming Management Model:

1. Training and Education: The provision of statistical training, trade training, and quality-related training for all employees signifies the institutional ability to nurture and recognize the development of the skills, knowledge, and capabilities base (Achdani & Nuphanudin, 2019, Ahire et al., 1996, Saraph et al.,1989).

2. Teamwork and Involvement: Teamwork and involvement comprise being motivated, concentrated, and supported by upper management's idea and assistance. The concepts of teamwork and involvement are also referred to as "communication and cooperation" and "workforce management" by other researchers and refer to guidance and assistance from the "Leadership in Managing Quality and Climate" in an institution. Increased involvement and teamwork in the overall quality strategy brings

the spread of information and knowledge and contributes to the ability of the organization to resolve problems (Schalk, &Dijk, 2005).

3. Customer Focus: When the clients of an organization feel that the organization's products and services are meeting their needs. Sunder (2016) argues that one of the fundamental purposes of HE is to provide the students with skills and knowledge that will enable the future employer to better succeed in a knowledge economy.

4. Continuous Improvement: This is often described as a spiral of progress accelerating in time. It is achieved through the "plan, action, checking and acting" method which leads to "much better quality with extreme lesser difference" (Deming as cited in Anderson et al., 1994). Continuous improvement is the main point of any services means searching for endless enhancements and improving processes to find new or better ways of conveting inputs into useful outputs (Ahmed, 2020).

5. Strategic Quality Planning: Strategic quality planning is a systematic approach to improvement plans by top management it is linked to business strategy (Quinn & Goold, 1990). Strategic quality planning allows the organization to do the right thing at the right time. Strategic QM can follow 7 steps, namely: discover customer needs, customer positioning, predict the future, gap analysis, closing the gap, alignment, and, implementation (Ferdinand, 2002). Ramli, Zen, Mustafa and Yusoff, (2017),found that the strategic planning has positive effect organizational performance in the public sector.

6. Information Analysis: Information analysis can be described as the techniques, means, and technologies employed in an organization to manufacture goods and provide services. It also develops the standards and tools to be used and organizes staff (Terziovski, Sohal& Samson, 1996). Flynna, Schroederb and, Sakakibara (1994) emphasized that the institution's database must be consistent and cover all severe areas

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in the organization. This conceptualization became the foundational structure for studying QM practices as located in collected works (Anderson, Rungtusanatham, Schroeder, & Devaraj, 1995, Flynn et al., 1994, Kaynak, 2003, Powell, 1995, Saraph, Benson, & Schroeder, 1989).

According to Chang and Sun (2007), QMP encompasses leading ideals that serve as the foundation of any given institution. QMPs are continually improved as the institution progresses. To achieve this objective, the employees of the organization, from bottom up, irrespective of hierarchy, must participate to meet the institution's goal, that is, to satisfy its customers' needs (Deming, 1986, Feigenbaum, 1983, Juran & Gryna, 1988). Strategic QM encompasses strategic quality planning, leadership, employee management, and involvement, supplier management, customer focus, process management, continuous improvement, information and analysis, and knowledge and education (Imran, Aziz, and Hamid, 2017). Factors such as top management commitment and leadership, people management, policy and strategy, partnership and resources management, and management of processes are generally considered to be the initial inputs for QM practices.

Gooran (2016) indicates that QM practices are derived from comprehensible its philosophies, requirements, or principles, however, numerous studies have described the obstacles faced when practicing QM in higher education, particularly in terms of bringing senior management and leadership on board (Al-Dahshan,2009, Al-Adadi,2012, Al-Matawea,2013, Al-Zawaini,2014, Al-Ghamdi,2014, Alnagar and Jawad,2014, Hassan,2014, Abado,2015, Rabaya and Abid, 2017 and Aldaibat, 2018). Al-Dahshan (2009), Alnagar and Jawad (2014), Hassan (2014), Abado (2015), and

Aldaibat (2018) conclude that the obstacles to the application of QM in universities are the institutions' administration and leadership.

Al-Adadi (2012), Matawea (2013), and Al-Zawaini (2014) add lack of material support and the absence of competent cadres in the area of QM, in addition to the non-involvement of faculty members in training courses to develop their scientific competence to the list of obstacles. Additionally, there are obstacles related to educational technology because achieving continuous improvement in universities requires them to pay attention to curricula and study plans and adopt modern methods (Alnagar & Jawad, 2014).

In order to study strategic leadership and OC in QMP, the research has to focus on locating the practices which are known to be uniquely affiliated with the application and exploration of the relationship between strategic leadership and OC and QM practices. Salaheldin (2009) which prioritizes and identifies critical enablers in any institution as an essential stage before successful QM practices. Failure to identify and rank CSFs prior to QM practices could result in an ineffective QM practice and a disappointing outcome (Jones & Seraphim, 2008). Hietschold et al. (2014), Ahmad and Elhuni (2014) state that in recognizing and prioritizing CSFs, such an idea would have to rely on the institution, its setting as well as the approach used in the prioritization process.

In light of this, it is interesting to note that working frameworks or models based on QMP are still hard to find. These sets of practices or models, if embraced by organizations and applied in the right manner, can help them deliver quality products or services. However, simply applying any framework that is readily available is not effective. Kaynak (2003), Samson and Terziovski (1999), and Tortorella and

Fettermann (2018) state that critical success factors need to be taken into account by an institution and its workers to enable QMP to improve operational performance. Many studies have taken a broader view of QMP and investigated the main practices necessary for achieving QM (Kaynak, 2003, Douglas & Fredendall, 2004, Fisher, Barfield & Mehta, 2005, Fisher, Elrod & Mehta, 2011, Ooi, 2013, Chittipaka, 2015, Anastasiadou & Sofia, 2015, Mitreva & Taskov, 2015, Alimohammadlou & Eslamloo,2016, Gooran, 2016, Ladewski & Al-Bayati, 2019). These studies established various principles that are known to be fundamental for the successful QM practices but there is no agreement on a specific set of practices. Chittipaka (2015) and Ooi et al. (2008) argue that this complicates the process of arriving at a conclusion on the type of QM principles to apply in order to reach the desired results.

Mitreva and Taskov (2015) proposed a novel procedure for structuring management crews to manage and apply QM systems in higher education institutions, with all its merits and demerits. Teamwork rules that incorporate respect for personality and character, experience and knowledge contribute to a more conducive environment, one characterized by productive conflict, and resourceful tension and zeal. This ultimately provides a novel approach to quality education, which will be built into every segment of business in the higher education institutions and thus be capable of introducing or initiating other novel models which would not have yet been introduced.

Another study by Anastasiadou and Sofia (2015) assessed a sample of QM of knowledge which consisted of five criteria: leadership, policy and strategy, human resource management, collaboration and resources and procedures, as well as finding the correlation between these criteria. They developed a fishbone diagram of causes and consequences. The chart classifies all the factors or causes that affect each category

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individually. Identifying the most important causes is necessary. Only then can teachers and leaders understand the current situation and propose action to reduce the impact and cause.

Ogunwale (2019) examined the degree to which QM is being practiced in a few randomly selected colleges in the Agege Local Government Area of the state of Lagos. The investigation targeted the population within education sector. Ten principals, 20 vice principals and 100 educators were chosen through the random selection technique. The focus of the study was effective communication, follow-up of the educational process and commitment to the philosophy of QM. The outcome of the study revealed that effective communication and follow-up of the educational procedure were practised to an exceptionally high degree. It was revealed that most of the educational institutions in the Agege Local Government Area of Lagos practised a low commitment to QMP. The findings suggested that principals should fully commit to QM practice for effective administration and management of educational institutions.

Furthermore, Aziz, Mahmood and Bano (2018) and Pushpa (2016) employ leadership, customer focus, teamwork and continuous improvement as a component of quality management practice in higher education. They conclude that the principle QMP has played a significant role in quality development at higher educational institutions. Likewise, Singal, Garg & Gupta (2016) stressed that the principles of QMp in HEIs might help the institutions to raise a competent, committed, professionally sound and devoted team of all employees, which boost the quality of the future nation.

In Germany study by Lust, Huber and Junne (2019) aimed to identify how academics deal with the practices of quality management systems in teaching. And indicated that practices of quality management are played out inside higher education institutions to

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constitute high-quality teaching. While in Oman Al-Qayoudhi, Hussaini and Khan (2017) used management, strategic planning, operational planning, financial management, policy management, professional management promotions and facilities management to measure quality management practice in Shinas College of Technology. Their study revealed that QMPs, producing better results in the higher education system.

Salleh et al. (2018) utilizes management commitment and leadership, continuous improvement, customer satisfaction, employee involvement, training, communication and teamwork to assess QMP in higher education in Malaysia and showed that QM practice was important in higher education institutions because it will help the organization to enhance their performance measurement. In the same vine Sciarelli, Gheith and Tani (2020) clarify the importance of soft and hard quality management practices. They found that soft QMP (top management support, strategic planning, supplier management, student focus) affects organizational performance directly and indirectly through hard QMP (process management, information and analysis, continuous improvement, program design).

The current study divided quality management practice into six categories reflecting the distinct processes in the HE sectors. According to Ahmed (2020) reported that training and education are used to disseminate knowledge of continuous improvement and innovation in the service process to achieve full advantages and institutional excellence. Besides, Aminbeidokhti et al. (2016), Sadeh and Garkaz (2015), Psomas and Antony (2017) indicated that top management, through Leaders' long-term commitment to QM philosophy. Also, Psomas and Antony (2017) demonstrated that strategic planning is the formulation and revision of the vision, mission, policies and

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objectives considering the needs and expectations of different stakeholders. While information and analysis, according to Mehta, Verma and Seth (2014) are collecting timely data on quality issues to be used by directors and staff for quality improvement.

Furthermore, Saffar and Obeidat (2020) revealed that continuous improvement is the regular measurement, evaluation and improvement of administrative and academic processes and facilities. Aziz, Mahmood and Bano (2018) confirmed that teamwork is an essential factor in achieving QMP. Most studies above on the critical factors of QMPs focus on ways to incorporate QMPs.

Recently, most studies have focused on determining factors that are essential to QMPs, and do not attempt to establish a relationship between specific strategic leadership alone and other QMPs (Laohavichien et al., 2009). Kaynak (2003) measured QM practice using Saraph et al.'s (1989) model in the service sector in the USA. Douglas and Fredendall (2004) measured QM practice using Anderson's (2005) model in the United States. Fisher (2005) measured QM practice also using Anderson's (2005) model in the manufacturing sector in USA and Canada. Ooi (2013) measured QM practice using MPNQA in the manufacturing sectors in Malaysia. Some studies used critical success factors for QM practice in various sectors such as Alharbi (2012) in Saudi Arabia, Sinha, Gard, Dhingra and Dhall (2016) in India, Tortorella (2018) in China, Salaheldin (2009) in Qatar and Ladewski, and Al-Bayati (2019) in USA, In Germany study by Lust ey al. (2019). They identified the importance of adopting critical success factors to improve the output of organizations. This study adopts Anderson et al.'s (1995) and Saraph et al.'s (1989) findings to measure QM practice in the higher education sectors in Egypt. Most studies assess the extent of QM practice by organizations to achieve competitive advantage. In addition, the six constructs that are the most widely

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recognized principles of QM practice were included with the exception of leadership due to the autonomous examination of this principle as the predictor variable. These constructs include training and education, teamwork and involvement, strategic quality planning, customer focus, information and analysis and continuous improvement.

The literature review above shows that all institutions benefit from practising QM to achieve competitive priorities and fulfil outcomes such as customer satisfaction. The essential purpose of most studies was to identify QM critical factors. QM practices or CSF of QM are not industry specific. They are equally important for the manufacturing and services industries. Still, there is little universally accepted QMP framework. These studies did not justify the influence of strategic leadership and QM practice. This study examines the mediating role of organizational climate on the relationship between strategic leadership and QM practice in Egyptian higher education on the basis of the six constructs are the most widely recognized factors of QMPs. The outcomes of the studies mentioned above will be used to compare the results of this study.

2.4 Strategic Leadership

Using strategic leadership effectively demands a top manager to comprehend the importance and rewards of distributing their work and its impact on their organizations (Nikezic et al., 2012). Education leaders who use this method acknowledge and encourage the efforts put in by subordinates and their outputs, irrespective of their status, level, and interpersonal relationship. According to Nastase (2010), strategic leaders can rapidly change the OC and the subordinates' mood in order to contribute to activities necessary to actualise their aims. Furthermore, strategic leadership has been considered to be the most significant factor influencing organizational management to improve the quality of output.

Previous studies such as Amayreh (2020), Al Thani and Mishael (2020), Gharama, Khalifa, and Al-Shibami (2020) emphasize the fact that strategic leadership forges a bridge between the past, the present, and the future by reaffirming fundamental values and identity to guarantee continuity and integrity as the organization battles with known and unknown situations and potential outcomes. Strategic leadership creates ideas, focuses, and enables a strong organizational structure, increases human and social capital and abilities to meet real-time challenges and risks. It is also a powerful source of influence for employees and employees. Moreover, Davies and Davies (2004) and Özdemir, Çoban, and Bozkurt (2020) reveal that the strategic leader makes decisions consistently on matters that impact individuals, whatever their agendas and characters, and persuades subordinates to go along with long-term planning decisions to meet future goals while maintaining short term stability.

Covey (1996) identified three essential functions of strategic leadership related to the vision, mission and environment of the organization. First, pathfinding, second, aligning the organization's structure and operational process in order to achieve the set vision and mission, and third empowering that dimension to increase the ability of the employee's potential, creativity and productivity to fulfil the mission. Bolt (1996) determined the future strategic leadership in three-dimensions: business, leadership and personal effectiveness. The business involves establishing new types of organizations and how leading change should be in the organizations. Bolt (1996) emphasizes leadership because many people believe that leadership skills cannot be taught. The third aspect relates to personal effectiveness linked with improving an individual's capabilities, talents, purpose, and value.

There is a difference of views among those interested in strategic leadership on how to control the organization's path way and growth rate and achieve long-term goals (Mintzberg 1990, Chilcoat 1995, Hitt 2002, Glenn & Mehdi, 2009, House et al., 2013, Mintzberg, 1990). Paglis and Green (2002) discusses the interaction between subordinates' and leaders' efforts to raise motivation to the highest levels and to overcome personal interests in the public interest. Additionally, Chilcoat (1995) explains the act or performance intended to influence individuals or organizations through the orderly use of strategic management.

Rowe (2001) simply defines strategic leadership as the capacity to impact other team players to voluntarily make daily choices that could improve the long-term viability of the organization while simultaneously keeping up its financial stability in short-terrm. Hitt, (2002) defines strategic leadership as the skill to foresee circumstances, flexibility and the ability to support others to develop strategic differences as well as the process of transforming the organization from its present state to what the leader wants it to be.

Besides, Northhouse (2007) describes leadership as the serial process through which a group of individuals are influenced by other team players toward achieving mutual goals. Amos (2007) defines strategic leadership as the ability to comprehend the whole organization and its environment and use this comprehension to make key transformation through other team players to elevate the organization in terms of both short-term stability and long-term viability.

Moreover, Hitt, Ireland and Hoskisson (2007) refers to strategic leadership as the ability to envision, imagine, and keep up adaptability and to empower others to make essential vital strategic changes. Strategic leadership includes enacting agendas that relate to the goal of the organization not just change visions, in addition to sustaining capacity for

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change implementation. While, Glenn and Mehdi (2009) define strategic leadership as the leader's ability to foresee situations, envision and maintain flexibility and engage others to make the essential strategic changes.

According to Duursema (2013) strategic leaders show dissatisfaction with the present, have absorptive capacity and adaptive capacity, and wisdom. Davies and Davies (2012) accentuated that the most significant parts of strategic leadership are shared values and a clear goal, the two of which will empower and enable employees to make vital decisions with minimal formal monitoring or control mechanisms. With this accomplished, a leader will have additional time and a greater ability to concentrate on other, ad hoc issues, for example, adjusting the vision to a changing business condition. House et al. (2013) clarify that the capacity of the leader to impact workers to settle on decisions expands the odds of accomplishment of the organization.

Many researchers within the field of educational leadership have tried to define the concept of strategic leadership. There are many definitions of strategic leadership, but all remain firmly related to planning and planning models. According to Leavy and Leavy and McKiernan (2009), strategy and leadership are usually presumed to be similar in practice and in theory to strategic management. The idea of leadership has evolved over time to be completely incorporated into the management repertoire. Also, Leavy and Mckiernan (2009) state that earlier person-focused leadership theories were more applicable to the middle-management level, where the emphasis is on team changes and generic interpersonal skills (Boal and Hooijberg, 2001, House and Aditya, 1997).

Davies and Davies (2009) state that the main goal of strategic leadership is the formulation of strategies and the implementation of change management strategies and

improvements towards organizational effectiveness and excellence. Also, Hill, Jones and Schilling (2014) state that strategic leaders of the strategy-making process can be managed through the formulation and implementation of strategies that enable the organization to achieve a competitive lead and superior performance. Moreover, strategic leadership may contribute to this through the way it approaches the leadership of the organization - its management style and the design of organizational structures as well as the delegation of authority, tasks which affect the behavioural, cultural rules, and values that arise within the organization.

The literature review shows that the strategic leadership dimension significantly affects organizational improvement. Alzahrani (2018) explains that leadership without execution of goals creates an empty vision, while management without leadership is near-sighted. Ussahawanitchakit (2012) describes strategic thinking and innovation as the ability to adapt to the environmental changes which could affect the organization and the administrative wisdom which represents taking critical actions based on understanding the change of climate and responding to it effectively.

Aydin, Guclu, and Pisapia (2015) identify a consensus in the educational literature on the role of strategic leaders in building sustainable learning environments and laying the foundations of an organizational culture characterized by continuous learning at the institutional level. Also, prior study such as Alsharqawi (2003) show that university leadership is the tool through which the quality of university education can be achieved. If the administrative process is to be efficiently planned and organized, it will lead to the better preparation of the student, the lecturers and the teaching process. Furthermore, Davies and Davies (2009) state that the backbone of strategic leadership is the formulation of strategies and the implementation of change management strategies and

improvements towards organizational effectiveness and excellence. Moreover, Hilt, Haynes and Serpa (2010) argue that one key responsibility of strategic leadership is to promote the absorptive capacity of individuals and groups in an institution via impress culture that promotes continuous collaboration network, risk-taking, learning, and communicating relationship among the subordinates.

This study defines strategic leadership as the leadership that clearly defines a future vision and seeks to achieve efficiency and effectiveness in the organization based on the relationship between the objectives and the purpose of the organization. It is leadership that has the flexibility to achieve integration and coordination between the organization and its environment, through innovation and creativity, to an achieve its objectives within the short and long term, thereby placing the institute in a leading position.

2.4.1 Strategic Leadership and Quality Management Practices

Many of the organizations that failed to adopt QM, or which encountered difficulties in its implementation, attributed this to the inability of managers to change the prevailing organizational culture. To effectively implement QM, those in charge of organizations need to re-conceptualize leadership methods and seek out leadership skills, while remaining conscious of essential aspects of quality and system planning (James, James & Potter, 2017, Sperber, & Linder, 2018). In their research, Sarfraz (2017) indicated that leaders are needed at all levels of an organization and emerge at different levels within organizations. Al-Ta'i and Kubaisi (2016) also describe leaders as individuals who can inspire a shared vision, build consensus, provide direction and promote changes in the beliefs and actions needed to achieve the goals of the organization.

Faraj Allah et al. (2018) revealed that leadership and quality are two distinct and interrelated concepts that cannot be separated from one another in the organizational structure. The quality procedure cannot be viewed as activities that are separate from the remainder of the institutions' work, as they are in fact an important aspect of its work. Undoubtedly, quality cannot be improved without an effective leadership delegate assigned by top management. Moreover, Alkhteb (2014), and Alnagar and Jawad (2014) explored the opinion that the most important factor contributing to the practice of QM in any institution is the spread of a culture of quality among administrative leaders within faculties, to convince them of the importance of QM to effect continuous change, because if leadership is not committed to and invested in the application of QMPs, obstacles will be unsurmountable.

Davies and Davies (2004) demonstrated that understanding the necessity for change in order to increase participation and motivation in the school is achievable with strategic leadership. Therefore, leaders in educational institutions must be prudent and able to develop strategies effectively to develop leadership skills that are capable of dealing with the environmental factors that might affect the operation of the organization in the context of education (Davies & Davies, 2009). According to Aslan et al. (2011), the insight and ideation capacities of planning, implementing and execution of plans involving temperamental, uncertain environmental conditions is strategic leadership.

As seen in the definitions, strategic leadership performs a substantial function in an organization in terms of environmental vulnerability. Also, Mohd Ali (2018) and Deeboonmee and Ariratana (2014) emphasized that leadership plays a role in managing quality in education. In fact, educational leadership provides insights into how an educational institution might effectively manage current situations and environments to

achieve international quality education and training. A literature review of strategic leadership and quality management practices shows that the strategic leadership practised by the leadership team within an organization influences the behaviour of the members of that organization (Marshall,2019).

This belief is supported by a study conducted by Al-Khtany and Amer (2019) in Saudia Arabia higher education. The study sought to investigate the role of strategic leadership in practising quality management and academic accreditation in King Khaled University. The findings showed that more than 50% of respondents believed that their Strategic leadership had a strong impact on QMP. The research also found that adopting a culture based on appreciation creativity was the factor that prevented strategic leadership from implementing QMP. A further study of the impact of strategic leadership, conducted with 158 workers in Egypt Public sector by Saied and Belal (2019), agreed that Quality management is significantly dependent on strategic leadership.

When debating strategic leadership in the education sector, researchers have provided interesting insights into leadership and QMPs. The relationship between leadership and QM was examined by Alayoubi et al. (2020) whos conducted an empirical study on strategic leadership and QMP in higher education. Their research objective was to measure the relationship between strategic leadership practices in higher education and improved QM. They performed quantitative research with a sample of 177 employees. In the same vein, Al-Naffar (2015) aimed to locate the extent of strategic leadership's contribution to QM in the Palestinian universities in the Gaza Strip. Their sample consisted of 320 academics and administrators and was designed to measure the presence of strategic leadership practices. Additionally, 382 students assessed the level

of application of quality in the target universities. The results from both studies indicated that the relationships between the variables were significant. Also, the study found strategic leadership made the greatest contribution to university development.

Moreover, Rahman et al. (2020), who used the following variables educational, leadership, teachers' quality to assess influences on QM. The study's finding was that all leadership variables positively and significantly correlated with QM. Also, Barbosa et al. (2017) conducted a study to examine the relationship between leadership and QM. The study participants were 47 quality managers. They collected the data using LinkedIn from a variety of countries including Brazil and the Central north region. The study found a significant relationship between QM principles and strategic leadership.

A study by Hamoud (2018) examined the role of strategic leadership to improve the quality of organization at the Ministry of Higher Education. The research population comprised 84 employees working at the ministry in various positions and described the clear impact of the importance of the ministry's strategic development, and worked on its application to keep pace with the multiple developments that can occur in the internal and external environment. There are also strategic controls that help the leadership achieve the ministry's goals. The study suggested senior leadership should support employees' new ideas and give them support and work as a team to set and achieve the ministry's objectives. Secondly, managers' selections were based on experience and competence in the promotion of employees at the ministry.

Djordjevic et al. (2020) explored the influence of Strategic leadership on QM planning. Their study sample was 85 organizational employees, and research was conducted in southern Serbia. The authors reported that the leadership, along with the certified quality system, according to ISO 9001, is seeking to introduce elements of QM to

achieve the organization's goals. In an exploration of quality managers at Iran's medical science university, Hamidi (2009) sampled 350 staff identified the essential skills required. In addition, the study evaluated the correlation between strategic management and QM. The findings of the study showed the importance of strategic leadership to QM in organizations. They implied strategic leadership is considered the most important challenge, and a key element of organizational change used to improve QM. Additionally, the merits of both Djordjevic et al.'s (2020) studies and Hamidi's (2009), was that they carried out strategic leadership and QM studies that were associated with the current study's two variables. Based on the empirical evidence from the previous studies and the relationship between strategic leadership and QMPs mentioned above, strategic leadership relates to QM, despite studies having been conducted in different countries.

In the Indian context, Kumar and Sharma (2018) investigated the relationship between four different management problem-solving styles and QM focus. The authors found a significant difference between the four types of leaders' characters, which were related to continuous improvement. In another study by the same authors, Kumar and Sharma (2018) examined the relationship between five leadership styles (i.e., transformational, servant, adaptive, rational and kinaesthetic) and a QM focus. Also, Bouranta (2020) examined how leadership affects numerous QM measures (customer focus, process management, human resource management, strategic planning and learning) in the Greek service sector. The study reported a positive relationship between leadership and QMP. It also demonstrated that implementation of QM is higher practical in the service sector.

Additionally, Azbari, Akbari, and Chaijani (2015) and Rahmana et al. (2020) collected data from employees in the educational sector. Azbari, Akbari, and Chaijani's (2015) sample were 235 of the 600 employees at Guilan University. While Rahmana et al.'s (2020) study sample was 423 secondary school teachers in Malaysia. The findings of both revealed that strategic leadership positively impacts educational institutions.

In a study by Alzahrani (2018), the aim was to describe the reality of the practice of the dimensions of strategic leadership and the availability of organizational learning abilities. The research community consisted of PhD faculty members and academic leaders chosen from among the Deans and heads of academic departments. The 364 participants were divided into 283 members and 81 leaders from 34 colleges selected using stratified random sampling. The results also show that strategic leadership is highly practised, and that there is a positive relationship between the dimensions of strategic leadership and the development of organizational learning capabilities.

Thabit and Hamad's (2013) study aimed to investigate the appreciation of faculty members in universities regarding the degree to which the Deans at colleges strived to develop their performance. A sample of 234 were studied. The most prominent finding was that Deans who engaged in strategic leadership practices generally succeeded in improving faculty members' performance. Also, there they observed a positive relationship between them. The study recommended developing the Deans of faculties' strategic skills and strengthening their strategic direction at all levels of leadership and management within universities.

Other studies found no relationship between strategic leadership and practise of QM. For example, the impact of leadership on QM was investigated by Cho and Jung (2014), their central objective being to examine the influence of leadership in the USA and

China on QM. The study's findings did not affirm any impact from leadership on QMPs in China. Also, Mahmoud (2018) in higher education in Egypt study determined the obstacles that prevent the practice of QM in the faculty of education at Alexandria University, from the perspective of faculty members, so as to identify barriers and propose ways to overcome them. The questionnaire was administered to 100 lecturers randomly chosen from among faculty members. The results showed that university top management is one of the most significant obstacles to QM, followed by teaching and learning, scientific research, community service, and personal characteristics of faculty members.

In a study of QM in HEIs, Al-Adadi (2012) identified the most important impediment to quality is the weakness in leaders' conviction regarding the importance of quality and improved performance, in addition to the weakness of the dissemination of quality concepts among administrators. In addition, a study by Patan Jalt Pandey (2013) identified the role of leadership in the application of QM and sought to ascertain what features of leadership are the most influential in establishing successful application of QM. The study identified an important role for the application of QM. One of the most important characteristics being the training of employees, the discussion of what motivates them, and encouragement of participation in decision making when practising QM.

Moreover, Al-Hawari and Al-Qans (2018) carried out a study to highlight the role of the President of Sana'a University and the colleges' Deans in promoting quality across faculties. The researchers used a questionnaire as the survey instrument and found no significant differences in the research sample's responses attributed to the relationship between leadership and QM. Similarly, Ho et al. (1999) found no evidence of a

relationship between top management support and QMPs. Kumar and Sharmal (2018) illustrated that while QM scholars consider effective leadership to be crucial in ensuring the practise quality in the institution, few studies have focused on integrating strategic leadership and QM research. This literature review found while some academic staff were convinced there was a link between QM and strategic leadership at their universities, others were unconvinced. Therefore, there is clearly a necessity for further studies addressing strategic leadership and QMPs in public universities.

2.5 Organizational Climate

Over the previous decade, several scholars have attempted to define the meaning of OC in the literature (González-Romá, Ostroff & West, 2017, Forehand & Gilmer, 1964, Litwin & Stringer, 1968, Susan, 2007, Schneider & Reichers, 1983, Steinke, Dastmalchian & Baniasadi, 2015, Benzer et al., 2011). Despite this, there is no unanimity regarding its definition or the associated dimensions. According to Schneider, González-Romá, Ostroff and West (2017), the concept of OC began to emerge in the early 1960s, eventually becoming a central research focus. They argue that OC is directly linked to organizational behaviour, since the behaviour of an employee is dependent on their work environment. The idea of OC is complex, and is frequently conflated with the idea of organizational culture. Broadly, however, OC is associated with people's perceptions concerning the key features in their environment.

Forehand and Gilmer (1964) simply define OC as a set of stable qualities that are attached to an organization that distinguishes it from other organizations. Moreover, Litwin and Stringer (1968) linked the idea of OC to how an organization is directly or indirectly perceived by the individuals who work there, reflecting upon how it influences their motives and behaviour. OC has also been described as a form of traits

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that can be linked to a specific organization, which are evident in the methods by which the organization is managed (Phillips, Little & Goodine, 1996).

Schneider and Reichers (1983) define the OC according to shared organizational policies, practices and methods. For instance, an organization's protocol for hiring staff, which is a formal aspect of organizations, exemplifies organizational procedure. The exclusion of certain groups from social collaborations within an organization reveals organizational practice. According to Benzer et al. (2011) organizational environment as a set of impressions and perceptions held by employees regarding the organization's policies, procedures and practices, which can be considered as indicators of conduct and performance as supported in the work environment. Moreover, Babatunde and Selamat (2012) defined OC as influencing employee ability, values, beliefs, attitudes and behaviours that might sufficiently motivate the accomplishment of organizational goals. Additionally, Steinke et al. (2015) clarified working environments as characterized by workers' opinions of the rules, practices, and processes expected, supported, and compensated for by the organization's human resources team. OC also, refers to the ethical perceptions shared among individuals from a given organization regarding the policies, procedures, and practices that govern it (Wallace et al., 2016).

The individual functions within the administrative environment, requiring interaction and communication with others. Their default perception regarding the organization typically determines employees' performance outcomes. For example, an employee with negative feelings toward the organization in which he\she works has low performance, but when positive feelings are associated with the prevailing OC performance improves, as does the motivation to work (Benbenishty et al., 2016, Doumas, Midgett, & Johnston, 2017, Karakos et al., 2016). Similarly, Johnson et al.

(2019) demonstrated that leadership in the educational sector can negatively or positively affect their subordinated and students.

Biggio and Cortese (2013) argued that a good OC promotes employees' development, thus indirectly improving organizational performance. Likewise, Jing (2011) showed that an OC that is less supportive and encouraging, such as one characterized by weak communication and interaction between management, employees' tense personal relationships, poor supervision, etc., contributes greatly to employee dissatisfaction and reduces the performance outcomes of the organization. Thus, the OC is important because it is necessary to encourage the fulfillment of the organization's objectives and develop new dimensions (Fattah, Zureigat & Elayyan, 2018).

The OC in any establishment determines the level of satisfaction and dissatisfaction among employees, thus facilitating the administration to foster interactivity in the workplace and thereby improve productivity (Okoli, 2018). According to Naqshbandi, Tabche and Choudhary (2019), a positive OC affords employees the right to express their opinions and participate in decision making. It is the basis for continuous improvements in quality and helps by identifying areas of imbalance and inefficiency in performance, as it encourages employees at all levels to communicate effectively with the administration.

The general consensus of many scholars regarding the OC at any organization, including universities and educational institutions, is that it provides the administration with essential data about the conditions and organizational characteristics required within it, so that the administration can determine the time taken to make the required changes, and thus influence the behaviour of workers affecting the extent to which the organization can achieve its objectives (Al Shobaki et al., 2018, Salama et al., 2018).

Meanwhile, Purvis, Zagenczyk and McCray (2015) hinted that the importance of OC is linked to its active role in the organization's success or failure. OC has a significant impact on employees' attitudes, motivation, satisfaction with work, and consequent behaviour and performance (Budihardjo, 2017).

Authors and researchers studying OC have identified a varying number of basic dimensions associated with it, the most famous models of which are detailed in Table 2.3 below.

Table 2. 3

General Dimensions of OC

Models	OC dimension according to the models
Litwin and Stringer (1969)	Nine dimensions: organizational structure, responsibility, reward, risk, warmth, support, standards, conflict and indemnity.
Campbel et al. (1974)	Ten dimensions which are: Task structure, reward and punishment, decision centralization, training and development, risk and safety, openness or defensiveness, status and morale, recognition and feedback, general organizational competence and flexibility, achievement emphasis,
Lawer et al. (1974)	Two Dimension, which is: Organizational structure include (degree of centralization in decision making, formal degree in working procedures and degree of interference between FAO sub-systems). Organizational process includes (leadership, reward and conflict confrontation).
Likert (1967)	Seven dimensions: Leadership, motivation, communication, interaction and influence, decision making, goal setting and control.
Kozlowski and Doherty (1989)	Eleven dimensions: Work structure, understanding job, personal accountability, responsibility, supervisor focus on work, participation, supportive supervision, teamwork, inter-group cooperation, management awareness and communication.
Fisher and Fraser (1991)	Eight dimensions: student support, affiliation, professional interest, staff freedom, participatory decision making, innovation, resource adequacy and work pressure.
Johnson, Stevens and Zvoch (2007	Five dimensions: Collaboration, decision making, innovation, student relation and school resources.

Source: Adapted by the Author (2019).

Litwin and Stringer's (1969) model emphasizes that different leadership styles can create a distinctive OC and that the dimensions of the OC influence motivation to work,

performance, achievement and the overall satisfaction of employees (Rogers, Miles & Biggs,1980). Meanwhile, Campbel et al. (1974) highlighted the significance of criteria for evaluating performance and accounting based on results that include team building but neglected leadership style. Lawer et al.'s (1974) model is partially consistent with Campbel et al.'s (1974) model with respect to identifying key OC dimensions as organizational structure, responsibility, remuneration and relationship between organizational members.

In light of the above dimension of OC, the current study draws on Johnson, Stevens and Zvoch (2007) model, which includes five dimensions. According to Fisher and Fraser (1991) and Goddard, LoGerfo and Hoy (2004) models can be used to simultaneously examine the correlation between school climate and collective efficacy. They can be used with observations and interviews to evaluate how school climate changes over time from the perspective of educator perception. Johnson, Stevens and Zvoch (2007) utilized the School Environment Level questionnaire (SLEQ) to investigate teachers' perceptions of the educational organizational climate and several additional factors, e.g., leadership, academic press, satisfaction, and educational quality. Their model effectively examined the relationship between the previous factors and student achievement. Additionally, Johnson, Stevens and Zvoch (2007) ascertained that the SLEQ is useful for providing data to assist teachers to identify climatic elements they wish to change.

The current study will use OC as the mediating variable the influence of Strategic Leadership on QMPs. A study conducted by Laing (2000) focused on investigating the similarity between the operational approach employed by schools and the measurable factors of QM based on Demings fourteen points. The study utilized a QM instrument

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and School Level Environment questionnaire to examine successful management theories known to inform the school climate. The findings represented a significant appropriate underpinning success in primary schools.

In their study, Johnson, Stevens and Zvoch (2007) recommended that the SLEQ is a significant tool designed to examine educators' perceptions of the school climate. The most important factors associated with the OC, and which helps to support and practice QM in higher education as well as create a positive environment for fulfilling the institution goals are listed as:

(1) **Collaboration**: educators can acquire help, counsel and encourage and are made to feel accepted by their fellow colleagues.

(2) **Decision Making**: Educators, have the opportunity to participate in decision making.

(3) **Innovation**: the school favours planned change and experimentation and fosters openness and individualization in the classroom.

(4) **Student Relations**: there is a decent affinity between instructors and student behaviour with regard to portrayal of self-discipline.

(5) **School Resources**: Support personnel, infrastructure, fund, equipment and assets are suitable and adequate.

Therefore, this study considers OC as the mediating variable when assessing the above eight dimensions, namely: student support, affiliation, professional interest, staff freedom, participatory decision making, innovation, adequacy of resources, workplace pressure.

2.6 Strategic Leadership and Organizational Climate

The OC advocates that the leaders of institutions play a pivotal role in determining OC (Cloete, 2011). This opinion is based on a holistic view of how organizations interact

and deal with both staff members and the wider environment. Discussions of the OC are increasingly popular with organizational psychologists but are frequently confused with organizational culture (Moran & Volkwein, 1992). Cooke and Rousseau (1988) stated that the distinction between OC and organizational culture arises by providing a list of definitions of climate and culture. Nerstad et al. (2018) stressed that climate reflects perceptions of institutional structures and how it feels to be a member of an institution. OC relates to how to behave within the institutional environment. According to Castro and Martins (2010), managers need to conduct regular climate surveys to investigate staff members' perceptions of the climate and take steps to correct any misconceptions.

Greyvenstein (1982) carried out a survey that revealed that altering the leadership of organizations affected OC. Moreover, Kozlowksi and Doherty (1989) stated that all early theorists, such as Blake and Mouton (1964), Lewin (1951), Likert (1967), Litwin and Stringer (1968) and McGregor (1960) considered leadership to be the most significant factor determining employees' perceptions of climate. Goleman (2000) examined the influence of climate relative to strategic leadership. The study revealed a direct correlation between the two variables. He indicated that an organization whose leaders employ strategic leadership styles are positively affected by climate. A study by Murgan (2010) revealed that a suitable OC within universities helps faculty members perform their jobs better.

Refresh study in the Malaysian context, Jalapang and Raman (2020) conducted a quantitative study to detect the impact of instructional leadership, principal's efficacy, teachers' efficacy and school climate on the academic achievement among secondary school students in the Sarawak. They noted a significant influence from leadership on

improvements to the school climate. Besides, A qualitative study by Williams (2020) discussed how leadership practices could, directly and indirectly, impact educationals' climate utilizing Sullivan's motivational language theory and Deci and Ryan's self-determination theory, and the study found a positive influence from leadership type on educational climate.

A study conducted in Egypt by Abdlmawela (2020) to examine strategic leadership's capacity to improve the OC in the education sector revealed its importance to teaching staff. It informs their capacity to achieve the institution's goals. Therefore, the needs of workers must be met, and staff encouraged to participate in decision-making. The study also confirmed that strategic leadership has become necessary to develop educational institutions' outcomes and the skills of personnel.

In addition, Aboalghanam (2019) also conducted an empirical study on leadership and the OC in the education sector. His research objectives were to identify the relationship between leadership and OC based on teachers' and principal assistants' perceptions. The results showed an association between leadership and the OC. This indicates the OC is affected by the degree to which department principals practice strategic leadership. Thus, principals who possess leadership characteristics to a high degree can create a suitable climate for employees.

Moreover, Buckner-Capone (2019), in his explanatory sequential mixed methods design, elaborated that leadership was necessary to improve school climate. His study also found that leaders interpret and implement assessment strategies that impact obtained data and the decisions subsequently being made. In the same vine, A random study by Chanpoom and Intrawong (2019) involving 93 respondents was carried out

using questionnaires. Its results showed that an organization's leaders have the ability to develop both the OC and employees' commitment.

In the context of Thailand, Chanpoom and Intrawong (2019) investigated the influence of strategic leadership and OC on organizational commitment. 93 questionnaires were used to collect data from the target respondents working at a saving cooperative employees in Thailand. The study's findings revealed that strategic leadership and OCs have a significant effect on organizational commitment in saving cooperatives. The study indicated that it would benefit the management of savings cooperatives to improve and enhance their management techniques to facilitate leaders' development, the OC and employee's organizational commitment.

A study by Ahmed (2018) aimed to identify the concept of leadership and OC in Egyptian universities. Also, to investigate the relationship between university leaders and administrative creativity. The sample was intended to include 18 Deans, 18 vice Deans and 18 heads of department, and found a moderate level of OC and a positive relationship between university leaders and administrative creativity. Moreover, the study by Al Shobaki et al. (2018) contended that climate plays a significantly influential role in higher education institutions (HEIs), due to its prominence bolstering employee satisfaction and development. Therefore, organizations frequently interrogate their internal environment and work to develop and improve upon and enhance quality.

Furthermore, El-Talla (2017) conducted an empirical study of the OC and job satisfaction. They aimed to examine the relationship between the OC dimension, which includes (communication style, nature of work and the technology used) and job performance. A survey was distributed randomly to 262 administrative staff. The findings revealed that there was a significant relationship between key organizational

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variables and job performance. In the same vein, El-Talla (2014) examined the OC from the viewpoint of administrative staff. The OC element comprises (organizational structure, leadership style, and the extent of workers' participation structure in decision making). The study used 77 participants as a study sample. It found a moderate level effect from OC at Al Azhar University. El Talla (2014 and 2017) were conducted in Gaza and focused on OC in the university setting, assessing different dependent variables while emphasizing the importance of the workplace climate.

Amidianpour, Esmaeilpour, Alizadeh and Dorgoee (2015) reported that leadership and management behaviour are the most significant factors affecting OC. Isci, Cakmak, and Karadag (2015) carried out a survey evaluating the effect of leadership on OC via a meta-analysis study. The study used 270 questionnaires to collect data from the target respondents. Of these, 99 questionnaires were received from the field of study. The study reported that leadership has a significant positive effect on OC. In addition, the leadership approach was a moderator construct.

A study by İşçi, Çakmak and Karadağ (2015) involving 99 research studies that examined the influence of leadership on OC, found a large positive impact from leadership on the OC. This finding suggests the leader occupies an essential place in establishing the OC, and that there is a strong relationship between leadership and OC. In another study, Raman et al. (2015) conducted quantitative research in the Sri Aman District in Sarawak. Their sample size was 188 respondents chosen randomly. The results demonstrated that the role of the school climate is notable, and there was no significant relationship between the nature of the principal's leadership and the school climate.

In the research, Novac and Bratanov (2014) investigated the impact of leadership on a public organization's OC. They identified a strong relationship between leadership OC. It was determined that a leader's best course of action depends on a series of situational factors, among them employees' level of professionalism. Public sector leaders should also aim to adapt to the requirements of the OC and adopt a more flexible working system. Indeed, study results are viewed as a supportive indicator when checking the results and quality performance in the studied organization. Also, Ma'aytah's (2014) study emphasized the importance of educational leadership in improving OC. Their study recommended the necessity of identifying the obstacles that school principals encounter when exercising their role in improving the OC in schools.

In addition, Gulsen and Gulenay's (2014) study aimed to identify the importance of leadership to influence on OC. They reported a strong impact between the leadership and the OC. Indeed, based on the current study review, leadership is a critical antecedent theme in the educational, OC literature. Also, Abu Al-Arab (2013) conducted a study aimed at identifying the relationship between leadership behaviour and the prevailing OC. Their sample consisted of 500 educators, and showed a positive relationship between leadership OC. At the same time, there were no significant differences observed due to gender or years of experience.

Studies such as those are Aldridge and McChesney (2018), Castro Silva, Amante and Morgado (2017), Garg and Rastogi (2006), and Kutsyuruba, Klinger and Hussain (2015) have suggested that top management need to be mindful of the fact that designing a positive and supportive climate is one of the most significant facets of their responsibilities. Additionally, top management believes that the atmosphere among teachers is one of the key factors by which to measure an educational's success.

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Therefore, it can be argued that top management needs to consciously embrace strategic leadership, as do university leaders. Public universities in Egypt are in dire need of a leader capable of lifting them out of a state of complacency and failure to one of dignity, order, and exceptional performance.

Based on the previous studies indicated above, several studies showed a significant positive relationship between strategic leadership and OC, and others a negative one. However, the mixed results regarding strategic leadership and OC were obtained in relation to the different level of educational sectors of the economy and different environments. This study targets the relationship between strategic leadership and the OC in Egyptian HEIs.

2.7 Organizational Climate and Quality Management Practices

The literature on OC suggests successful implementation of QMP depends largely on a work climate that is conducive to innovation (Emery, Summers & Surak, 1996). Such an OC provides an essential framework within which the learning process can be nurtured, enabling QM to flourish (Kitratporn& Puncreobutr, 2016). Also, Berkovich and Gueta's (2020) study showed that to significantly predict employee's involvement and organizational effectiveness depends on a supportive climate and employees' commitment to the institution.

Previous studies have implied a significant connection between OC as well as QMPs (AL jufri and Priyono, 2018, Al Shobaki et al., 2018, Pratomo, 2020, Siregar, 2020). However, researchers have actually identified no simultaneous studies, including OC and QMPS variables in the context of Egypt. Researchers in other contexts have found there are fewer concepts and insights that support these consistent variables. Consequently, more study is needed to address the problem.

Based on prior studies, Hisan, Ananda and Hasnida (2021) highlighted that OC is an effective management system to generate motivation among individuals according to the goals and tasks set within an organization. Further, OC informs the individual's perception of the clarity of tasks, jobs, salaries, ways of making decisions, communication, work standards, and conflict management in the organization.

Pratomo (2020) carried out a study at an Islamic junior high school in Indonesia to investigate the impact of organizational climate on QM services, and the quality of students upon leaving primary and secondary school. The study observed that a suitable and effective climate enhances the quality of management services in education and the quality of graduating students. Simillary Siregar (2020) conducted research in Indonesia to examine the impact of OC on QM services in education. The data collected for the study came from 150 employees. His study supported the positive impact of OC on QMS. It also indicated that improving the OC significantly improves QM services in the university.

Furthermore, Al Shobaki et al. (2018) contended that climate plays a significant role in HEIs, due to its prominent role in supporting employee satisfaction and development. Many organizations choose to study their internal environments and work to develop and improve them to enhance quality. In the same vein, Al-Arabey, Al-Hawary and Hassan (2018) examined the detrimental relationship between communication, as one of the dimensions of OC, and the quality of education in schools, from the point of view of teachers using the quantitative approach and a random sample of 50 teachers from 5 schools. It was found that there was no significant relationship between educational communication between the leader and learning and the quality of education.

According to Al Damoe, Hamid and Sharif (2017), an organization's effectiveness and improvements to QM depend on the OC. In Thiland study by Na Ayutthaya, Tuntivivat and Prasertsin (2016) examined the influence of OC on Thailand's QM services. The study employed mixed methods to answer the research question, using a questionnaire, and conducting interviews with employees. The study indicated that OC has a positive effect on QM services. Additionally, Mustafa (2016) aimed to identify the OC in the faculties of specific education in Mansoura and Damietta, and to discover the problems faced by students and teachers working in the college administration to determine their impact on the quality of educational performance by conducting a questionnaire. The study concluded that the students perceive that the college does not help them. The results showed that faculty members view the college environment as an official work setting without paying attention to social relations, which then affects the quality of educational performance.

Al-Subaie (2014) ascertained that since HEIs are concerned with quality, the greatest effort should be directed towards creating and improving the OC to enhance employees' capacity to perform effectively. Besides, study by Ibrahem (2012) aimed to identify the role of the OC in spreading a culture of quality among faculty members within the faculties of Al-Azhar University in Dakahlia Governorate, to identify the relationship between key variables (college, job, experience, gender, degree) using a questionnaire distributed to 180 teaching staff. The results showed that degree of achievement within the OC was moderate and that differences in statistical significance were present for males.

Johnson, Stevens, and Zvoch (2007) recommended that SLEQ be considered a powerful tool with which to examine teachers' perceptions of the school climate to

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support student achievement. The most crucial facet of the OC is that it can support the practising of QM in higher education and create a positive environment for fulfilling the institution's goals. Meanwhile, Purvis, Zagenczyk, and McCray (2015) hinted that the importance of OC has emerged due to its active role in the organization's success or failure. OC has a significant influence on employees' attitudes, motivation, satisfaction with work, and consequently their behaviour and performance (Budihardjo, 2017). In addition, OC can be conceptualized by examining the perception of employees in institutions with regard to supervision and communication.

The extant literature clearly indicates the significance of OC on QMPs and university outcomes, and furthermore, that the state of Egypt is committed to ensuring universities work to continuously improve the university climate and conditions. A current challenge is that the climate within the university is not consistently defined and/or measured, thus impacting on the use and applicability of assessment tools and the potential for change in public education policy and practice. While the climate within public universities is a state priority, it remains unclear how those responsible for public education provide a convenient climate to improve quality, and whether or not the climate at the university is useful to enhance and improve quality management practices. Thus, this study intends to test the relationship between OC and QMP in the Egyptian higher education setting.

2.8 Mediating Role of organizational climate

First and foremost, mediating variables, otherwise known as intervening or process variables, cause mediation in the connection between the exogenous variable (i.e. independent variable) and the endogenous variable (i.e. dependent variable or outcome) (Baron & Kenny, 1986, Kenny, 2014, Muller et al., 2005). A typical mediational

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research model assumes there is no direct nexus between the exogenous variable and the endogenous variable. Rather the exogenous variable, in the first place, influences the mediating variable, and consequently, the mediator influences the endogenous variable. This is referred to as a causal chain of effects and characterizes the connection between exogenous and endogenous variables.

Although the literature abounds with research examining the relationship between leadership, OC and QMPs, the majority of researchers are divided in approach, with some studies examining leadership and QMPs on the one hand, and others focusing on OC and QMPs on the other. In an attempt to narrow this gap, Suleiman (2019) investigated the mediating effect of OC on the relationship between the Islamic work ethic of job satisfaction and job performance. Using SPSS to analyse the data collected from 268 employees indicated the full mediating effect of the OC. Another study by Moslehpour et al. (2019) examined the mediating effect of OC and work style on leadership style and employee satisfaction in Mongolia. The study showed mediation between climate and work style affected the relationship between the independent and dependent variables. Substantial research has established the positive influence of OC. Research of relevance to date includes, among others, Alshaabani and Rudnák (2020), Asio (2020), Demiröz (2020), İşçi, Çakmak and Karadağ (2015), Pérez-Vallejo and Fernández-Muñoz (2020).

A study by Abraham (2019) examined the mediating effects of OC on the relationship between leadership outcomes and organizational strategic planning, also highlighting the full indirect influence of OC as a mediator. In addition, Mahmood, Ismail, and Omar-Fauzee (2019) conducted a study on the mediating effect of OC on the relationship between QM and school performance in Pakistan. The study retrieved 232

questionnaires from the target respondents in Pakistan. Three hypotheses (such as training and education, continuous improvement and social climate) had a significant impact on performance. It was revealed that OC mediates the relationship between QM and school performance in this context.

Furthermore, in Iran, Kohan et al. (2018) examined the mediating role of OC in the relationship between leadership style and friendship in the organization. The study found OC mediated the impact of transformational leadership style on friendship level among 530 workers within the organization. This finding supports the empirical study conducted by Imran and Anis-ul-Haque (2011), which found OC to have a mediating effect on transformational leadership style and innovative work behaviour among 320 managers of 16 Fast Moving Consumer Goods (FCMG) organizations in Pakistan.

Sethibe and Steyn (2018) analysed the mediating effect of OC on the relationship between leadership and their components establishing innovative behaviour. Data was collected from 3,180 participants at 52 companies in South Africa, and the results revealed a significant relationship between OC and innovative work behaviour. A study by Al Damoe, Hamid and Sharif (2017) investigated the mediating influence of OC on the relationship between HRM practices and HR outcomes using data, including 214 HR managers from public government organizations in Libya. The results suggest climate can either fully or partially mediate the influence of HRM practice. In another study, using data collected from 54 respondents in China, Pei (2017) analysed the relationship between a structured leadership style and an organization's teams' creativity. The results showed that team innovation and creativity is influenced by climate.

Furthermore, Zubair et al. (2015) undertook research on the role of climate as a mediating factor altering creativity in Pakistan. The data collected from 206 managers and their employees reported that the climate of the organization serves as a partial mediator for creativity and change. In addition, Aiyadh et al. (2014) researched the role of OC as a mediator in the context of Saudi Arabia and found that OC comprehensively mediated the relationship between Transformational Leadership and perceptions of patient safety. Correspondingly, Alotaibi et al. (2015) examined the mediating effect of OC on high performance at work based on data collected from 202 employees and tested using a PLS, and found that OC was pivotal as a mediating factor.

Another study to evaluate OC as a mediating variable was that by Yasir, Imran, and Irshad (2013). The study aimed to reveal the mediating effect of OC on the relationship between a transformational leadership style and organizational performance. The study's sample size was 222 responders from the banking sector. The authors reported significant mediating relationship between OC and individualized considerations.

Moreover, based on Baron and Kenny's (1986) supposition, OC is logically and empirically fit to be the mechanism (mediator) through which any identified lacunas will be resolved. Baron and Kenny (1986) indicated that there is a possibility of a particular construct becoming a mediator if there is a relationship between the construct, independent variable and dependent variable. There is an anticipated relationship between the independent variable and the dependent variable. This is also consistent with Hair et al.'s (2014) suppositions regarding Preachers and Hayes's (2004, 2008) mediation procedures. As mentioned above, a substantial set of studies have established a relationship between strategic leadership, OC, and QMPs. Thus, it can be proposed

that OC plays the role of mediator in strategic leadership, QMPs, and OC, as research has established links between these variables.

In essence, in spite of the attention given to the study of OC by various scholars in the past few years, it has been noted that most studies investigate the relationship between OC, job satisfaction, performance and the role of principals in schools. Consequently, little has been done regarding the OC and QMP, especially in Egyptian universities. This study will investigate the mediating role of OC on the relationship between strategic leadership and QMPs.

2.9 Demographic Factors

In terms of the impact of demographic factors, prior research has exposed significant associations between demographic factors and QMPs, strategic leadership and OC (Al-Ashmary, 2020, Aboalghnam, 2019, Ahmad, 2019, Aobidah, 2016, Ashory, 2017, Al-loah and Abohagar, 2017, Al-Fadel, 2020, Al-sayegh, 2020, Al-Asmary, 2020, Mouns, 2020). Managing demographics in the workplace should be part of the culture of the entire organization. According to Adio and Popoola (2010), there are numerous demographic factors to consider, i.e., age, gender, colleges, qualifications, programs, work experience.

In the context of the workplace, Greenberg (2004) identifies demographic characteristics that include race, gender, ethnic group, age, personality, cognitive style, tenure, organizational function, and educational background. Additionally, according to Zhu, Shen and Hillman (2014), demographic characteristics inform employee performance, as they "evoke differential expectations among the employees". These characteristics include educational status, age, race, family-related characteristics, marital status, ethnicity, years of service, and religion. There are a number of

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demographic characteristics in play when employee performance management is considered. These oughts to be considered when managing employee performance, in order to ensure they are not a hindrance but rather profitably utilizable.

Moreover, Jackson and Henderson (1995) define demographic characteristics as the presence of differences among members of a social unit. Meanwhile, Fletchl (2010) points out that demographic characteristics have an influence on whether employees will be committed to their work or not. He observes that how well an employee performs, and how many years they are ready to dedicate in service, as well as how far they act in the best interest of their firm's objectives depends heavily on how much these organizations take care of needs associated with their demographic profile. However, he fails to explain how this can be put into practice. In this study, the researcher focuses on a number of demographic factors, such as gender and work experience in reference to key research variables.

A further consideration was that Kerlinger, and Lee (2000) explained that anything that affects a research design's controls represents a problem for internal validity. Consequently, personal demographics, such as age, educational level, gender, job rank, and job tenure were statistically controlled for in the data analysis.

2.9.1 Gender and Experience in Strategic Leadership

Studies concerning strategic leadership have indicated differences in the level of strategic leadership, for instance, a study by Deeboonmee and Ariratana (2014), and Thabit (2013) found strategic leadership is largely practiced in universities. Likewise, Abdo (2017), Ahmad (2020), Mouns (2020), Samaraddin and Alqurashi (2020) and, Alzahranaa (2018) found in their study the level of strategic leadership was high. Also, the study by Ahmad Masrizal et al. (2012) and Ahmad Masrizal (2013) found that the

principals of fully residential schools practised highly strategic leadership while Al-Sarhan (2012) found the level of strategic leadership was moderate. Also, Mohamad & Ismail (2018) examined the strategic leadership and teaching quality of teachers in the Kelantan Islamic Foundation. The study found that strategic leadership was at a moderate level with a significant and positive relationship with the quality of teaching. On the other hand, a study by Al-Aklaby (2018) aimed to identify the role of OC within institutions, reported the level of strategic leadership was low, and recommended that strategic leaders should build work teams among employees to perform their tasks flexibly and efficiently.

Thabit and Hamad's (2013) study aimed to identify the degree to which the Deans of colleges at Palestinian universities practise strategic leadership from the perspective of faculty members, and their perceptions of resulting performance. A sample of 234 individuals were canvassed, and the most prominent results of the study were that the Deans utilize predominantly strategic leadership practices. In their research, Ahemad, and Al-Faqih (2011) focused on identifying the reality of the practice of the heads of academic departments at the University of Najran to drive strategic leadership using the descriptive-analytical method, the study sample included the views of 153 faculty members. The results showed the degree to which strategic leadership is implemented by heads of the department in academic settings.

Al-Sarhan's study (2012) identified the Degree of Academic Leaders Exercise of Strategic Leadership and its relationship to the Functional Performance of Faculty Members at Al-Bayt University. They utilized a questionnaire to target a random sample of 174 members and 37 leaders, and where strategic leadership was found to have been adopted to a moderate degree. A study by Deeboonmee and Ariratana (2014)

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aimed to identify levels of strategic leadership, and the relationship between strategic leadership performance and school effectiveness. The sample of 11 schools consisted of 32 school leaders and 217 teachers, and the outcome of the findings showed strategic leadership dominated.

Gender diversity has become a major challenge for organizations. Politically, Gatrell and Swan (2008) indicated that the unfair representation of women in the labour market is unacceptable. Moreover, Joshi et al. (2015) highlighted that gender diversity stimulates improvements in economic returns by fuelling productivity. Solakoglu and Demir (2016) pointed out that the effective management of gender diversity entails pursuing positive organizational outcomes, such as accessing new markets, building a robust and positive corporate image, and enhancing employee commitment. The current study examines the level of strategic leadership at a public university in Egypt in terms of gender and experience, from lecturers' perspectives.

Prior studies have been conducted on the level of strategic leadership to identify the different perceptions of employees regarding strategic leadership in terms of gender and experiences, and this research found differing findings in their results. Ahmad and Al-Faqih (2011) found no significant difference in the level of strategic leadership associated with gender and qualification. Similarly, a study conducted by Ahmad (2019), Al-loah and Abohagar (2017), Mouns (2020), and Samaraddin and Alqurashi (2020) rejected the alternative hypothesis and accepted the null hypothesis that there was no significant difference in the level of strategic leadership due to gender. In contrast, other studies such as those by Abdo (2017), Abousamrah (2019), and Thabit (2013) aimed to determine the level of strategic leadership in relation to gender and suggested a significant difference exists that can be attributed to gender.

Moreover, previous studies investigating the level of strategic leadership in terms of years of experience have reported different results, for example, a study conducted by Ahmad (2019), Ahmad et al. (2020), Al-loah and Abohagar (2017), and Samaraddin and Alqurashi (2020) found differences in level of strategic leadership in terms of experience was not significant, accordingly, the perception of employees was equally. Meanwhile the study of Mouns (2020) and Thabet (2013) found there was a significant difference due to years of experience, perhaps reflecting those employees who work for a long period have understand the necessity of effective leaders at all levels of the institution (Sarfraz, 2017). In summary, previous studies recommended the need to enhance strategic leadership practices in educational organizations through training courses, specific conferences, and detailing the significance of strategic leadership in the context of the education sector.

2.9.2 Gender and Experience in Organizational Climate

The gender of an individual affects his or her performance, and as such, higher education officials need to consider this when assigning duties and evaluating employee performance. Al Shobaki et al. (2018) hinted that as individuals in an effective organizational environment perceive their importance at work and are permitted participate in decision-making and contribute to the formulation of policies and organizational plans, a feeling of trust develops between management and subordinates. In addition, Zohar and Luria (2004) consider that OC reflects popular understanding of organization's members concerning the working climate influencing their feelings towards the organization.

Previous research was conducted on the OC level from lecturers' view in higher education, this research found conflicting findings in their results. For example, Al

Shobaki et al. (2018) conducted research to determine the level of OC that prevails in Gaza Strip University using the descriptive method by using a questionnaire distributed to 280 employees, the study found a high degree of OC. Mahasneh Gazo and Al-Adamat (2019) also, conducted a study to identify the level of OC in higher education in Kuwait. His study found no statistically significant differences in the level of the OC due to gender. In the context of Iraq, Al-Jassimi (2011), the study objective aimed to explore the level of OC at the faculty of management and Economic. The study used leadership, organizational structure, working condition, teamwork and evaluation of performance as the dimension of OC. The sample of the study was 40 respondents and identified a high level of OC at the facility. Furthermore, the study observed a significant effect on OC. The study suggested the need to keep improving the OC as well as encourage the participation of employees on decision making.

With regard to gender, in their study, Mahasneh Gazo and Al-Adamat (2019) found no statistically significant differences in the level of the OC due to gender. The results reported by Aboalghnam (2019), Ashory (2017), Aobidah (2016), and Al-Ashmary (2020) found no statistically significant differences in the dimensions of OC associated with gender. While the study by Kailany and Alsaud (2016), Aboudahr and Bin Mohamad (2020) and Seyyedmoharrami et al. (2019) observed a significant difference in the OC regarding gender, which was linked to the attitudes of men.

Hashem (2013) aimed to identify the reality of the application of QM in public education for girls in the Al- Jouf region, from the standpoint of the female teachers, and detect whether there was a statistically significant difference in the reality of the application of QM in public education for girls according to specific variables (qualification, experience, type of stage). The study also aimed to highlight the OC

prevailing in the institutions of public education for girls in the Al-Jouf region in terms of the application of QM from the viewpoint of the female teachers. The sample included 25 primary, middle schools and secondary schools of general education in Sakaka in Al-Jouf, and 322 female teachers. It was carried out at the end of the second semester of the year 1433-1434 (2013). The results revealed that some aspects of QM were highly applied and others only moderately. The variable included was academic qualifications. No differences arose due to experience with the variable or educational level, and there was a positive correlation between estimating the female teachers views of the prevailing OC, and their estimations of the dimensions of QM, and barriers impeding the implementation of the dimensions of QM public education for girls in AL-Jouf.

Furthermore, considering length of service, Seyyedmoharrami et al. (2019) found OC has a moderate level effect in institutions among long serving employees attributable to experience. Likewise, a study conducted by Kailany and Alsaud (2016) found the perception of lecturers to the level of OC differed significantly when employees had worked for a long period of years. While Ibrahem (2012) found no significant differences connecting academic staff and emphasis on the importance of OC to improve performance. In reference to secondary schools, Almansiy (2017) evaluated the level of OC and found no significant differences. Furthermore, Al-Rkibat (2018) reported the highest level of appreciation of OC in university settings, but no significant difference in terms of experience. Additionally, Aboalghnam (2019), Al-Twian (2019), Al-Agha (2015), and Hashim (2013), reported no significant differences in perceptions of the level of the climate due to experience.

2.9.3 Gender and Experience in Quality Management Practices

Bonstingl (1992) revealed that, concerning the principle of QM, institutions must rely on their suppliers and consumers opinions regarding their success. Furthermore, previous studies examining QM in the education sector have identified a significant difference in the levels of QMPs in terms of various factors (work experience, and gender). Of the research conducted regarding QM in education, this research has identified inconsistent findings across several studies. For example, Al-sayegh (2020) studied the effectiveness of government school principals' planning and its relationship to the overall quality of the educational process from the point of view of educational and administrative supervisors in the government of the Northern West Bank. His study found a significant difference among the 190 employees in terms of gender associated with males. Similarly, Al-Asmary (2020) found there a significant difference in terms of gender-linked to males. Al-Fadel (2020), Pour and Yeshodhara (2009) found a significant difference in the level of perception of QM linked to females. Meanwhile, Thakkar et al. (2006) and Temponi (2005) found no significant difference between males and females towards QMPs.

Moreover, in the context of Egypt Mahmoud (2018), determined the obstacles that prevent the practice of QM in the faculties of education, at Alexandria University, from the point of view of the faculty members. Meanwhile, the study measured the impact of variables (gender, degree, specialization) on the opinions of faculty members regarding the obstacles to quality practice in the fields of (teaching and learning-scientific research, community service - university administration - and personal aspects of faculty members). The questionnaire was administered to 100 lecturers randomly sampled from among faculty members. The results showed university administration to be one of the most notable obstacles facing QM, followed by teaching

and learning, scientific research, community service, as well as the personal side of the faculty member. Finally, the study showed no significant differences in key variables (i.e., gender, degree level, specialization) on opinions regarding the application of TQM within the faculty.

Furthermore, regarding experience relating to the level of QMP, Al-Asmary (2020) conducted a study in Saudi Arabia and found no significant difference in the perception of education associated with the experience. In addition, Al-Fadel (2020), Al-sayegh (2020), and Elsayed, Sulaiman, Al-Mashikhi, and Alawaed (2020) found no significant difference in terms of experience. Elsewhere, Al-kalbany and AL-shamly's (2020) study found a significant difference associated with educational employees with more than 10 years' experience. Also, Al-badaai, Aloufi, and AlHeji (2018) found that employees with more than 15 years' experience have a high appreciation for the benefits of QMP's capacity to improve the quality of any institution.

2.10 Chapter Summary

This chapter serves as an elaborate review of related literature under key variables (strategic leadership, OC and QMPs). It emphasized the dimensions adopted in prescribed theories proposed by scholars in the reviewed literature. Several theories were employed in previous studies in a variety of contexts; however, this study will aim to confirm this theory in the context of Egypt. This chapter also described previous research studies related to the variables identified for this research. It presents measurement indices for all the target variables, as well as providing an extensive review of the relationship between these variables. The research described in the following chapters will concentrate on highlighting the links between the strategic leadership of departments and QMPs and the existing relationship between strategic

leadership and OC as perceived by public university lecturers in Egypt. Therefore, the

next chapter explains the research methods adopted to guide this study.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methods employed for the data collection in this study that was designed to achieve the framework required, and the objectives of the research. The chapter is divided into sections that explore the rationale for the methodology selected, the approach to the data collection, the research design, and the data analysis.

According to Creswell (2018), in order to achieve success in a research study, it is necessary to have a clear objective when selecting a methodology to address each research activity. The current study used a quantitative research approach to investigate the direct effect of strategic leadership and organizational climate on higher education institutions' quality management practices at nine universities in Egypt. Specifically, it concerned public universities in the country, and the indirect effect of the organizational climate in the country's higher education sector.

This chapter is divided into sub-sections that present the research design, study population, research area, sampling techniques, sample size, units of analysis, operational instruments, validation of the instruments, validity, reliability, and, finally, the data analysis.

3.2 Research Area in Egypt

The research area with which this study was concerned was Egypt, which is the largest nation among the Arab countries, with 27 states and seven regions: Regional Unit, Greater Cairo, Delta, Alexandria, Suez Canal, Asyut South Upper Egypt, and North Upper Egypt (GOF, 2016). Egypt is sometimes referred to as the 'Motherland of the

World' and as the 'Birthplace of Civilization' and is famous worldwide for its ancient civilization and the country's 7,000-year history of inhabitation along the river Nile. The country is also essential as a Middle Eastern political, cultural, and educational centre (Ead, 2019). Geographically, Egypt lies in two regions: South Asia and North Africa and has coastlines on the Mediterranean Sea and the Red Sea, as well as a river coast along the Nile. The country shares borders with Libya in the west, the Gaza strip in the northeast, and Sudan in the south. The two regions with which this study was concerned were Greater Cairo and Delta, where a total of nine universities are currently located, namely Cairo, Ain Shams, Helwan, Tanta, El Mansura, El Menoufia, Kafr-El-Sheikh, Damietta, and Sadat. Both Delta and the Greater Cairo region contribute significantly to Egypt's economy, and are densely populated, compared with the other regions in the country.

3.3 Research Design

This study sought to identify the influence of strategic leadership and organizational climate on quality management practices at public universities in Egypt. The method employed to address the research questions involved a descriptive data analysis and inference, including a hypothesis analysis and testing.

Based on the theories, the theoretical model and hypotheses were created, confirming that this study is quantitative. As a quantitative study, survey questionnaires were used to gather the data, and various statistical tests were used to examine all the hypotheses (Mackenzie & Knipe, 2006). The quantitative methodological approach, such as that employed in this study, addresses a problem by measuring the variables of individual respondents to obtain data that is usually in a numerical form, generating results that are principally the product and summary of the statistical analysis (Gravetter & Forzano,

2012, Shaughnessy, Zechmeister, & Zechmeister, 2012). The quantitative approach is unbiased, narrow, and specific in its emphasis, and focuses on the purposes and measures of the fundamental variables (Creswell, 2018).

According to Sekaran and Bougie (2016), a commonly used quantitative approach for gathering information in descriptive studies is the use of questionnaires, as they allow the researcher to collect data from a large sample and enable the determination of the extent to which a certain study is accurate and reliable. In addition, the results of the study in question will be generalizable to the population of the research area (Zikmund, 2013). The quantitative approach was deemed to be appropriate for the present study, because it enabled the comparison of the results of the study with those of previous studies, and also enabled the results to be generalized to the target population (Sekaran & Bougie, 2016, Zikmund, 2013).

There are two basic types of survey research design, namely, the cross-sectional design and the longitudinal design. This study concentrated on describing the characteristics of the population in Egyptian higher education. A cross-sectional survey method collects quantitative data via a questionnaire administered to the respondents and collects data only for the study period (Cohen, Manion, & Morrison, 2007, Creswell, 2012). In this study, the choice to employ a cross-sectional survey instead of a longitudinal survey method, was because the research sought to collect data that reflected people's opinions and attributes that could not be obtained through other sources as recommended by Christensen, Johnson, & Turner, 2015. Moreover, the approach was more time- and cost-effective than a longitudinal approach, and was also easier to handle, and had less potential to suffer from control effects, such as loss of interest, participant dropout, or participant relocation than other approaches (Gravetter

& Forzano, 2012). In a cross-sectional study, data is gathered only once in a brief time (Christensen et al., 2015). The cross-sectional design was therefore used to address the study questions of the current research, and to present an accurate image of the relationships that might exist among the variables analysed.

3.4 The Population of The Study

A population is a group of institutions or individuals with similar characteristics (Creswell, 2014). Sekaran and Bougie (2017), Hair, Page, and Brunsveld (2019) clarify that sampling design has two commonly sampling methods: non-probability and probability. Purposive sampling, a measure-based probability sampling technique, was employed to collect this research data. Therefore, Results based on a probability sample can be generalized to the target population with a confidence level (Hair et al., 2019). For instance, in the case of the present study, all the faculty members involved were from the population of nine public universities in the Greater Cairo and Delta regions in Egypt and were all therefore from the population of academic staff. Meanwhile, the target population is a group used in a study to generalize the phenomena under investigation, based on the sample selected (Gravetter & Forzano 2012).

The target population in the present study was the most prominent regions in Egypt, which included a total of nine universities. The selection of these nine universities as the study's population was for statistical reasons regarding the academic staff located at the universities, compared with those at the universities in the country's other regions, as the universities in the Greater Cairo and Delta regions included 44,844 of the country's total 94,225 lecturers (see Table 3.2 below). Specifically, there are 20,910 lecturer's male and 23,934 lecturer's female across 9 public univrersies in all the two regions with 10541 lecturers has below 5 years of experiences, 18946 lecturers worked

between 6 to 15 years in the university, 10879 lecturers have work experience from 16 to 25 and lecturers worked from 26 to 35 was 4478 (see Table 3.2 below). In addition, the Greater Cairo and Delta regions have different characteristics from the country's other urban and rural areas, as they are multi-cultural regions that represent the majority of ethnicities in Egypt. Furthermore, the universities concerned were representative of those throughout Egypt, as they were comprised of the highest total population of Egyptian lecturers and students (GUS, 2017, 2018). Thus, the use of the universities in these two regions enabled the study to include a range of lecturers' views to achieve the study's goals. The public universities chosen for this study are listed in Table 3.1.

Table 3. 1

List of Universities Sampled

S/N	UNIVERSITIES	Number of lecturers
1	Cairo	13,255
2	Ain Shams	11,223
3	Helwan	5,034
4	Tanta	4,248
5	El Mansura	4,369
6	El Menoufia	3,747
7	Kafr-El-Sheikh	1,259
8	Damietta	1,001
9	Sadat	708
	Total	**44,844**

Source: Government Universities Statistics, 2017-2018.

Table 3.2 shows the distribution of lecturers by gender, and work experiences there were four categories for experience, each of which was divided into male and female.

Table 3. 2

Lecturers at Universities Sampled

S/N	Number of lecturers	Proportionate sample	% of stratum
Male	20,910	248	46.5%
Female	23,934	284	53.5%
Total	**44.844**	**532**	**100**
Below 5 years	10541	125	23.5%

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Table 3. 2 continued

6 to 15	18946	225	42%
16 to 25	10879	129	24.5%
26 to 35	4478	54	10%
Total	**44.844**	**532**	**100**

Source: Government Universities Statistics, 2017-2018.

3.5 Sample Size

The sample is a subset of the target population involved in a study that can be used to generalize the study's findings to the target population using a particular sampling method (Creswell, 2012, 2014). All the members in probability sampling have an equal chance to be selected for the sample (Sekaran & Bougie, 2017).

A representative sample was adopted for selecting the lecturers in the present study that ensured equal and independent representation within the data selection. This sampling method is advantageous, as it avoids research bias in the process of sampling (Creswell & Plano Clark, 2011). As Sekaran and Bougie (2016) explained, there are several reasons for using a sample size, including the impossibility of collecting data and evidence from every individual in a population, the fact that using a sample assist in yielding more valid and reliable findings than using the full population, and the use of a sample decreases wastage and reduces the potential for mistakes in the data collection. In the current study, the number of faculty samples was calculated according to the number of respondents necessary for the statistical analysis.

In terms of the sample size for the present study, 380 lecturers were selected for analysis from a total of 44,844 at the nine most populous universities in Egypt. As Krejcie and Morgan (1970) explained, a degree of confidence and precision is necessary when assessing the sample size to ensure that the sampling bias error is kept to a minimum. In terms of allowing for non-returned and void questionnaires, McMillan et al. (2004) advised that a significant return rate of 60% is adequate, while Salkind (2018) argued

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that in education research, a rate of return of 40% or more is reasonable. Due to the importance of, and the need to understand the issue of the return rate of questionnaires (Baruch & Holtom, 2008), this study recorded the sample's rate of return.

The total number of questionnaires required to obtain an adequate sample, based on a return rate of at least 40% (Salkind, 2018), was 532. As Alreck et al. (1995) Kelley and Maxwell (2003) noted, a large sample size provides highly accurate results, while a lower sample size can engender errors, and in a large sample size, the views obtained are more likely to reflect those of the full population. Moreover, Cohen et al. (2007), Creswell (2012), and Gravetter and Forzano (2012) highlighted that the larger the sample size, the more representative it is of the population, the greater the reliability of the findings and the more sophisticated the statistics obtained will be, and the fewer the sampling errors.

Hair, Ringle, and Sarstedt (2013) explained that a larger sample size is required to obtain an appropriate representation of the population in question. Hair, Black, Babin, and Anderson (2010) recommended that ideal sample size would be between the ranges of 100 – 400 for the research that adopt the Structural Equation Modelling (SEM) as analysis technique. Roscoe's (1975) rule of thumb indicates that a sample bigger than 30 and less than 500 is suitable. More so, Hair et al. (2010) opined that the sample size, in multivariate research, should be several times (preferably 10 or more times) larger than the number of the research variables. Going by this, this research has four variables and therefore the required sample size should be 40 and above. Thus, 429 is sufficient for a current survey study.

In addition, certain guidelines depending on the type of data analysis to be employed by a study. According to Creswell (2014), Neuman (2014), Saunders et al. (2016), and

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Zikmund et al. (2009), the type of data analysis to be used is also one of the considerations involved in determining the optimal sample size. Indeed, Cohen (1992) provided sample size recommendations for use when conducting a multiple linear regression (MLR) analysis, based on statistical power. Statistical power refers to the probability of correctly rejecting the null hypothesis (Sekaran & Bougie, 2016).

There are also rules of thumb for use when employing structural equation modelling (SEM), which is a combination of multiple regression analysis and factor analysis that can be classified under two streams, namely i) variance-based SEM, which is better known as partial least square SEM (PLS-SEM), and ii) covariance-based SEM (CB-SEM) (Hair et al., 2019, Ramayah et al., 2018). For PLS-SEM, researchers can either use Cohen's (1992) guidelines, or calculate the optimal sample size using the G*Power programme (Hair et al., 2017). G*Power is a free-to-use statistical power calculator developed by Faul et al. (2007) that is employed to compute optimal sample size requirements in statistical analyses, such as F-tests and t-tests. Based on the number of predictors in the research framework of the present study, namely two independent variables, an effect size (f2) of .15, a significance level (α) of .05, and a 99% statistical power (1-β), the optimal sample size calculated was 146 (see Appendix F).

In contrast, CB-SEM proponents advise that researchers should also consider the minimum sample sizes required for performing a factor analysis to determine the optimal sample size for employing SEM (Awang, 2015, Hair et al., 2014, Kline, 2015). The rationale concerned claims that SEM's foundation also lies in factor analysis, not only in multiple regression. Taking into account all these guidelines, the recommended optimal sample size differed from the previously calculated 146 samples. Therefore, this study's optimal sample size was determined to be 100, since this is adequate for

most kinds of data analysis techniques, such as MLR, CB-SEM, or PLS-SEM. Finally, a sample size of more than 300 was considered to be sufficient for the analysis in this study.

3.6 Sampling Techniques

There are several possible techniques for use in probability sampling in research to generalize the results. According to Shaughnessy et al. (2012), the sample is obtained from selecting a suitable number of elements from a whole population that can represent the target population. Meanwhile, Cornesse et al. (2020) explained that sampling techniques could be described under two main types: probability sampling and non-probability sampling. Probability sampling includes simple random, cluster, stratified, systematic, and multistage sampling techniques, while non-probability sampling includes self-selective, snowball, purposive, quota, and convenience sampling techniques.

This study employed a form of probability sampling that used stratified sampling to obtain a sample that was representative of the academic staff population at the public universities in Egypt. In order to obtain a real sample of the population, stratified random sampling was deemed to be most suitable for selecting sample units of the population (Creswell, 2018). As demonstrated by Cohen et al. (2007), Creswell (2014) and Hair et al. (2018) stratified sampling is a sampling method that divides a study population into a homogeneous group, called strata, then selects the final subpopulation randomly, proportionally from the range of sub-groups. This is important because it has the advantage of accurately representing the original population without bias, and in the case of the present study, ensuring that all lecturers from the various departments at the

nine universities concerned had an equal opportunity of being represented (Sekaran, 2003).

Additionally, these techniques improve the statistical effectiveness of samples, and reduce sampling errors (Flower, 2009). Hence, the stratified sampling technique was used in this study because the university is a diverse stratum, and the use of the technique simplified the researcher's work. Moreover, since the study was not able to encompass all the lecturers at all the public universities in Egypt for economic research time lag reasons, a stratified random sample of each stratum was determined, according to a specified percentage of the main population, in order to determine the population under a subgroup. This was applied to every stratum to ensure a suitable representation, in an approach discussed by Alvi (2016), who confirmed that determining the sample size via a percentage of each stratum ensures that the sample will be strongly representative of the population as a whole.

Following the recommended sample of 532 respondents, lecturers were selected based on the percentage proportion of the population in each stratum to represent the sample. Sample are categorized per gender and work experiences for equal description; the sample size was therefore divided by the percentage of each stratum identified as; 46.5% of male lectures and 52.5% female, from the below 5 years of experience constitutes 125 respondents, 23% of lecturers from the 6 to 15 constitutes 225 tat respondents, 42%, while 129 respondents,24.5% of lecturers worked from 16 to 25 and lecturers who's work from 26 to 35 constitutes 54 (10%) of the sample. This will make up a total of 532 respondents.

Finally, a systematic random sampling technique was used to collect the data for this study, using a proper random rate. As Zikmund et al. (2010) explained, the systematic

sampling technique is a procedure in which a random process selects a starting point, then every nth term on the list is chosen. The sampling interval is the number of population elements between each unit selected from a given sample size. A number between two numbers is chosen, with the first sample randomly selected from the population, then starting from that point, additional samples are chosen at regular intervals up to the required number, which ensures that the population obtained is evenly sampled. This minimizes the potential for human error and bias in the selection of the cases included in the sample size of the study and helps the researcher to conclude statistically within the sample (Hair et al., 2017, Sekaran and Bougie 2016). A summary of the study population and study sample of the present study is presented in Table 3.3.

Table 3. 3

The Proportionate Sample Drawn from Nine Universities in This Study

S/N	Proportionate sample	% Of stratum
Male	248	46.5%
Female	284	53.5%
Total	**532**	**100**
Below 5 years	125	23.5%
6 to 15	225	42%
16 to 25	129	24.5%
26 to 35	54	10%
Total	**532**	**100**

Source: Government Universities Statistics, 2017-2018.

3.7 Unit of Analysis

The analytical unit describes what, or who, is being examined in a particular research study. Research in the social sciences employs both the individual and the organization as a group as a unit of analysis (Creswell, 2018, Kumar, Talib, & Ramayah, 2013). The unit of analysis in the present this study was individual academic staff at the universities of Cairo, Ain Shams, Helwan, Tanta, El Mansura, El Menoufia, Kafr-El-Sheikh, Damietta, and Sadat, in Egypt.

3.8 Research Instrumentation

This study examined the influence of strategic leadership on quality management practices, with organizational climate as a mediator, at public universities in the context of Egypt. Questionnaires were disseminated to academic staff at Egyptian public universities. There are several approaches for the data collection process, and as an approach appropriate for descriptive studies, questionnaires were employed as the research instrument (Creswell, 2018). According to Creswell (2018), Sekaran and Bougie (2016), and Zikmund et al. (2010), questionnaires are the most suitable mechanism for measuring the variables concerned.

In this study, the questionnaire was the main instrument used to examine the study's three variables, namely strategic leadership and organizational climate (OC) (independent variables), and quality management practices (QMPS) (dependent variables) (see Table 3.4). As shown in Table 3.4, there were four main sections to the questionnaire: the first section (A) recorded the demographic information, while the other sections all measured items relevant to the study. Section (B) concerned strategic leadership, and was comprised of 32 items, divided into eight sections, all of which were adapted from Mohd Ali (2012), Section (C) gathered information regarding OC, and consisted of 21 items that measured the OC using scales, and was sub-divided into five sections in which all the items included were adapted from Johnson and Stevens (2007). Finally, Section (D) concerned QMPS, and consisted of 30 items, sub-divided into six sections, in which all the items were adapted from Alharbi (2012), Shortell et al. (1995), LeBrasseur et al. (2002), and Douglas and Fredendall (2004).

The questionnaire's items were arranged according to suitability, and their ability to evaluate the variables involved accurately, using a five-point Likert scale for OC and

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QMPS, while the strategic leadership variables were measured using a seven-point Likert scale. There is considerable debate regarding the optimum number of points on such scales, with previous studies using a four-, six-, seven-, and ten- point Likert scales. However, Dillman et al. (2014) and Fink (2012) recommended that a five- or seven-point scale obtains the best results.

According to Kansal, Singh and Kumar (2005), the choice of scale is determined by how the researcher seeks to measure the strength of the members' opinion. The use of a five-point scale format is considered to be the most appropriate, because it has been found to enhance the reliability of measures (Bendig, 1954, Chang, 1994), and to reduce the social desirability bias that can contaminate substantive results (Fisher, 1993, Garland, 1991, Paulhus & Reid, 1991). A questionnaire's respondents should not know what is being investigated, as this decreases their tendency to respond in a particular way (Hughes, 1969).

While a five-point scale format is generally considered to be sufficient for participants to indicate their view in a viable way Dillman et al. (2014) and Fink (2012) argued that a seven-point scale format has the advantage of confirming the reliability and validity of the findings, due to its ability to provide a much wider choice of options, and to increase the variance in the measures employed. Regardless of the scale format, the analysis of the questionnaire data is based solely on the respondents' responses. Due to the reported advantage of using different Likert scales with a different number of points in the same research, the present study employed both a seven- and a five-point scale to avoid the possibility of error in the data (Cooper & Schindler, 2014, Wong & Aspinwall, 2005) that can occur when the respondents provide a neutral ranking.

3.8.1 Strategic Leadership Questionnaire

The independent variable of strategic leadership in this study was measured by adapting the strategic leadership behavior questionnaire developed by Hairuddin Mohd Ali (2012). The questionnaire was used to measure the characteristics of strategic leadership, according to subordinates' perception of their leaders' traits. The questionnaire consisted of two constructs, the first of which included the organizational ability categories, and consisted of five elements, namely strategic orientation, strategic translation, strategic alignment, strategic interaction, and strategic competence. These categories enabled subordinates to evaluate their leaders' ability to implement strategic organization planning and to translate strategies into action. Establishing a clear direction and the ability to support subordinates, and to school organizations via strategic communication was the basis of the strategic leadership measurement, together with the leaders' ability to develop strategic competence in their leadership.

The second construct was individual characteristics, and included four elements: restlessness, absorptive capacity, adaptive capacity, and wisdom. These categories encompassed the qualities required of strategic leaders, since such individuals must constantly challenge their adaptability and creativity, in order to succeed in a change agenda, and in making improvements within an organization. An absorption capacity enables strategic leaders to recognize useful information to adapt, in order to establish a culture of continuous learning within the organization. Strategic leaders should also be capable of acting appropriately and making the right decisions to ensure the sustainability of organizational quality.

This strategic leadership questionnaire consisted of 32 items, with eight dimensions, which were tested by Mohd Ali (2012) using AMOS 16.0 measure construct validity, for all items had a Cronbach's alpha value ranging from 0.8238 to 0.9346, and were

therefore all valid and reliable. The questionnaire distributed to the participants in the present study employed a seven-point Likert scale for each item, representing a range from 'rarely' to 'sometimes' to 'often.' Table 3.4 shows the items employed to measure the strategic leadership constructs.

Table 3. 4

Measurers Of Strategic Leadership

Dimensions	Number of items adapted	Source
Strategically Oriented	4	
Strategic Translation	4	
Strategic Alignment	3	
Strategic Interaction	3	
Strategic Competence	4	Mohd Ali (2012)
Restlessness	3	
Absorptive capacity	3	
Adaptive capacity	3	
Wisdom	5	
Total	**32**	

3.8.2 Organizational Climate Questionnaire

The organization climate questionnaire used in this study was adapted from the School Environment Level (SLEQ) questionnaire employed in a study conducted by Johnson and Stevens (2007). The questionnaire was designed to measure teachers' perception of school climate, and was also used by various other studies to measure the climate at other education institutions. The instrument developed by Johnson and Stevens (2007) improved that of Rentoul and Fraser (1983), which was created to address weaknesses in previous instruments, such as Coughlan's (1966, 1969) School Survey, Halpin and Croft's (1963) Organizational Climate Description Questionnaire and Hoyle's (1976) Learning Climate Inventory.

Moreover, the questionnaire developed by Rentoul and Fraser (1983) was designed because the previous instruments were created without examining their relationship

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with teachers. The questionnaire was developed to clarify the three general categories proposed by Insel and Moos (1974) for conceptualizing the whole human environment, including (1) relationship dimensions, (2) personal development dimensions, and (3) system maintenance and system change dimensions.

In their model, Johnson, Steven, and Zvoch (2007) modified the original questionnaire that involved eight dimensions with 56 items to five dimensions with 21 items, in order to reduce the questionnaire's length, and thereby to minimize the item redundancy, while ensuring that all the items reflected the intention of the scale. The items all employed a five-point Likert scale from strongly disagree to strongly agree. The study demonstrated the validity of the SLEQ in its analysis, with all the items found to be valid, with Cronbach's alpha values from .77 to .86.

Table 3. 5

Measurers of Organizational Climate

Dimensions	Number of items adapted	Source
Collaboration	6	
Student Relations	4	Johnson, Steven, and Zvoch (2007)
School Resources	4	
Decision Making	3	
Instructional Innovation	4	
Total	**21**	

3.8.3 Quality Management Practices Questionnaire

The QMPS questionnaire consisted of the six constructs that represented the most common factors of QMP, excluding leadership, due to the autonomous examination of this principle as the criterion variable. According to Deming's (1986) theory, several factors affect QMPS, and can be listed under 14 main points. The essential characteristics of QMPS listed by Deming (1986) that were explored in the present study were also examined by previous studies (Adam, 1994, Ahire et al., 1996, Ahmed, 2009, Alharbi, 2012, Anderson et al., 1998, Antony et al., 2002, Awan et al., 2009,

Black & Porter 1996, Douglas & Fredendall, 2004, Dow et al., 1999, Flynn et al., 1994, 1995, GAO, 1991, LeBrasseur, Whissell, & Ojha, 2002, Lewis et al., 2006, Motwani, 2001, Ruggieri & Merli, 1998, Saraph et al., 1989, Salaheldin, 2009, Samson & Terziovski, 1999, Yusof & Aspinwall, 2000).

In the questionnaire, these characteristics were grouped under training and education, teamwork and involvement, strategic planning, customer focus, information and analysis, and continuous improvement. They included 30 items selected from the critical success factors of quality management, based on Deming's (1986) 14 points. All 30 items were tested by Alharbi (2012) using Statistical Package for the Social Sciences (SPSS) version 18.0 and achieved Cronbach's alpha values ranging from 0.0774 to 0.904. Hence, all items were valid and reliable. Since the instrument is also used in the health sector, it was adapted for the education sector to suit the purpose of the current study. Each item used a five-point Likert scale ranging from strongly disagree to strongly agree. Table 3.6 shows the items employed to measure the QMP constructs.

Table 3. 6

Measurers of Quality Management Practices

Dimensions	Number of items adapted	Source
Training and education	4	Alharbi (2012), Shortell et al. (1995), LeBrasseur et al. (2002) , Douglas & Fredendall (2004)
Teamwork and involvement	4	
Strategic planning	7	
Customer focus	6	
Information and analysis	6	
Continuous improvement	3	
Total	**30**	

3.9 Questionnaire Design

As mentioned above, the items in the current instruments were adapted and appropriately modified for the better comprehension of the participants' perceptions

within the Egyptian context; specifically, in the higher education sector. In addition to the first part, the questionnaire contained four sections; section A) included items about respondents' demographic characteristics (3 items); section B) included items about Strategic leadership (32 items) ; section C) included items about organizational climate (21 items); and section D) regarding quality management practices (30 items)Each item representing the statements about the main variables was written in a multi-lingual format which is in both Arabic and English languages. Items of the recent study (83 items) were measured using a five and seven-point Likert scale. A complete set of the questionnaire that was used in the current study is attached as Appendix A&B.

Table 3. 7

Summary of Questionnaire's Contents

Section	Description
Section One	This section comprised five demographical information constructs (gender, age, experience, current position).
Section Two	This section comprised 30 questions concerning quality management practices.
Section Three	This section comprised 32 questions concerning strategic leadership.
Section Four	This section comprised 21 questions concerning the organizational climate.

3.10 Translation of Instrument

Since the main language in Egypt is Arabic, using Arabic as the language of the present study questionnaire facilitated communication between the researcher and the Egyptian respondents, and enabled the collection of informative information. Since some previous literature exists in Arabic that discusses a similar research context, thorough validation and translation procedures were performed before the data collection in the present study. The original questionnaire was designed in English, except for the strategic leadership section developed in Malay. Therefore, the researcher adapted an English copy from the study conducted by Muazam (2014).

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A suitable translation process was employed to ensure that the translation of the survey questionnaire from English to Arabic was correct and bias-free, due to the cultural and language differences concerned. The questionnaire was translated into Arabic using a back-to-back translation method to confirm that the meaning was not changed, using the guidelines for translation techniques recommended by Brisline (1980), this is the most common survey translation approach (Forsyth, Kudela, Levin, Lawrence & Willis, 2007). The questionnaire was then sent to an expert in Arabic and English to ensure the language used was clear, since multilingual translators who are familiar with the terminologies employed in the field of concern and whose main language is the language of the target population, are best suited to translate a questionnaire into the language of the target population. Priority was given to ensuring a conceptual rather than a literal translation.

It was also necessary to use language that would be suitable and familiar to the majority of the respondents (Brislin, 1986, Forsyth et al., 2007, Zavala-Rojas, 2014). The purpose of bilingual translators is to identify and address any weak expressions in a translation and to amend any incongruities between the translation and the original questionnaire (Brislin, 1986). Using the same approach as in the first phase, another translator with no prior knowledge of the questionnaire then translated the questionnaire back to English. Finally, to verify the content's accuracy, the results from the back translation, namely Arabic to English, were compared with the original English version. In the current study, none of the discrepancies was found to exist between the source and the backtranslated versions; thus, no decentering process was conducted.

3.11 Pilot Test

As Fraenel, Wallen, and Hyun (2012) and Gay, Mills, and Airasian (2006) explained, a pilot test is an experiment in which a study is conducted on a small scale before conducting the full-scale analysis. A pilot study of the current study was conducted to check the questionnaire's validity and reliability (Saunders, Lewis, & Thornhill, 2016). The Cronbach's alpha coefficient is the most commonly-used measure of reliability for inter-item accuracy, while various statistical tests can be used to evaluate the validity of the items (Hair et al., 2010, Ramayah et al., 2018, Tabachnick & Fidell, 2014).

The pilot study is conducted firstly to assess the research instrument's validity and reliability, and secondly to gain insight into the state of the current or full-scale analysis, enabling the researcher to predict and correct the potential problems that might be encountered during the full-scale testing. The quality and reliability of the research instruments were among the main concerns of the pilot study in the present project. The assessment of the instrument's validity concerns the degree to which it calculates what it is intended to measure (Lameck, 2013, Zikmund, Babin, Carr, & Griffin, 2012), while a measure's reliability refers to the extent to which an instrument is error-free, reliable and stable over time, and across the various items on the scale (Saunders et al., 2016, Sekaran & Bougie, 2010).

The sample size for a pilot test is usually small, ranging from 15 to 30, although it can be more if the analysis involves multiple phases, while Sapnas and Zeller (2002) and Williams, Onsman, and Brown (2010) argued that the minimum sample size required for a pilot test is 50 to 100, while 100 samples are deemed more appropriate on some occasions, in contrast, Hertzog (2008) recommended a range of between 10 and 40. The present study followed the advice of Williams et al. (2010) and distributed 120 pilot

questionnaires randomly to academic staff at public universities in Egypt, using an online version of an anonymous survey, as the software employed did not allow the responses to be associated with an individual respondent. In total, 109 questionnaires were returned, nine of which were excluded, due to double-clicking and incorrect completion, leaving 100 questionnaires for the pilot study.

3.11.1 Validity

An Exploratory factor analysis (EFA) is one of the most commonly used forms of analysis in statistical procedures, particularly in social sciences research. Fabrigar, Wegener, MacCallum, and Strahan (1999) advised that the approach offers better results when each common factor is represented in the study by numerous measured variables that are independent constructor-dependent constructs in the analysis.

As Bentler and Kano (1990) explained, the investigator has no assumptions of the number or reality of the variables in conducting an EFA, and instead, as the name suggests, it is explorative. The analysis enables the researcher to explore the key dimensions to create a theory or model from a reasonably large number of latent constructions that are often expressed by a collection of objects. An EFA involves a PCA that is applied for data reduction, and does not distinguish between common and special variance (Bentler & Kano, 1990). After the EFA method is applied, the researcher considers the value recommended by Hair et al. (2010), Pallant (2013), Sekaran and Bougie (2010), and Tabachnich and Fidell (2014) at the loading of 0.5 or above.

As Hoque, Siddiqui, Awang, and Baharu explained, the EFA is applied to all items to determine any modifications in component dimensionality from prior studies due to alterations among the population characteristics over time. Therefore, the present study

employed an EFA for the construct validity since not all the items employed were designed for the Egyptian context, which meant that the underlying items of the constructs may have differed when applied to the Egyptian context.

This study used Bartlett's test to explore the probability of stability in the factor analysis, while the Kaiser-Mayer-Olkin (KMO) test was used to assess the adequacy of the sample size for analysis, a KMO value close to unity is preferred. The construct validity of the questionnaire determined whether it was suitable for use in the Egyptian higher education context. Table 3.8 shows the results of the extraction method for QMPS.

Table 3. 8

Extraction Method for Quality Management Practices

No	Variable	Items	Loading	The measure of Sampling Adequacy (KMO)	Bartlett's test P-Value	Eigenvalue	% Percentage of Variance	Significant
1	**Quality Management Practices**	QME1	.920	**.815**	**< 0.001**	**3.121**	**52.018**	**.000**
		QME2	.892					
		QME3	.761					
		QME4	.511					
		QMT1	.999					
		QMT2	.905					
		QMT3	.913					
		QMT4	.863					
		QMS1	.647					
		QMS2	.728					
		QMS3	.776					
		QMS4	.837					
		QMS5	.869					
		QMS6	.893					
		QMS7	.800					
		QMF1	.722					
		QMF2	.795					
		QMF3	.854					
		QMF4	.803					
		QMF5	.701					
		QMF6	.778					
		QMA1	.880					
		QMA2	.855					

Table 3.8 continued

QMA3	.763
QMA4	.798
QMA5	.875
QMA6	.918
QMI1	.843
QMI2	.895
QMI3	.790

The QMPS elements were measured using the 30 items presented in Table 3.8, from QME1 to QMI3, all of which were measured using a five-point Likert scale, from strongly disagree to strongly agree, and using the EFA method. Table 3.8 presents the findings of Bartlett's Test of Sphericity, which was significant at <0.001. A Kaiser-Meyer-Olkin measure (KMO) of sampling adequacy should be greater than 0.5 to be significant, and for QMPS variable was 0.815, implying that the sample size was appropriate (Hair et al., 2010, Pallant, 2013, Sekaran & Bougie, 2010, Tabachnich & Fidell, 2014). Besides, the percentage of the total variance of the factor explained by the subjected items is 52.01%. Hence, the whole items of this scale are valid and retained for the final analysis. Consequently, the data was adequate. Appendices C shows that six factors emerged from the EFA, thus all the items in this variable belonged to one variable, and all the items were preserved.
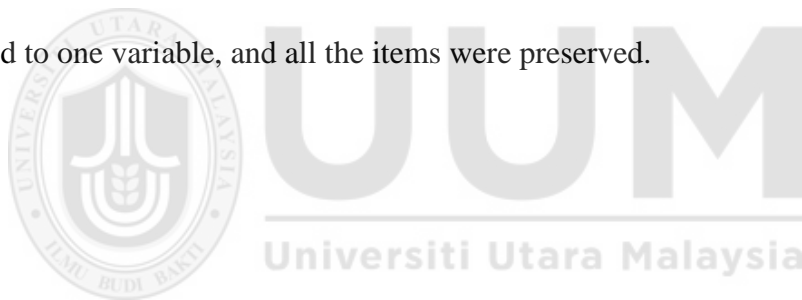
Table 3. 9

Extraction Method for Strategic Leadership

No	Variable	Code of Items	Factor Loading	The measure of Sampling Adequacy (KMO)	Bartlett's test P-Value	Eigenvalue	% Percentage of Variance	Significant
2	**Strategic Leadership**	SLB1	.982	**.917**	**< 0.001**	**7.733**	**85.918**	**.000**
		SLB2	.966					
		SLB3	.969					
		SLB4	.965					
		SLT1	.935					
		SLT2	.964					
		SLT3	.925					
		SLT4	.943					
		SLP1	.859					
		SLP2	.945					
		SLP3	.937					
		SLE1	.954					
		SLE2	.965					
		SLE3	.949					
		SLC1	.888					
		SLC2	.934					
		SLC3	.893					
		SLC4	.909					
		SLR1	.932					
		SLR2	.929					
		SLR3	.931					
		SLA1	.924					

Table 3.9 continued

SLA2	.975	
SLA3	.950	
SLD1	.957	
SLD2	.932	
SLD3	.944	
SLW1	.948	
SLW2	.925	
SLW3	.924	
SLW4	.954	
SLW5	.960	

The strategic leadership variable was measured using the 32 items listed in Table 3.9 as SLB1 to SLW5, all of which were measured using a seven-point Likert scale from 'rarely' to 'sometimes' to 'often'. For these 32 items, the EFA used a principal component analysis as an extraction technique to measure the structure of the internal dimension. The findings showed that Bartlett's Test of sphericity was significant.

Moreover, the Kaiser-Meyer-Olkin's measure of sampling competence of more than 0.5 was .917, implying that the sample size was suitable (Hair et al., 2010, Pallant, 2013, Sekaran & Bougie, 2010, Tabachnich & Fidell, 2014). Thus, the data was adequate. In addition, the scree plot in Appendix G shows that the nine components emerged from the EFA, consequently, all the items in the current variable were affiliated to one component. Also, one component emerged from the EFA technique, according to the Eigenvalue that was computed to be >1.0. The total variance explained for measuring this construct was 85.918%. The over-all variance clarified was adequate once it reached a minimum of 50% (Hair et al., 2010, Pallant, 2013, Sekaran & Bougie, 2010, Tabachnich & Fidell, 2014). Thus, it was determined that all the items should be retained.

Table 3. 10

Extraction Method for Organizational Climate.

No	Variable	Code of Items	Factor Loading	(KMO)	Bartlett's test P-Value	Eigenvalue	% of Variance	Sig
3	**Organization Climate**	OCS1	.560	**.721**	**< 0.001**	**2.501**	**50.012**	**.000**
		OCS2	.619					
		OCS3	.763					
		OCS4	.673					
		OCC1	.886					
		OCC2	.757					
		OCC3	.823					
		OCC4	.540					
		OCC5	.550					
		OCC6	.888					
		OCR1	.680					
		OCR2	.836					
		OCR3	.724					
		OCR4	.809					
		OCD1	.869					
		OCD2	.867					
		OCD3	.883					
		OCI1	.964					
		OCI2	.731					
		OCI3	.779					
		OCI4	.758					

The OC variable was measured using the 21 items shown in Table 3.10 as OCS1 to OCI4, all of which used a five-point Likert scale from strongly disagree to strongly agree. The PCA method was used to measure these 21 items, and the findings showed that the Bartlett's Test of Sphericity was <0.001, thus it was significant, while the Kaiser-Meyer-Olkin measure of sampling adequacy of more than 0.5 was .721, indicating that the sample size was acceptable (Hair et al., 2010, Pallant, 2013, Sekaran & Bougie, 2010, Tabachnich & Fidell, 2014). Therefore, the data was adequate. The scree plot in appendices C displays the five components that emerged from the EFA, consequently, the total items in this variable were the property of one component.

Additionally, Table 3.10 shows that one component emerged from after conducting the EFA, according to the Eigenvalue computed to be >1.0. The total variance clarified for measuring this variable was 50.012%. The total variance explored was therefore suitable. According to Hutcheson and Sofroniou (1999), KMO values of .70, .80, and .90 are considered to be a good factor analysis. Thus, the KMO values acquired in this study, shown in Tables 3.8, 3.9, and 3.10, which ranged from .721 to 917, were good.

3.11.2 Reliability

A measure's reliability concerns the extent to which a measuring instrument is error-free, and thus consistent and stable across time and the various items in the scale (Sekaran & Bougie, 2010, Fraenkel et al., 2012). The present study employed the internal consistency reliability test, a standard technique used by numerous previous researchers to test an instrument's reliability (Fink & Litwin, 1995). The most common test of inter-item consistency reliability is the Cronbach's alpha coefficient, which was

employed by the current study to calculate the instrument's internal consistency, using SPSS (Version 26).

Table 3.11 provides the findings of the pilot study's reliability test. According to Sekaran (2003), two scores, ranging from 0 to 1.00, are considered to be the most common reliability coefficient measures of internal accuracy, while Hair et al. (2006) noted that the passable rate for a Cronbach's alpha transform is 0.70 and that the rate might decrease to 0.50 in certain situations, such as in exploratory experiments, hence, 0.60 is a reasonable lesser perimeter for an alpha of 0.70 (Hair et al., 2010). Moreover, the frequent coefficient of reliability quantifies weakly in the range of 0.60, hence 0.70 is suitable, and 0.80 is a decent measure (Bougie & Sekaran, 2010).

The Cronbach's alpha values obtained for the current study for all the constructs were between .845 and .989 (see Table 3.11). According to the norm established by previous researchers (Hair et al., 2007, Nunnally, 1978, Sekaran & Bougie, 2010), an instrument with a coefficient of 0.60 is considered to be of an acceptable degree of reliability, whereas a coefficient of 0.70 and above indicates a high degree of reliability of the instrument. Therefore, in the present study, all the tests had a high degree of validity; hence the pilot study was considered to be reliable for use in further studies.

Table 3. 11

Summary Of Items for Each Instrument, Validity, and Reliability Coefficient

Variable	Sub-Scale	Cronbach's Alpha	No of Items
Quality Management Practices	Training and education	.782	4
	Teamwork and involvement	.688	4
	Strategic planning	.901	7
	Customer focus	.813	6
	Information and analysis	0822	6
	Continuous improvement	0796	3
Total Scale		**.920**	**30**
Strategic Leadership	Strategically Oriented	.980	4
	Strategic Translation	.957	4
	Strategic Alignment	.902	3

Table 3. 11 continued

	Strategic Interaction	.953	3
	Strategic Competence	.926	4
	Restlessness	.920	3
	Absorptive capacity	.946	3
	Adaptive capacity	.939	3
	Wisdom	.968	5
Total Scale		**.988**	**30**
	Collaboration	.643	6
	Student Relations	.745	4
Organizational Climate	School Resources	.762	4
	Decision Making	.842	3
	Instructional Innovation	557	4
Total Scale		**.845**	**21**

3. 12 Data Analysis Method

The descriptive and inferential statistics were used to run the data collected for the data analysis. Descriptive statistics were run to explain the quantitative data characteristics and summarize the sample, rather than taking the whole population. The statistics were analyzed using SPSS Version 26, including the demographic information of the respondents and the data screening. Meanwhile, PLS-SEM assessed the research hypotheses according to the quantitative aspect of the research questions and assessed the validity and reliability of the instrument via the assessment of the measurement and structural model.

Structural equation modelling (SEM) is a second-generation multivariate analysis technique that combines multiple regression analysis and factor analysis (Hair et al., 2017, Ramayah et al., 2018). It was developed to overcome certain limitations of the first-generation techniques, such as i) modeling and analyzing latent variables, ii) accounting for measurement error, and iii) evaluating inter-relationships among multiple variables simultaneously (Awang, 2015, Hair et al., 2017). This study therefore employed SEM over the traditional MLR commonly run-on SPSS to test the hypotheses proposed.

The benefits of using latent variables over the traditional summated scores employed in the first-generation techniques are i) a better representation of theoretical concepts and ii) improved statistical estimation. In addition, theoretical concepts can be represented better using latent variables than when using summated scores. A latent variable is measured indirectly by assessing consistency among the manifest variables, namely the indicators that are gathered through data collection (Hair et al., 2017). Individual indicator loading and weight can be assessed directly from the model. In contrast, the summated scores in the first-generation techniques are commonly measured using the mean score of the manifest variables to represent a concept, namely a variable (Ramayah et al., 2018). Individual indicator loading and weight are excluded from the measurement. Therefore, latent variable measurement allows more information to be extracted from the model and provides a better representation of the theoretical concept (Hair et al., 2017, Ramayah et al., 2018).

Moreover, summated score calculation disregards measurement errors that exist in a theoretical concept (Hair et al., 2014). Measurement errors commonly exist due to inaccurate responses, for instance, when respondents provide an uncertain answer or interpret questions differently from how the researcher intended, and a natural degree of inconsistency is present when using multiple items to measure the same concept. In PLS-SEM, measurement errors are incorporated into the calculation of the latent variable and offer a better representation of a theoretical concept (Hair et al., 2017, Ramayah et al., 2018). The assessment of measurement error is interpreted as indicator reliability, and lower measurement error is associated with higher reliability.

Similarly, the accounting of measurement errors in latent variables provides a further advantage as SEM is able to correct such errors automatically, thereby offering a further

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advantage over the first-generation technique, namely multiple regression analysis (Hair et al., 2017). Regression models become weaker when measurement errors are present, but when using SEM applications, regression models with no measurement error presence can be estimated. Hence, SEM tends to produce larger regression coefficients than traditional multiple regression analysis.

In addition, the first-generation technique does not distinguish confirmatory analysis clearly from exploratory analysis (Kline, 2015, Ramayah et al., 2018). Confirmatory analyses are performed to assess relationships based on readily established theories and concepts, while exploratory analyses are utilized to evaluate under-developed theories and concepts. For instance, the factor analysis run on SPSS is exploratorily oriented, while the multiple regression run using the same software is confirmatory oriented.

Unlike the first-generation technique, SEM clearly differentiates the confirmatory analysis from the exploratory analysis (Hair et al., 2017, Ramayah et al., 2018). Both the factor analysis and the path analysis, namely the simultaneous regression analysis, run on SEM are confirmatory oriented. Since the present study proposed multi-dimensional variables that were deduced on a theoretical basis, it was necessary to perform a higher-order confirmatory factor analysis (CFA) to validate these variables. Hence, the SEM application was more appropriate to perform such an analysis (Awang, 2015, Hair et al., 2017).

This study employed PLS-SEM, following the recommendation of Ramayah et al. (2018) that it is preferential when a research model is developed based on a soft theory. Since the causal relationships in this study between strategic leadership, OC, and QMPS are not well-established, it was more appropriate to use PLS-SEM. Furthermore, PLS-SEM is favourable when measurements and/or structural models are complex, which is

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to say they contain more than 50 items and/or more than six constructs. Since this study

included a measurement model with 83 items, PLS-SEM was the most appropriate

instrument to use. Due to the various advantages of PLS-SEM, it was therefore deemed

to be the analysis tool that was most compatible with this study.

Table 3.12

Technique for Data Analysis for the relationship between strategic leadership, organizational climate and quality management practices in Egypt public universities

Questions	Measurement
1. What is the level of strategic leadership in Egypt's public universities?	Descriptive Analysis (SPSS)
2. What is the level of organizational climate in Egypt's public universities?	
3. What is the level of quality management practices in Egypt's public universities?	
4. Is there a difference in the perception of strategic leadership, OC, and QMPs based on respondents' demographic factors gender in Egypt's public universities?	Mann-Whitney U test (SPSS)
5. Is there a difference in the perception of strategic leadership, OC, and QMPs based on respondents' demographic factors work experience in Egypt's public universities?	Kruskal-Wallis H (SPSS)
6. is there a relationship between strategic leadership and OC in Egypt's public universities?	Structural Equation Model " PLS-SEM"
7. is there a relationship between strategic leadership and QMPs in Egypt's public universities?	
8. is there a relationship between OC and QMPs in Egypt's public universities?	
9. Does the OC mediate the relationship between strategic leadership and QMPs within Egypt's public universities?	

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3.13 Ethical Considerations

Ethical considerations utilize a set of behavioral conduct, standards, and principles that direct a researcher's ethical choices. As Bryman and Bell (2007) explained, ethical considerations must be employed in research to protect the rights of respondents. Researchers must heed these rights, including the fact that respondents' participation must be voluntary, and they have the right to withdraw from participation at any stage, and a right to access the findings of the research to ensure that their views are not misrepresented. As Neuman (2000) and Zikmund et al. (2005) explained, highlighting ethical considerations in research maintains research quality and objectivity in reporting. Consequently, the present study assessed the ethical issues regarding the questionnaire, data collection, and analysis and adhered to the ethical protocols.

3.14 Summary

The chapter discussed the research methodology, research design, and population of this study, explaining that the population was constituted of the academic staff at certain public universities in Egypt. It also discussed the sample size, using Kriejcie and Morgan's (1970) table for sample determination, and the sampling technique, which employed both stratified and systematic random probability methods. The unit of analysis was based on an individual, and the operationalization and measurement of dependent, independent, and mediating variables were explored. The techniques employed for the data collection and data analysis, as well as for the reliability and validity assurance, were also outlined. Finally, the results of the pilot study were presented.

CHAPTER FOUR
ANALYSES AND FINDINGS

4.1 Introduction

This chapter presents the results of the analyses of the quantitative data gathered to investigate the relationship between strategic leadership and organizational climate (OC) on quality management practices (QMPS) at nine public universities in Egypt. The various phases involved are discussed to demonstrate that the results were valid and reliable. Specifically, the chapter provides the respondents' descriptive analyses and the data screening procedure, which used SPSS, Version 26 for cleaning the data, to ensure the avoidance of missing values, and to ensure normality and non-response bias, as required for structural equation modeling (SEM). Smart pls 3.3 was used to assess the relationships involved and the items' validity and reliability. The section concerning the use of partial least square SEM (PLS-SEM) presents the two phases involved: the measurement model, which comprised individual item reliability, internal consistency reliability, and convergent and discriminant validity. This is followed by a discussion of the structural model that provided the coefficient of determination (R2), path coefficient, effect size, predictive relevance, and the importance-performance matrix analysis (IPMA). The chapter concludes with a summary of the study's results.

4.2 Response Rate and Non-Response Bias

Response rate concerns the ratio of the number of surveys returned over the number of eligible respondents who were asked to participate (Saunders, Lewis, & Thornhill, 2016) The American Association for Public Opinion Research, 2016, Zikmund et al., 2009). The number of surveys returned depends on how they are counted, some researchers consider the total surveys returned to be equal to the total number returned, while others acknowledge only the fully completed questionnaires (Hulland,

Baumgartner, & Smith, 2018). This study used the former opinion, considering the number of questionnaires returned to be equal to the total number returned, which was 438. As shown in Table 4.1, the number of eligible respondents was 532, all of whom were members of academic staff at nine public universities in Egypt. Hence, since the total response rate of this study was 82.3%, it was not necessary to conduct the test of non-response bias (Fowler, 2014).

Table 4. 1

Survey Information

Information	Total	Rate (%)
Distributed questionnaire	532	100.00
Returned questionnaire	438	82.33
Questionnaire with incomplete responses	0	0
The questionnaire with fully complete responses	438	82.33
The minimum sample size required	146	NA

Non-response bias, or non-response error, refers to a bias in findings caused by respondents refusing to participate in the research or answering a question (Saunders et al., 2016, Zikmund et al., 2009). As Fowler (2014), and Budget (2006) explained, non-response bias tests need only be conducted when the response rate is below 80%. As the present study achieved a response rate of more than 80%, resulting in a very small non-response error, the test for non-response bias was unnecessary.

4.3 Data Screening

The screening of data is a method of assessing the appropriateness of the data obtained for further study, and to confirm that the data is useable (Gaskin, 2016). Data screening also helps researchers to detect potential infringement of key assumptions about the techniques used during the data analysis (Hair et al., 2007). Additionally, as Hair et al. (2010) and Hair et al., (2014) explained, cleaning data is essential when SEM is used for the data analysis. Table 4.2 presents the data screening procedures used to confirm that the data obtained in this study was useable.

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Table 4. 2

Data Examination Procedures

Dataset Issues	Procedures
Missing data	Frequency analysis and mean replacement
Suspicious response patterns	Standard deviation values
Outliers	Mahalanobis distance
Normality of data distribution	Skewness and kurtosis z-scores

4.3.1 Missing Data

Missing data is the information missing from the respondents or the data records (Bryman, 2012). According to Hair et al. (2010), it can occur for various reasons, such as human error during data entry, misunderstanding, or respondents not knowing how to respond. As Hair et al. (2010), Hair et al., (2014a) and Zikmund et al. (2012) explained, missing data is a serious issue during data analysis, particularly when using PLS-SEM. This study employed a frequency analysis via SPSS Version 26 to determine the presence of missing data or miscoded exist.

In order to identify and manage the missing data appropriately, Hair et al. (2017) recommended four approaches to evaluating the extent to which it is an issue. First, missing data can be classified as ignored if a respondent failed to provide answers for equal to or less than 10% of the total number of questions in a survey. A mean or a median value can thus replace it. Second, suppose a respondent fails to provide more than 50% of the total number of answers. In that case, their responses will be considered to be candidates for deletion. Third, suppose a respondent fails to answer between 20-30% of the total number of questions. In that case, this can be remedied by replacing the missing value with the mean or the median of the corresponding item.

This study initially detected no items out of range and no miscoded data. Therefore, it was determined that most cases were valid and were without missing data, except one case that was coded as QMS7 ID 431 with missing values, which were replaced by a

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mean, since the missing value was minimal, a mean value replacement instead of a case wise deletion was appropriate for treating it. According to Hair et al. (2017), when less than 5% of values per indicator are missing, researchers can use a mean replacement. Thus, mean value replacement is systematically employed when using Statistical Package for the Social Sciences (SPSS). A frequency analysis was then run-on SPSS to recheck if any additional missing data remained in the data set. No further missing data was detected, and the data missing in the first analysis was successfully addressed without dropping any cases (respondents) from the data set. Thus, all 438 samples proceeded to the subsequent data screening procedure.

4.3.2 Suspicious Response Patterns

Suspicious responses in the dataset were traced in each answer case by calculating the standard deviation values. A zero standard deviation determines that a specific case's response (answer) does not vary (Gaskin, 2016). According to Hair et al. (2017), no variation means that a single respondent, namely a straight-line response, answered all the questions with the same rating score. None of the cases in the dataset of the present study produced standard deviation values that were equal to zero, therefore, all 438 cases (respondents) continued to the following procedure in the data analysis.

4.3.3 Outlier Identifications

As Hair et al. (2017) explained, outliers are an extreme value given to a particular question or extreme values given to all questions. The value of outliers can be much smaller or much larger than the vast majority of the observations (Aguinis, Gottfredson, & Joo, 2013). In practical terms, researchers usually identify outlier observations by examining the extent to which a particular response departs from the normal distribution of the sample (Hair et al., 2010). In this process, the data values are usually

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converted into standard scores that have a mean and standard deviation of zero and one, accordingly. According to the rule of thumb, the threshold value of standard scores is up to four (Hair et al., 2010). Once the outlier values are identified, the researcher must decide whether to retain or delete them.

Outliers in the dataset can be identified using standardized z scores, boxplot diagrams, and Mahalanobis distance in SPSS. According to Field (2009) and Pallant (2013), standardized z scores and boxplot diagrams are used to identify outlier cases in univariate statistics, whereas Byrne (2016), Hair et al. (2010), and Tabachnick & Fidell (2013) noted that Mahalanobis distances (D2) are used to trace outliers in multivariate statistics. Since the main data analyses employed to answer the research questions in the present study were multivariate statistics (PLS-SEM), the D2 was examined to identify the presence of significant outliers in the dataset. The D2 values were computed using SPSS Version 26.

According to the accepted guidelines, the maximum D2 value for every case in the data set should not exceed the critical chi-square ($\chi 2$) value (see the chi-square probability distribution table attached in Appendix H), given the number of predictors as the degree of freedom (d). Otherwise, the case is declared as a multivariate outlier (Byrne, 2016, Tabachnick & Fidell, 2013). Conservative probability estimates for a case being an outlier is when the significant value for the $\chi 2$ is less than 0.001 (p ≤ 0.001) =13.816 (Tabachnick & Fidell, 2013). The cases in the present study that were identified as significant outliers are provided in Table 4.3.

Table 4. 3

Summary of Outlier Detections

No	Case ID	Mahalanobis Distance (D^2)
1	180	21.46223
2	189	21.41371

Table 4.3 continued

3	326	20.82071
4	118	20.36463
5	191	18.25401
6	392	17.41443
7	397	16.36579
8	387	16.00250
9	401	15.33726

Note. *Sorted based on case D^2 values

Table 4.3 shows that nine multivariate outliers were identified as significant cases in the dataset, based on their D^2 values, all of which were deleted from the dataset, and the remaining 429 samples continued to the next analysis procedures.

4.3.4 Normality of Data Distribution

The normality of data distribution is the benchmark for statistical methods. Data distribution is regarded as normal when its shape for an individual metric variable corresponds to the normal distribution (Hair et al., 2010b). Testing for normality is an important and common procedure in statistics test and multivariate data analysis, and a range of such tests exists, including skewness and kurtosis (Hair et al., 2017), the use of visual tools, such as stem and leaf plots, and normal Q-Q plots and Kolmogorov-Smirnov tests (Mooi & Sarstedt, 2011).

According to Chernick (2011), a lack of normality in variable distributions can distort the relationships between research variables and the significance of the results in multivariate analysis. It is therefore, "important for researchers to examine the normality of their data distributions before proceeding to analysis stage" (Hair et al., 2014). This study employed skewness and kurtosis, followed by a histogram to assess the normality of its data distribution. The normal probability (Q-Q) plot was used for the normality test.

According to Hair et al. (2017), skewness and kurtosis distributions allow researchers to evaluate the extent to which the data deviates from the normal distribution. However, Field (2009) advised that it is important to consider the graphical shape of the distribution in a large sample of 200 or above instead of looking at the skewness and kurtosis statistical value. Therefore, this study employed normality test methods to ascertain that the normality assumption was not violated.

In addition, SEM advocates strongly that researchers should examine the normality of the data distribution for both univariate and multivariate statistics (Byrne, 2016, Kline, 2011, Tabachnick & Fidell, 2014). The free access statistical power analysis online calculator, WebPower (Zhang & Yuan, 2018), was therefore used to calculate both the univariate and Mardia's multivariate skewness and kurtosis distributions in the present study (see Table 4.4). This online calculator can be accessed at https://webpower.psychstat.org. ,and was recommended in the recent literature (Cain, Zhang, & Yuan, 2017, Ramayah et al., 2017). See appendix I.

Table 4. 4

Data Normality Results

Variables	Skewness		Kurtosis	
	Statistics	*z*-score	Statistics	*z*-score
Qualiyy Management Practices(QMPS)	-1.894	-16.050	3.234	13.761
Strategic Leadership(SL)	-1.411	-11.957	0.839	3.570
Organisational Climate (OC)	-2.110	-17.881	4.389	18.676
Mardia's Multivariate Normality	12.008	858.565	26.628	21.895

Note. Skewness standard error = 0.118. Kurtosis standard error = 0.235

In the multivariate statistics, both the skewness and kurtosis distribution were non-normal. The study used a histogram and the normal probability (Q-Q) plot (Mooi & Sarstedt, 2011). As shown in Figures 4.1 and 4.2, the normal probability plots indicated that all the research variables were non-normally distributed.
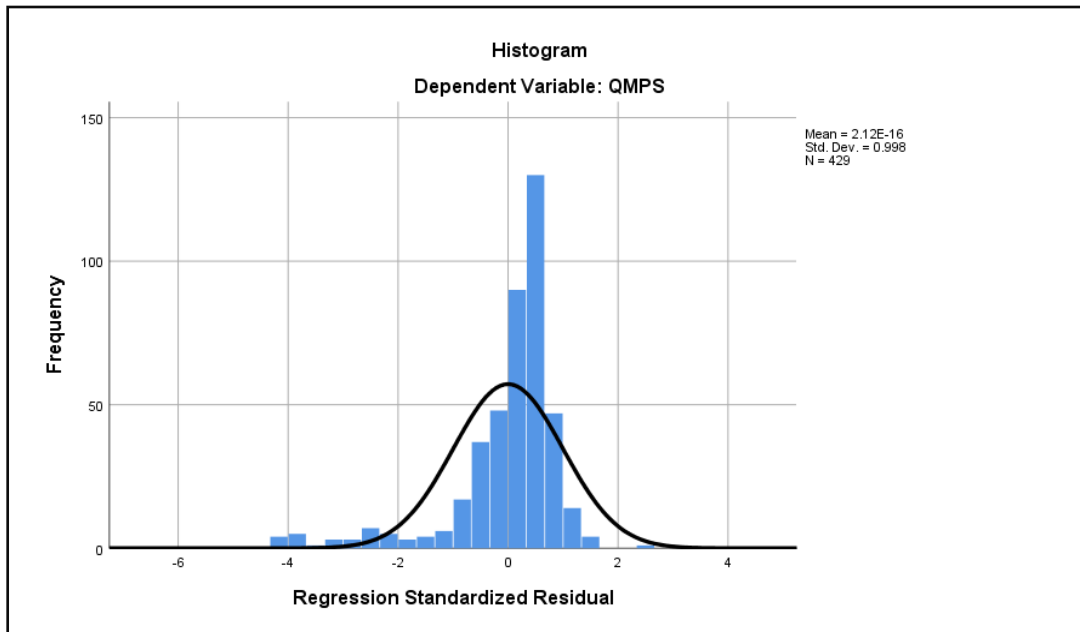
Figure 4. 1. Histogram for Test of Normality
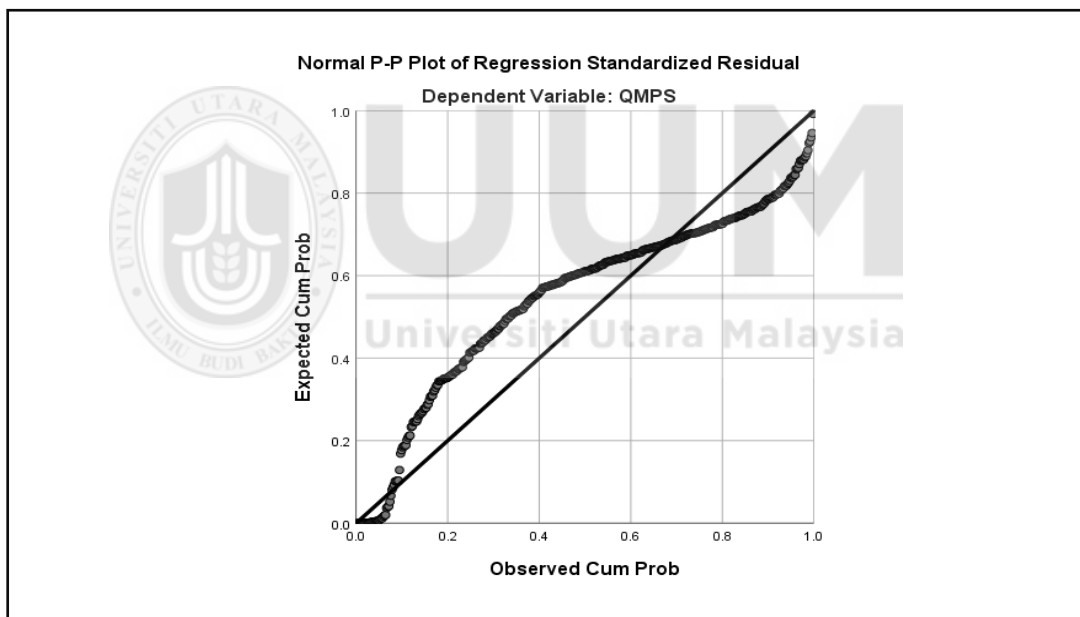
Figure 4. 2. Normal P-P Plot

The dataset in this study, therefore, had a non-normal data distribution. Nevertheless, it was still suitable for testing the causal theory between these variables, using an appropriate statistical analysis technique, such as PLS-SEM, a non-parametric statistical method that does not require the dataset to be normally distributed (Reinartz, Haenlein, & Henseler, 2009). In fact, PLS-SEM can handle extremely non-normal data

(Hair et al., 2017). Therefore, this study employed PLS-SEM techniques on SmartPLS 3 software to test the hypothesized relationships.

4.3.5 Multicollinearity Test

Multicollinearity arises when two indicators are highly correlated and when more than two indicators are involved. Multicollinearity occurs when two or more exogenous variable latent constructs become highly correlated (Hair et al., 2014). As Chatterjee and Yilmaz (1992) and Hair et al. (2006) explained, the occurrence of multicollinearity among latent constructs can alter the estimates of regression coefficients and their statistical impact tests significantly. However, multicollinearity also increases the standard coefficients' errors, which, according to Tabachnick & Fidell (2007), makes the coefficients not statistically important. To establish multicollinearity, this study employed the recommendation of Chatterjee and Yilmaz (1992) and Peng and Lai (2012) to use two different techniques. The correlation matrix of the latent constructs was assessed initially.

According to Hair et al. (2017) and Garg and Tai (2012), multicollinearity can be determined if a correlation coefficient of 0.90 and beyond exists amid exogenous latent constructs. The correlation matrix of the entire latent constructs in the present study is presented in Table 4.5.

Table 4. 5

Correlation Matrix of Exogenous Latent Constructs

Latent Variables	1	2	3
QMPS	1		
SL	.256**	1	
OC	.306**	.349**	1

Table 4.5 shows that the correlations between the exogenous latent constructs were adequately below the threshold value of .90 or more, as recommended. This

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demonstrated that the exogenous latent constructs were not extremely correlated because they were autonomous. In order to address the problem of multicollinearity after examining the correlation matrix of the latent constructs, the variance inflated factor (VIF), and the tolerance value and condition index were assessed. As Hair, Ringle, and Sarstedt (2011) explained, multicollinearity is only a problem when the VIF value surpasses five, the tolerance value is below .20, and is higher than 30 in the case of the condition index. The VIF values, tolerance values, and condition indices for the latent constructs in this study are shown in Table 4.6.

Table 4. 6

Tolerance and Variance Inflated Factor (VIF) Value

Independent Variables	Collinearity Statistics		Condition Index
	Tolerance	VIF	
Quality Management Practice(QMPS)	.756	1.307	1.000
Strategic Leadership(SL)	843	1.186	1.389
Organizational Climate (OC)	.659	1.517	1.958

As shown in Table 4.6, multicollinearity was absent from the exogenous latent constructs, since the entire VIF values were less than five, the tolerance values exceeded .20, and the condition indices were lower than 30 (Hair et al., 2011). Therefore, in the present study, multicollinearity was not an issue.

4.4 Common Method Bias

As in all self-reported studies, it was necessary to address the possibility of common method bias (CMB) (Hulland et al., 2018, Podsakoff et al., 2003). The CMB, or common method variance (CMV), is a bias that is often attributed to the measurement method, rather than to the construct of interest (Podsakoff et al., 2003). When both the outcome measure and the predictor variables are self-reported in the same survey instrument, all measures share a CMB, which poses a problem in survey studies, because it can cause measurement errors that threaten the validity of the conclusions

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concerning the relationships between the measures (Bagozzi, Yi, & Phillips, 1991, Nunnally, 1978, Podsakoff et al., 2003).

In the present study, the full collinearity test proposed by Kock and Lynn (2012) was employed to check the CMB. A full collinearity test requires the observation of the VIF generated for all of the latent variables, such as the exogenous and the endogenous, in a structural model. This study used a full collinearity test on the following three major latent variables, strategic leadership (independent variables), OC (mediator variable), and QMPS (dependent variable), since the relationships that required testing were between these variables (see Table 4.7).

Table 4. 7

Full Collinearity Test Results

Latent Variables	VIF
Quality Management Practice(QMPS)	1.307
Strategic Leadership(SL)	1.186
Organizational Climate (OC)	1.517

VIF value less than 3.3, safe from CMB (Kock, 2015)

According to Kock (2015), CMB poses a problem when any of the latent variables possesses a VIF value of greater than 3.3. As Table 4.7 shows, the VIF value for every latent variable in the present study did not exceed 3.3, therefore CMB was not a threat, and non-response bias was not a problem.

4.5 Demographic Information

This study used 429 eligible samples, representing 429 individuals who were employed as lecturers at nine universities in Egypt at the time of the study. The demographic section in the survey form requested that the respondents provide information regarding their gender, age, rank, tenure (years), highest education qualification, status, and the name of the university where they were employed (Table 4.8).

Table 4. 8

Background Of Respondents

Information	Frequency	Percentage	Cumulative Percentage
i) Gender			
Male	189	44.1	44.1
Female	240	55.9	100.0
Total	429		
ii) Age (years)			
20 to 30	66	15.4	15.4
31 to 40	202	47.1	62.5
41 to 50	140	32.6	95.1
51 and above	21	4.9	100.0
iii)Highest Education Qualification			
Bachelor's degree	62	14.5	14.5
Master's degree	192	44.8	59.2
Doctor Degree	175	40.8	100.0
i) Rank			
Professor	77	17.9	17.9
Associate Professor	83	19.3	37.3
Lecturer	121	28.2	65.5
Assistant Lecturer	74	17.2	82.8
Teaching Assistant	74	17.2	100.0
V) Tenure(years)			
Below 5	121	28.2	28.2
6 to 15	148	34.5	62.7
16 to 25	119	27.7	90.4
26 to 35	41	9.6	100.0
vi) Status			
Single	103	24.4	24.0
Married	311	72.5	96.0
Divorced	15	3.5	100.0
vii) Name of University			
Cairo	124	28.9	28.9
Ain Shams	93	21.7	50.6
Helwan	48	11.2	61.8
Tanta	41	9.6	71.3
Mansurah	48	11.2	82.5
Manufia	42	9.8	92.3
Kafrelshikh	14	3.3	95.6
Dmiat	11	2.6	98.1
Sadat	8	1.9	100.0

Table 4.8 shows that most of the respondents were female (240 individuals, 55.9%),

compared with 189 males (44.1%). The majority fell in the 31 to 40 years of age group

(202 individuals, 47.1%), while 140 individuals (32.6 %) fell in the 41 to 50 years of

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age group, therefore the majority of the academic staff at these universities were relatively young (31 to 40 years of age). Meanwhile, there were only 21 individuals (4.9%) in the oldest age group (51 years and above), and only a small portion of respondents aged between 20 to 30 years (66 individuals, 15.4%).

The majority of the respondents were lecturers (121 individuals, 28.2%), 77 (17.9%) were Professors, and 83 (19.3%) were Associate Professors. There was also a small percentage of respondents who held a role that was equal to Assistant Lecturer or Teaching Assistant (74 individuals, 17.2%). In terms of years of tenure, the majority of the respondents had been employed in academia for between six and 15 years (148 individuals, 34.5%), followed by 16 to 25 years (119 individuals, 27.7%), while 41 individuals (9.6%) had 26 to 35 years in role, and 21 individuals (28.2%) had below five years of work experience. The descriptive analysis revealed that 175 individuals (40.8%) were Ph.D. holders, and 192 individuals (44.8%) held a Master's degree, while 62 individuals (14.5%) held only a Bachelor's degree. Although 15 individuals (3.5%) were divorced, the majority of respondents were married (311 individuals, 72.5%), followed by 103 individuals (24.4%) who were single.

Finally, most of the respondents were employed at Cairo university (124 individuals, 28.9%), followed by Ain Shams (93 individuals, 21.7%), Helwan University (48 individuals,11.2%), Tanta (41 individuals, 9.6%), Mansurah (48 individuals, 11.2%), Manufia (42 individuals, 9.8%), Kafrelshikh (14 individuals, 3.3%), Dmiat (11 individuals, 2.6), and Sadat (8 individuals, 1.9%), which showed that there was a good representation of all the universities sampled.

4.6 Measurement Model Analysis
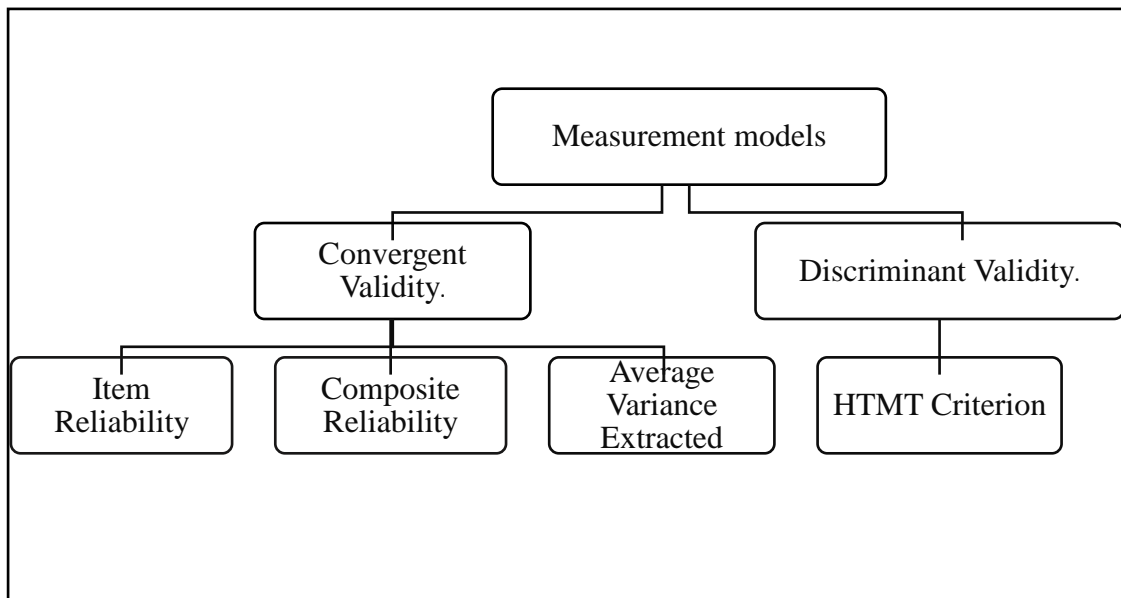
Figure 4.3. Step-By-Steps Procedures in the Measurement Model

The measurement model is an element of a path model that contains the indicators and their relationships with the constructs. It is also called the outer model in PLS-SEM (Hair et al., 2017). In this study, the measurement model analysis was performed using the PLS algorithm procedure in SmartPLS 3 software (Ringle, Wende, & Becker, 2015) to assess the construct reliability and validity. Since there were multi-dimensional latent variables in the research model, the study employed the second-order measurement model analysis, using a disjoint two-stage approach.

A disjoint two-stage approach is a technique employed to assess the validity of a higher-order construct (HOC) in SmartPLS (Sarstedt et al., 2019). The technique was applied to the measurement model to overcome the limitation of the conventional approach of analyzing HOC known as 'repeated indicator' (Becker, Klein, & Wetzels, 2012). Through the repeated indicator approach, the correct average variance extracted (AVE) and composite reliability (CR) do not appear in the model output, hence researchers must conduct the further calculation manually (Sarstedt et al., 2019) or use a self-

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developed Microsoft Excel template. The disjoint two-stage approach involves two stages of measurement model assessment, as follows:

(i) Stage One: Lower order constructs' (LOCs) reliability and validity are assessed, and latent variable scores for each LOC are computed using the PLS algorithm command.

(ii) Stage Two: The HOCs are established (drawn) using computed LOC latent variable scores as the indicator, and the HOCs' validity and reliability are assessed.

Figure 4.3 illustrates Stage One of the measurement model assessment, while Figure 4.4 illustrates the Stage Two assessment.
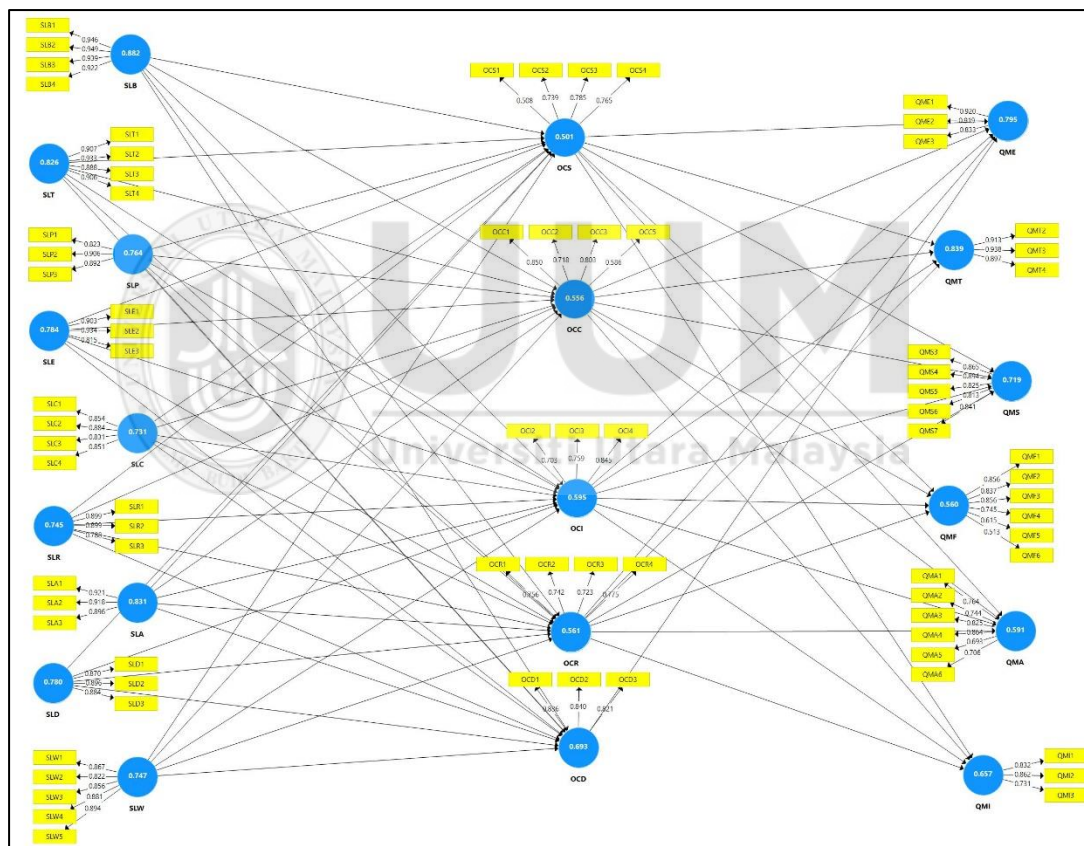
Figure 4. 4. *Measurement Model Stage One*
Note. Values inside constructs = AVE. Values on arrows = factor loadings

Figure 4.4 shows the first stage of the measurement model assessment, whereby there were 20 latent variables: SLB, SLT, SLP, SLE, SLC, SLR, SLA, SLD, SLW, OCS, OCC, OCI, OCR, OCD, QME, QMT, QMS, QMF, QMA and QMI, with three HOCs, strategic leadership, OC, and QMPS. The LOCs represented this dimension of HOCs.

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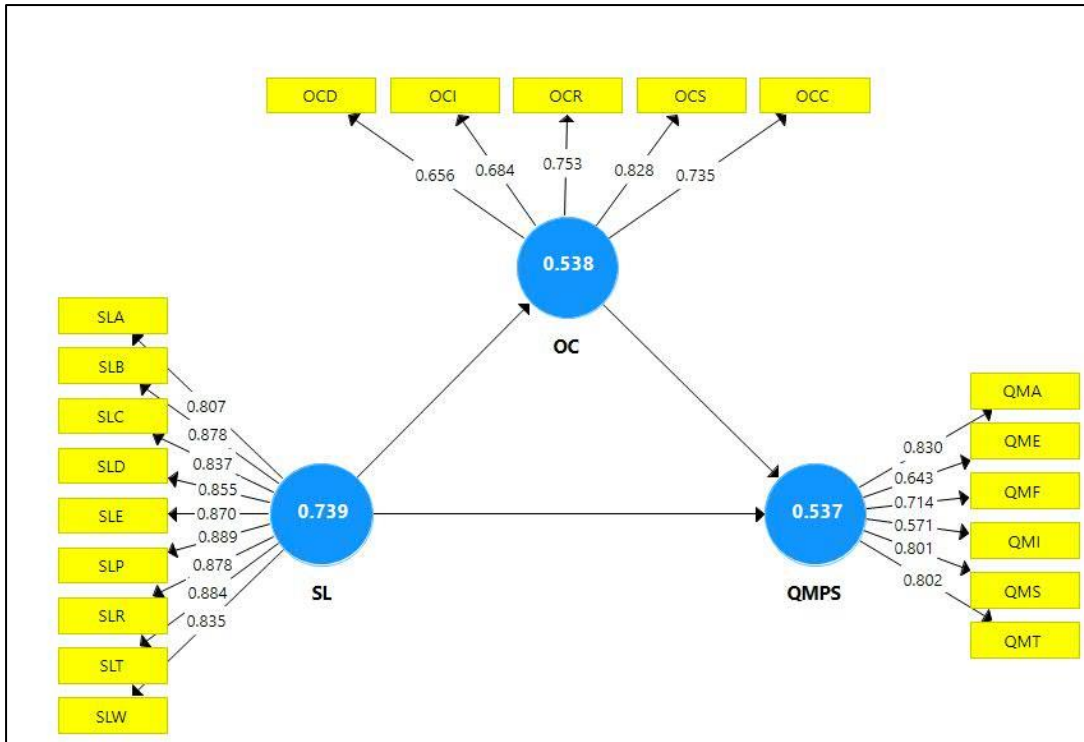
Figure 4. 5. Measurement Model Stage Two
Note. Values inside constructs = AVE. Values on arrows = factor loadings

Figure 4.5 illustrates the second stage of the measurement model assessment, whereby there were only three latent variables (strategic leadership, OC, and QMPS). In this stage, the dimensions of (i) SL: SLA, SLB, SLC, SLD, SLE, SLP, SLR, SLT, SLW, (ii) OC: OCS, OCC, OCI, OCR, OCD, and (iii) QMPS: QMA, QME, QMF, QMI, QMS, QMT were transformed into indicators (items) using the latent variable scores of each respective dimension.

In both figures, the values noted on the arrows represent the outer loading (factor loading), while values marked inside the constructs indicate the AVE. The construct reliability and validity assessments provided by the measurement model analysis in PLS-SEM included i) internal consistency reliability, ii) convergent validity, and iii) discriminant validity. As Hair et al. (2017) explained, α provides the lowest estimation of internal consistency reliability, while $_{CR}$ indicates its highest estimation. Hence, in this study, the internal consistency reliability was represented by the composite

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reliability (C_R) coefficient, while the convergent validity was determined through the AVE values. Meanwhile, the discriminant validity was assessed using the Hetereotrait-Monotrait (HTMT) ratio (see Table 4.9).

Table 4. 9

Internal Consistency Reliability and Convergent Validity Results

Constructs		Items	Loadings	C_r	AVE
LOC	HOC				
Training and Education (QME)		QME1	.920		
		QME2	.919	.921	.795
		QME3	.833		
Teamwork and Involvement (QMT)		QMT2	.913		
		QMT3	.938	.940	.839
		QMT4	.897		
Strategic Quality Planning (QMS)		QMS3	.865		
		QMS4	.894		
		QMS5	.825	.927	.719
		QMS6	.813		
		QMS7	.841		
Customer Focus (QMF)		QMF1	.856		
		QMF2	.837		
		QMF3	.856		
		QMF4	.745	.881	.560
		QMF5	.615		
		QMF6	.513		
Information and Analysis (QMA)		QMA1	.764		
		QMA2	.744		
		QMA3	.825		
		QMA4	.864	.896	.591
		QMA5	.693		
		QMA6	.706		
Continuous Improvement (QMI)		QMI1	.832		
		QMI2	.862	.851	.657
		QMI3	.731		
	Quality Management Practices (QMPS)	QME	.643		
		QMT	.802		
		QMS	.801		
		QMF	.714	.873	.537
		QMA	.830		
		QMI	.571		

Note. QME4, QMT1, QMS1, and QMS2 were deleted to pass the convergent validity requirement.

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Table 4.9 (Continued)
Internal consistency reliability and convergent validity results

Constructs		Items	Loadings	Cr	AVE
1st Order	2nd Order				
Be Strategically Oriented (SLB)		SLB1	.946	.968	.882
		SLB2	.949		
		SLB3	.939		
		SLB4	.922		
Translate Strategy into Action (SLT)		SLT1	.907	.950	.826
		SLT2	.933		
		SLT3	.888		
		SLT4	.906		
Align people and Organize (SLP)		SLP1	.823	.907	.764
		SLP2	.906		
		SLP3	.892		
Effective Strategic Interaction Points (SLE)		SLE1	.903	.916	.784
		SLE2	.934		
		SLE3	.815		
Strategic Competencies (SLC)		SLC1	.854	.916	.731
		SLC2	.884		
		SLC3	.831		
		SLC4	.851		
Restlessness with Present Achievement (SLR)		SLR1	.899	.897	.745
		SLR2	.899		
		SLR3	.788		
Absorptive Capacity (SLA)		SLA1	.921	.936	.831
		SLA2	.918		
		SLA3	.896		
Adaptive Capacity (SLD)		SLD1	.870	.914	.780
		SLD2	.896		
		SLD3	.884		
Wisdom (SLW)		SLW1	.867	.937	.747
		SLW2	.822		
		SLW3	.856		
		SLW4	.881		
		SLW5	.894		
	Strategic Leadership	SLB	.881	.962	.739
		SLT	.887		
		SLP	.893		
		SLE	.871		
		SLC	.835		
		SLR	.876		
		SLA	.801		
		SLD	.852		
		SLW	.831		

Table 4.9 (Continued)
Internal consistency reliability and convergent validity results

Constructs		Items	Loadings	Cr	AVE
LOC	HOC				
Student Support (OCS)		OCS1	.508	.797	.501
		OCS2	.739		
		OCS3	.785		
		OCS4	.765		
Collaboration (OCC)		OCC1	.850	.831	.556
		OCC2	.718		
		OCC3	.803		
		OCC5	.586		
Resource (OCR)		OCR1	.756	.837	.561
		OCR2	.742		
		OCR3	.723		
		OCR4	.775		
Decision Making (OCD)		OCD1	.836	.872	.693
		OCD2	.840		
		OCD3	.821		
Instructional Innovation (OCI)		OCI2	.703	.814	.595
		OCI3	.759		
		OCI4	.845		
	Organizational Climate (OC)	OCS	.828	.853	.538
		OCC	.735		
		OCR	.753		
		OCD	.656		
		OCI	.684		

Note. OCC4, OCC6, and OCI1 were deleted to pass the convergent validity requirement.

Table 4.9 presents the results of internal consistency reliability and convergent validity tests for all the constructs. The minimum requirement of convergent validity for a construct is an AVE of at least 0.50 (Fornell & Larcker, 1981, Gefen, Straub, & Boudreau, 2000, Hair et al., 2014), while a satisfactory level for the ρ_C coefficient is more than 0.70 (Gefen et al., 2000). All the constructs produced AVE values ranging from 0.501 to 0.882., with $_{CR}$ coefficients as low as 0.797 and as high as 0.968.

Although items such as QMF5, QMF6, OCS1, and OCC3 demonstrated factor loadings less than the threshold proposed by Hair et al. (2017), (r = 0.708), these items were retained due to the view of other scholars who argued that items with a factor loading as low as 0.50 can be retained (Byrne, 2016) or even those with a factor loading as low

as 0.40, (Hulland, 1999) provided the particular construct achieves its convergent validity requirement (AVE = 0.50). Hence, no item was deleted to achieve convergent validity.

However, several items were deleted to achieve discriminant validity under the Hetereotrait-Monotrait (HTMT) ratio evaluation, which is the ratio between the mean of all the items' correlations across the constructs measuring different constructs, and the mean of the average items' correlations measuring the same construct (Henseler, Ringle, & Sarstedt, 2015). An HTML ratio that is greater than 0.90 indicates a problem of discriminant validity (Gold, Malhotra, & Segars, 2001). Also, Sarstedt et al. (2019) proposed guidelines for assessing discriminant validity for a second-order measurement model, as follows:

(i) LOCs to demonstrate discriminant validity among each other, and for all other constructs in the model, except their HOC, and

(ii) HOCs to exhibit discriminant validity to all other constructs in the model.

The initial results of the HTMT ratio revealed that there were several discriminant validity problems involving the LOCs of strategic leadership, since several items were highly correlated with items in the other construct, including SLP, SLR, and SLT. Also, the HTMT ratio results showed that the discriminant validity problem still existed. Only the HTMT ratio between SLP and SLE, SLR and SLC, SLR and SLD, SLT and SLA, and SLT and SLP were remedied (see Table 4.16).

Bounded by the rules of thumb of (i) at least three items per construct to provide a minimum coverage of a construct's theoretical domain (Hair et al., 2019, Statistics Solutions, 2013), and (ii) do not delete more than 20% from the total items in the model

(Hair et al., 2017, Ramayah et al., 2018), an additional, alternative approach was attempted to handle the remaining discriminant validity problems.

Table 4. 10

Results of LOC HTMT Ratio

	OCC	OCD	OCI	OCR	OCS	QMA	QME	QMF	QMI	QMS	QMT	SLA	SLB	SLC	SLD	SLE	SLP	SLR	SLT	SLW
OCC																				
OCD	0.454																			
OCI	0.489	0.482																		
OCR	0.600	0.423	0.577																	
OCS	0.667	0.678	0.751	0.771																
QMA	0.333	0.176	0.241	0.471	0.381															
QME	0.210	0.185	0.258	0.259	0.386	0.527														
QMF	0.543	0.216	0.173	0.330	0.296	0.679	0.442													
QMI	0.177	0.232	0.128	0.125	0.154	0.656	0.381	0.429												
QMS	0.531	0.199	0.288	0.295	0.353	0.598	0.346	0.451	0.399											
QMT	0.350	0.340	0.289	0.382	0.567	0.640	0.494	0.545	0.453	0.395										
SLA	0.278	0.264	0.246	0.218	0.285	0.055	0.059	0.039	0.148	0.118	0.062									
SLB	0.402	0.315	0.325	0.314	0.406	0.097	0.173	0.139	0.144	0.233	0.167	0.641								
SLC	0.290	0.214	0.231	0.229	0.262	0.120	0.041	0.060	0.094	0.097	0.045	0.806	0.705							
SLD	0.306	0.263	0.303	0.214	0.292	0.058	0.054	0.041	0.124	0.143	0.067	0.878	0.720	0.866						
SLE	0.264	0.241	0.231	0.265	0.292	0.054	0.063	0.073	0.147	0.197	0.084	0.760	0.781	0.814	0.837					
SLP	0.342	0.268	0.294	0.344	0.360	0.122	0.180	0.132	0.174	0.210	0.159	0.668	0.894	0.780	0.783	0.906				
SLR	0.312	0.239	0.275	0.262	0.334	0.067	0.069	0.070	0.112	0.155	0.052	0.871	0.780	0.922	0.908	0.883	0.836			
SLT	0.396	0.341	0.287	0.323	0.384	0.145	0.181	0.156	0.213	0.252	0.186	0.663	0.901	0.684	0.724	0.800	0.984	0.761		
SLW	0.271	0.209	0.258	0.217	0.269	0.109	0.026	0.048	0.089	0.101	0.042	0.867	0.661	0.864	0.895	0.799	0.719	0.890	0.662	

Note. Shaded values indicate discriminant validity problems.

Table 4. 11

Results of HOC HTMT Ratio

	QMPS	SL	OC
QMPS			
SL	.159		
OC	.566	.418	

As suggested by Hair et al. (2017) and Ramayah et al. (2018), for constructs that are conceptually very similar, the HTMT inferential cane be performed using the bootstrapping technique to assess the discriminant validity further. Since the various dimensions of strategic leadership could be considered conceptually similar, they could be measured as a reflective second-order construct. Hence, the HTMT inferential analysis was performed by assessing the bootstrapping confidence interval statistic (see Table 4.12). The confidence interval of the HTMT statistic should not include the value 1 for all combinations of constructs.

Table 4. 12

Results of HTMT Inferential Analysis

HTMT Ratio	Confidence Interval	
	Lower Limit	**Upper Limit**
SLP and SLE	0.855	0.948
SLR and SLC	0.869	0.960
SLR and SLD	0.851	0.952
SLT and SLA	0.575	0.725
SLT and SLP	0.946	0.985

Table 4.12 shows that the confidence interval of the HTMT statistic did not include the value 1 for any combination of constructs. It also shows that none of the HTMT confidence intervals for the subjected constructs included a value of 1. Hence, this resolved the discriminant validity problems between all the subjected constructs in this measurement model.

4.7 Structural Model Analysis

The structural model was assessed after the establishment of the measurement model. The model's capabilities to predict one or more target constructs were determined in this step (Hair et al., 2019). Hair et al. (2019) proposed the steps for assessing the structural model in PLS-SEM as presented in Figure 4.7 illustrates these steps in more detail.

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┌─────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────┐  │
│  │         Assessment for Collinearity Issues        │  │
│  └───────────────────────────────────────────────────┘  │
│                          ⌄                              │
│  ┌───────────────────────────────────────────────────┐  │
│  │  Assessment the significance and relevance of the │  │
│  │                    structural                     │  │
│  └───────────────────────────────────────────────────┘  │
│                          ⌄                              │
│  ┌───────────────────────────────────────────────────┐  │
│  │            Assessment the level of R²             │  │
│  └───────────────────────────────────────────────────┘  │
│                          ⌄                              │
│  ┌───────────────────────────────────────────────────┐  │
│  │          Assessment the Effect Size F²            │  │
│  └───────────────────────────────────────────────────┘  │
│                          ⌄                              │
│  ┌───────────────────────────────────────────────────┐  │
│  │        Out-of-Sample Predictive Power Q²          │  │
│  └───────────────────────────────────────────────────┘  │
│                          ⌄                              │
│  ┌───────────────────────────────────────────────────┐  │
│  │        Hypotheses testing (path coefficient)      │  │
│  └───────────────────────────────────────────────────┘  │
│                          ⌄                              │
│  ┌───────────────────────────────────────────────────┐  │
│  │   Importance-Performance Matrix Analysis (IPMA)   │  │
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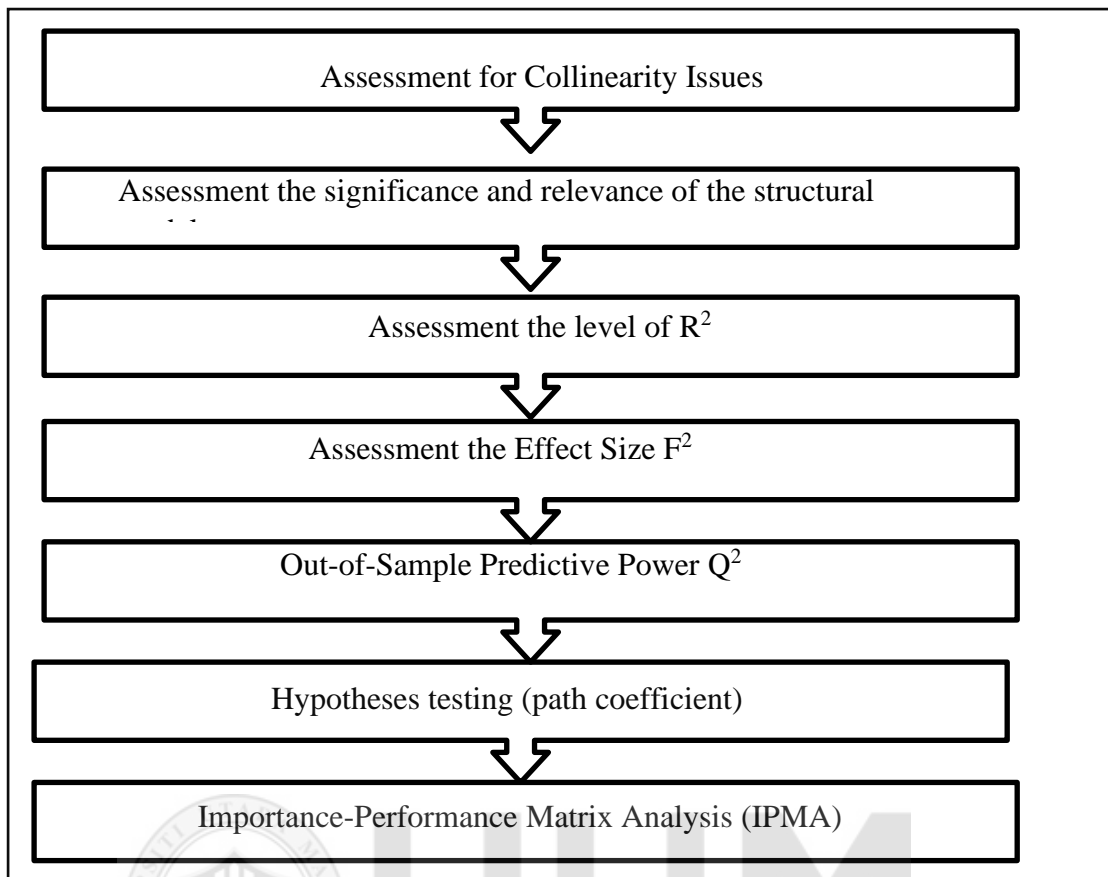
Figure 4.6. Step-By-Steps procedures in the structural model

A structural model analysis, which is also known as significance testing, is a process of

testing whether or not a certain relationship between two or more constructs is likely to

occur by chance (Hair et al., 2017, Saunders et al., 2016). In this study, the structural

model analysis was performed via bootstrapping procedures with 5,000 resamples (Hair

et al., 2014) to address the research questions, and thereby to fulfil the research

objectives. The structural model used for this study is illustrated in Figure 4.7.
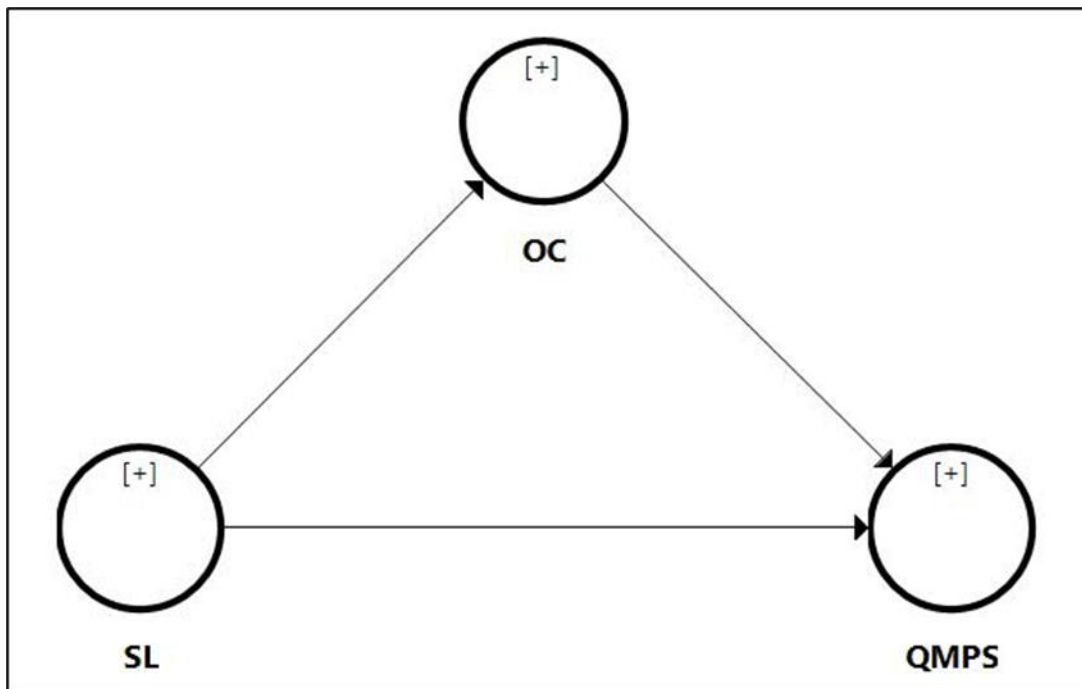
Figure 4. 7. The Structural Model of Study

Figure 4.7 The structural model of this study, showing the constructs (strategic leadership, OC, and QMPS) and their path relationships (hypotheses). (QMPS is the endogenous construct (dependent variable), while strategic leadership is the exogenous construct (predictor variables) of QMPS. OC also works as a mediator in the relationships between strategic leadership and QMPS.

Following the recent guidelines advocated by Hair et al. (2019), the structural model analysis employed five assessment sequences, including the evaluation of i) collinearity issues, ii) the model's exploratory power (R^2) and predictors' effect sizes (f^2), iii) predictive accuracy (Q^2), iv) PLSpredict (Q^2predict), and v) significance of the structural model relationships. The results of the structural model are presented in the next sub-sections.

4.7.1 Collinearity Assessment

Collinearity issues (Hair et al., 2014), or multi-collinearity (Pallant, 2016) occur when two or more predictors are highly correlated. Recently, Hair et al. (2017) suggested evaluating VIF values to assess the severity of a collinearity issue in a PLS-SEM path model (see Table 4.13).

Table 4. 13

Results of Collinearity Assessment

Constructs	Collinearity (VIF)	
	OC	QMPS
Strategic leadership	1.000	1.162
OC	-	1.162

The VIF is a statistic used to measure collinearity (Saunders et al., 2016). According to Diamantopoulos and Siguaw (2006), VIF statistics of 3.3 or greater suggest that the collinearity issue may mislead the structural model findings. Table 4.19 shows that all the VIFs were less than 3.3. Hence, collinearity was not a severe problem in this structural model, and the results produced would not be misled.

4.7.2 Explanatory Power and Effect Size

The model's explanatory power was measured by the R2 value (Hair et al., 2019, Shmueli & Koppius, 2011), which is also known as the coefficient of determination (Hair et al., 2017, Ramayah et al., 2018). R2 interprets the combined effect of the predictor variables on the dependent variable (Ramayah et al., 2018), and was, therefore, a measure of the model's in-sample predictive power (Rigdon, 2012). Generally, R2 values of 0.26, 0.13, and 0.02 are regarded as substantial, moderate, and weak, respectively (Cohen, 1992). The QMPS had a substantial explanatory power level (R2 = 0.241), indicating that strategic leadership explained 24.1% of the variance in the QMPS. Meanwhile, OC had moderate level explanatory power (R2 = 0.137),

implying that OC explained 13.7% of the variance in strategic leadership (see Figure 4.8).
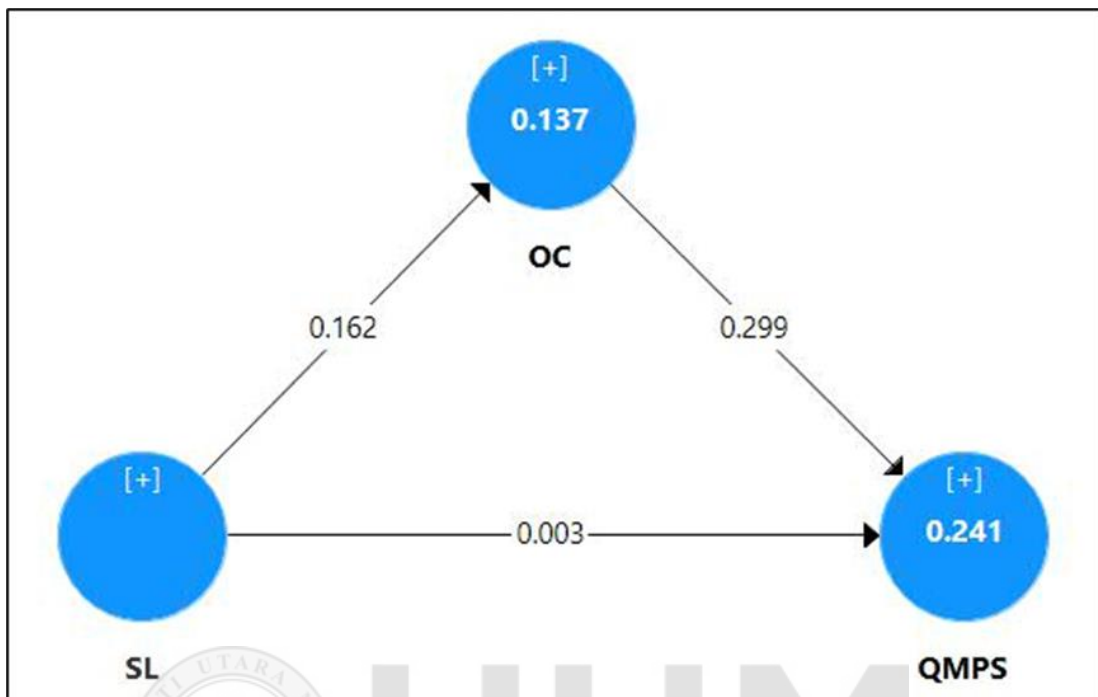
Figure 4.8 Path model with R2 and f2 values
Note: Values on arrows indicate f^2, Value within endogenous construct represent R^2.

In assessing the structural model, the change in the R^2 value when a specified predictor variable is removed from the model should also be examined (Soto-Acosta, Popa, & Palacios-Marqués, 2016, Sullivan & Feinn, 2012). The change in the R^2 value is called effect size (f^2). In this study, the effect size (f^2) was reported to evaluate whether the removed predictor variable had a substantive significance on the dependent variable (see Table 4.14).

Table 4. 14

Results of R2 and f2

Relationships	Effect size		Explanatory power (R^2)
	f^2	Magnitude	
H$_0$3: SL → QMPS	.003	None	.241
H$_0$5: OC → QMPS	.299	Medium	
H$_0$4: SL → OC	.162	Medium	.137

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As recommended by Hair et al. (2014, 2017), Cohen's (1988) guidelines were used to determine the magnitudes of f^2, with magnitudes of 0.02, 0.15, and 0.35 representing small, medium, and large effects, respectively. Table 4.14 shows that strategic leadership had no effect on QMPS ($f^2 < 0.02$), but had a medium effect on OC, suggesting that strategic leadership may have a non-significant relationship with QMPS, but a significant relationship with OC. The significance of the relationships between the constructs is discussed in Section 4.8.7. Meanwhile, OC showed a medium effect size on QMPS.

4.7.3 Predictive Accuracy

The predictive accuracy of a path model is measured using a metric called Q2 (Geisser, 1975, Stone, 1974), which is computed to assess whether a model predicts data not used (out-of-sample prediction) accurately, in combination with within-sample explanatory power in the estimation of a model parameters (Sarstedt, Ringle, & Hair, 2017, Shmueli et al., 2016). In SmartPLS, the Q2 value is computed using the blindfolding procedure, a resampling technique that systematically deletes and predicts every data point of the indicators in the reflective measurement model of the endogenous construct (Ramayah et al., 2018).
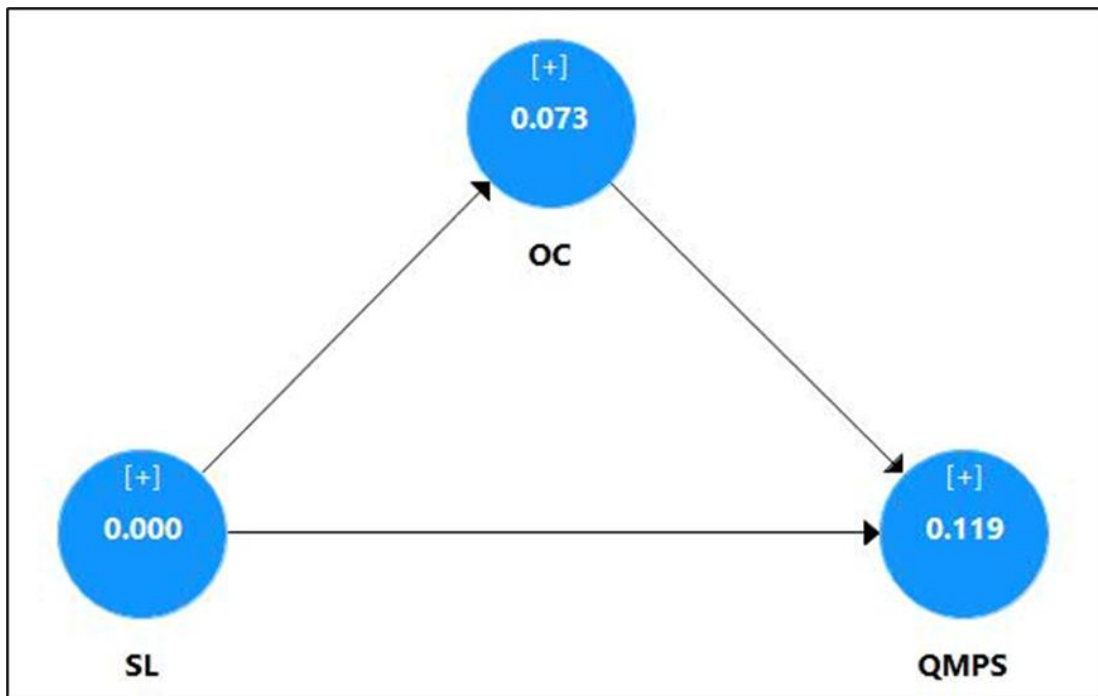
Figure 4.9. Path Model with Q2

In general, the Q^2 value should be larger than zero ($Q^2 > 0$) to indicate an acceptable predictive accuracy for a certain endogenous construct (Fornell & Cha, 1994, Hair et al., 2014). However, recent reporting guidelines indicated Q^2 values of 0.50, 0.25, and 0.10 are regarded as large, medium, and small, respectively (Hair et al., 2019). Therefore, all the endogenous constructs in this structural model demonstrated a small predictive accuracy of a $Q^2 = 0.119$ for QMPS, and $Q^2 = 0.073$ for OC, suggesting that the model had an acceptable predictive accuracy.

4.7.4 Out-of-Sample Predictive Power

Out-of-sample predictive power is measured using Q2predict and root square mean error (RMSE), generated from the PLSpredict procedure (Shmueli et al., 2016, Shmueli et al., 2019). Recently, Hair et al. (2019) recommended the reporting of Q2predict to ensure that a PLS-SEM structural model has a substantiated model's predictive power. PLSpredict is a set of procedures for the out-of-sample prediction that involves estimating the model on an analysis (training) sample and evaluating its predictive

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performance on a holdout data sample (Hair et al., 2019, Shmueli et al., 2016). The interpretation of out-of-sample predictive power should focus on the model's key endogenous construct (Hair et al., 2019, Shmueli et al., 2019), which in this study was QMPS (see Table 4.15).

Table 4. 15

Results of Q2 Predict (First Model)

Items	PLS-SEM			LM	PLS-SEM - LM RMSE
	MAE	Indicator $Q^2_{predict}$	Latent $Q^2_{predict}$	MAE	
QMS	.756	.014		.765	-.009
QMT	.736	.012		.744	-.008
QMA	.690	-.001	.014	.700	-.010
QMF	.686	-.009		.696	-.010
QME	.685	.008		.694	-.009
QMI	.722	.023		.723	-.001

Note. LM = Linear regression Model, RMSE = Root Mean Square Error

Table 4.15 presents the results of the out-of-sample predictive power, based on $Q^2_{predict}$ and mean absolute error (MAE). According to the guidelines provided by Shmueli et al. (2019), the $Q^2_{predict}$ statistic should be evaluated first to verify that the predictions outperform the most naïve benchmark, which was defined as the indicator means from the analysis sample. Similarly to the Q^2 values for measuring predictive accuracy, a $Q^2_{predict}$ of over zero ($Q^2_{predict} > 0$) indicates that the structural model has sufficient out-of-sample predictive power (Hair et al., 2019). The $Q^2_{predict}$ for all the indicators, and the latent score for QMPS were more than zero, ranging from 0. -.009 to 0. .023. Thus, this model's out-of-sample predictive power was substantiated.

It is then necessary to evaluate the prediction statistics, and in most instances, researchers should assess the MAE (Hair et al., 2019). According to Shmueli et al. (2019), when none of the indicators of the key endogenous construct in the PLS-SEM analysis has higher MAE values than the naïve LM benchmark, the structural model

has a high predictive power. The negative values of PLS-SEM – LM MAE has shown in Table 4.15 implied that all the QMPS indicators demonstrated PLS-SEM MAE values of lower than the LM MAE value. Hence, this structural model had a high out-of-sample predictive power.

4.8 Research Findings Based on Research Question and Research Hypotheses

This section presents the inferential findings of the study, including the test of the differences of variables according to demographic factors, the relationship between the variables, and the mediator influence testing. The research hypotheses were measured at a significance level of $p < 0.05$. The results of data analysis in this section address the second research question, namely whether there were significant differences in terms of the perception of strategic leadership, OC, and QMPS, according to the demographic variables of the academic staff who participated in the study, specifically gender and amount of work experience. The hypotheses tested via this analysis are discussed under sub-topics.

4.8.1 What is the level of strategic leadership in Egypt's public universities?

Descriptive analysis (mean and standard deviation) was used to describe strategic leadership at public universities in Egypt. The level of strategic leadership was assessed using nine dimensions, all of which were grouped into two components of the strategic leadership category, namely organizational capability and individual characteristics. The overall mean values for each dimension of strategic leadership practice were then obtained and compared with the mean values based on the mean classification.

Strategic leadership (denoted as SL) was measured using a seven-point Likert scale that was quantified as follows: 1.00-2.20 = very low, 2.21-3.40 = low, 3.41-4.60 = moderate, 4.61-5.80 = high, and 5.81–7.00 = very high (Dawes, 2008). The results showed that

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the level of strategic leadership in public university was perceived to be moderate (SL, M = 4.63, SP = 1.44). Table 4.16 shows the results for each sub-category, along with the total for the strategic leadership category.

Table 4. 16

Level of Strategic Leadership in University

Latent Variables	Mean	Std. Dev
Organizational ability	**4.77**	**1.52**
Be Strategically Oriented (SLB)	5.06	1.87
Translate Strategy into Action (SLT)	4.85	1.75
Align people and Organize (SLP)	4.91	1.68
Effective Strategic Interaction Points (SLE)	4.59	1.68
Strategic Competencies (SLC)	4.44	1.56
Individual Characteristics	**4.45**	**1.48**
Restlessness with Present Achievement (SLR)	4.52	1.59
Absorptive Capacity (SLA)	4.47	1.70
Adaptive Capacity (SLD)	4.50	1.62
Wisdom (SLW)	4.30	1.58
Strategic Leadership	**4.63**	**1.44**

Note: Sorted in descending order by mean score.

As Table 4.16 shows, the level of strategic leadership at public universities in Egypt as a whole was perceived to be moderate (M = 4.63, SP = 1.44), while the mean values for each aspect of strategic leadership practice was 5.06 (high) for strategic orientation, 4.85 (high) for strategic action, 4.91 (high) for strategic alignment, 4.59 (moderate) for strategic interaction, 4.44 (moderate) for strategic competencies, 4.52 (moderate) for restlessness, 4.47 (moderate) for absorptive capacity, 4.50 (moderate) for adaptation, and 4.30 (moderate) for wisdom. The analysis of the strategic leadership dimension found that strategic orientation attained the highest mean value (M = 5.06, SP = 1.87), followed by strategic alignment (M = 4.91, SP = 1.68), then strategic action (M = 4.85, SP = 1.75). Overall, the organizational capability group was found to be higher (M = 4.77, SP = 1.52) than the individual capability group (M = 4.45, SP = 1.48). Finally, the standard deviation of all the variables was between 0.54 and 1.87, reflecting the

presence of acceptable variability within the dataset (Julious, 2005, Othman et al.,
2011).

4.8.2 What is the level of organizational climate in Egypt's public universities?

The OC variable was measured using a five-point Likert scale. According to Darusalam
and Hussin (2018), the mean scores of a five-point scale can be categorized under the
following three levels: low = 1.00 to 2.33, moderate = 2.34 to 3.67, and high = 3.67 to
5.00. The findings of the descriptive statistical analysis for the OC variable are shown
in Table 4.17, which shows that the level of organizational climate at public universities
in Egypt, in the view of the respondents, was high (M = 4.24, SD= 0.46). Meanwhile,
the results of the analysis of the OC sub-categories showed a high mean score overall,
with a mean value of 4.23 (high) for student support, 4.25 (high) for collaboration, 4.28
(high) for resources, 4.20 (high) for decision making, and 4.27 (high) for instructional
innovation.

Table 4. 17

Level of Organizational Climate in University

Latent Variables	Mean	Std. Dev
Student Support (OCS)	4.23	0.58
Collaboration (OCC)	4.25	0.59
Resource (OCR)	4.28	0.60
Decision Making (OCD)	4.20	0.79
Instructional Innovation (OCI)	4.27	0.54
Organizational Climate	**4.24**	**0.46**

Note. Sort descending based on mean scores.

4.8.3 What is the level of quality management practices in Egypt's public universities?

The QMPS variable was measured using a five-point Likert scale. According to
Darusalam and Hussin (2018), mean scores of a five-point scale can be categorized
under three levels namely, low = 1.00 to 2.33, moderate = 2.34 to 3.67, and high = 3.67
to 5.00. Table 4.18 shows the results of the descriptive findings of the QMPS variables,

demonstrating that the level of QMPS was perceived by the respondents to be high (M = 4.01, SP = 0.63). The customer focuses sub-category achieved the highest mean value (M = 4.08, SD = 0.77), followed by information analysis (M = 4.07, SD = 0.80), then teamwork and involvement (M = 4.02, SD = 0.81), continuous improvement (M = 3.95, SD = 0.96), and of training and education (M = 3.69, SD = 0.89).

Table 4. 18

Level of Quality Management Practices in University

Latent Variables	Mean	Std. Dev
Training and Education (QME)	3.96	0.89
Teamwork and Involvement (QMT)	4.02	0.81
Strategic quality Planning(QMS)	4.00	0.79
Customer Focus(QMF)	4.08	0.77
Information and Analysis(QMA)	4.07	0.80
Continuous Improvement (QMI)	3.95	0.96
Quality Management Practices (QMPS)	**4.01**	**0.63**

Note. Sort descending based on mean scores.

4.8.4 Difference Between Gender, Work Experiences and Strategic Leadership

H₀1a: There is no significant differences between gender and strategic leadership in lecturers' perceptions at an Egyptian public universities.

Hypothesis **H₀1a** was tested using the Mann-Whitney U test. These non-parametric tests were selected because the data distribution across the different respondent groups was non-normal (see skewness and kurtosis z-score in Table 4.19). The mean difference and its significance level were set at p<05. The results showed that there was an equal assumption by males and females concerning strategic leadership. Therefore, the Mann-Whitney U test was not statistically significant (U = 20765.500, p = .133). This result failed to reject the null hypothesis (H₀1a). There was no significant difference between male and female lecturers regarding strategic leadership, and the male and the female participants' perception of strategic leadership was almost equal. Thus, the H₀1a was accepted. The sample in this study had a mean of 4.53 and an SD of 1.48 for the males,

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and a mean of 4.70 and an SD of 1.40 for the females. This indicated that the perception of strategic leadership overall was higher for the females than the males.

Table 4. 19

Difference Between Gender and Strategic Leadership

Information	No	Mean	SD	Skewness		Kurtosis		Sig
				Statistics	Z-Score	Statistics	Z-Score	
Gender								
Male	189	4.534	1.487	-1.278	.177	.475	.352	.133
Female	240	4.708	1.405	-1.493	.157	1.235	.313	

H₀1b: There is no significant differences between work experiences and strategic leadership in lecturers' perceptions at an Egyptian public universities.

Hypothesis H₀1b was tested using Kruskal-Wallis H. The mean difference and it is significance level set at p<.05. In order to determine whether there was a significant difference in the participants' perceived level of strategic leadership, according to their degree of academic experience, Kruskal-Wallis H was conducted. Table 4.20 provides the results of the tests, showing that there was an equal assumption between the levels of experience concerning strategic leadership. The Kruskal-Wallis H was not significant (p= .401, p>0, 05) across the tenure sub-categories regarding the participants' perception of strategic leadership. The result failed to reject the null hypothesis (H01b). Hence there was no significant difference between the amount of work experience and the participants' perception of strategic leadership. in terms of years of tenure, those with 16 to 25 years of experience perceived the level of strategic leadership to be the highest (M=4.77), followed by the 26 to 35 years group (M=4.74), then those with below five years' experience (M=4.58), while the lowest level was among the six to 15 years of experience group (M=4.52).

Table 4. 20

Difference Between Work Experiences and Strategic Leadership

Information	No	Mean	SD	Skewness		Kurtosis		Sig
				Statistics	Z-Score	Statistics	Z-Score	
Tenure								
Below 5 Years	121	4.581	1.421	-1.437	220	1.052	.437	
6 to 15 Years	148	4.525	1.537	-1.177	.199	.140	.396	.401
16 to 25 Years	119	4.777	1.364	-1.538	.222	1.545	.440	
26 to 35 Years	41	4.743	.348	-1.892	.369	2.700	.724	

4.8.5 Difference Between Gender, Work Experiences and Organizational Climate.

H$_0$2a: There is no significant differences between gender and organizational climate in lecturers' perceptions at an Egyptian public universities.

The study used the Mann-Whitney U test to determine the difference between OC on gender. Table 4.21 shows that the significant value. (U = 21233.000, p = .256). Since .256 is greater than 0.05, the equal variances were assumed as the value, demonstrating that the variability between the males and females was not significantly different. These statistics meant that hypothesis H$_0$2a was accepted. As Table 4.21 shows, the difference between males and females was moderate, as the mean for the males (M = 4.21) was lower than that for the females (M = 4.26), indicating that, according to the results regarding OC, the females recorded a higher level than the males.

Table 4. 21

Difference Between Gender and Organizational Climate

Information	NO	Mean	SD	Skewness		Kurtosis		SIG
				Statistics	Z-Score	Statistics	Z-Score	
Gender								
Male	189	4.219	.477	-1.688	.177	2.120	.352	.256
Female	240	4.269	.451	-2.188	.157	5.076	.313	

H$_0$2b: There is no significant differences between work experiences and organizational climate in lecturers' perceptions at an Egyptian public universities.

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The Kruskal-Wallis H was not significant (p= .256, p>0, 05) among work experience toward organizational climate. The result is not able to reject Ho2b. The result does not fulfil the assumption of homogeneity of variance between work experience and organizational climate. Since the value was greater than 5%, the assumption of homogeneity of variances for H02b was accepted, as shown in Table 4.22. furthermore, the results demonstrated that those in the 26 to 35 years of experience bracket recorded the highest level in their perception toward OC (M=4.32), followed by the below five years bracket (M=4.28), then 16 to 25 years (M=4.25), and the lowest level was recorded for six to 15 years (M=4.18), (see Table 4.22).

Table 4. *22*

Difference Between Work Experiences and Organizational Climate

Information	NO	Mean	SD	Skewness		Kurtosis		SIG
				Statistics	Z-Score	Statistics	Z-Score	
Tenure								.670
Below 5 Years	121	4.287	.415	-2.152	220	4.693	437	
6 to 15 Years	148	4.189	.502	-1.443	.199	1.101	.396	
16 to 25 Years	119	4.255	.488	-2.349	.222	5.845	440	
26 to 35 Years	41	4.320	.348	-2.045	.369	4.418	.724	

4.8.6 Difference Between Gender, Work Experiences and Quality Management Practices

H03a: There is no significant differences between gender and quality management practices in lecturers' perceptions at an Egyptian public universities.

The Mann-Whitney U test was performed to identify whether there was a significant difference in the level of perception of lecturers on quality management practices based on gender, Table 4.23 summarizes the differences in the level perception of QMPS, according to gender, showing that the results of the Mann-Whitney U test were significant (U = 19131.500, p = .005). The result was not able to accept the null hypothesis, since the equal variances did not assume between the genders' perception

of QMPS. Hence, there was a statistically significant difference between the male and female respondents in terms of the perception of QMPS. Both the males and the females were not assumed to be equal. Therefore, the statistics confirmed that H03a was rejected. Along with the participants' perception of QMPS the mean result of the sample was 3.95 and an SD of .63 for the males, a mean of 4.06, and an SD of .62 for the females, indicating that the females recorded a higher rating for overall perception QMPS than the males.

Table 4. *23*

Difference Between Gender and Quality Management Practices

Information	NO	Mean	SD	Skewness		Kurtosis		SIG
				Statistics	Z-Score	Statistics	Z-Score	
i) Gender								.005
Male	189	3.959	.632	-1.737	177	2.940	.352	
Female	240	4.066	.620	-1.986	157	3.655	.313	

H₀3b: There is no significant differences between work experiences and organizational climate in lecturers' perceptions at an Egyptian public universities.

the Kruskal-Wallis H test to was employed to determine whether there was a significant difference in the level of perception of QMPS in terms of experience (see Table 4.24). The results shows that there was an equal assumption across the years of experience sub-sections regarding the perception of QMPS. The Kruskal-Wallis H was not significant (p= .156, p>0, 05). The results failed to reject the null hypothesis (H03b). Hence there was no significant difference between the perception of the level of QMPS and the participants' years of experience. In additional, according to years of experience, the participants in the 16-25 years of experience bracket recorded the highest level for QMPS (M=4.07), followed by the 26-35 years bracket (M=4.02), then the six to 15 years (M=4.00), and the lowest level was recorded in the below five years bracket (M=3.95).

Table 4. *24*

Difference Between Work Experiences and Quality Management Practices

	Information	NO	Mean	SD	Skewness		Kurtosis		SIG
					Statistics	Z-Score	Statistics	Z-Score	
i)	**Tenure**								
	Below 5 Years	121	3.974	.598	-1.583	.220	2.126	.437	
	6 to 15 Years	148	4.008	.642	-1.177	.199	3.726	.396	.156
	16 to 25 Years	119	4.076	.631	-2.107	.222	4.238	.440	
	26 to 35 Years	41	4.027	.652	-1.850	.369	3.118	.724	

4.8.7 Significance Testing Using (SMart PLS)

H$_0$4: There was a significant relationship between strategic leadership and organizational climate at an Egyptian public universities.

H$_0$5: There was a significant relationship between strategic leadership and quality management practices at an Egyptian public universities.

H$_0$6: There is a significant relationship between organizational climate and quality management practices at an Egyptian public universities.

H$_0$7: organizational climate mediates the relationship between strategic leadership and quality management practices at an Egyptian public universities.

Typically, the significance of hypothesized relationships is determined according to the probability value (p-value), which represents the probability of error for assuming that a path coefficient is significantly different from zero (Hair et al., 2017). A p-value of 0.01, 0.05, and 0.10 represent a 1%, 5%, and 10% error probability, and mean that only a 1%, 5%, or 10% of the hypothesized relationships occur by chance.

However, the American Statistical Association (ASA) highlighted that reporting the p-value alone does not provide a sound measure of evidence regarding a model or hypothesis (Ramayah et al., 2018). Therefore, this study also reported other measures, such as the empirical t-value, the path coefficient (β), and the confidence interval, as

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additional evidence to accept or reject the hypothesized relationships (Aguinis et al., 2010, Hair et al., 2014, Lin, Lucas, & Shmueli, 2013).

The empirical t value is the test statistic value obtained from the data set at hand, while the critical t-value is the benchmark against which the significance of a coefficient is determined (Hair et al., 2017). The null hypothesis of no effect is rejected if the empirical t-value is larger than the critical t-value. A commonly-used benchmark of a critical t-value in two-tailed tests is 2.57, 1.96, and 1.65, for $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. Meanwhile, a benchmark of critical t-value in one-tailed tests is 2.33, 1.65, and 1.28, for $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively (Hair et al., 2014).

The path coefficient is the estimated path relationship between the latent variables in a structural model that is identical to standardized beta (β) values in a regression model (Hair et al., 2014, 2017). According to Kock and Hadaya (2018), β values that range from 0 to 0.1 may indicate that the hypothesized relationship is not significant, while β values that exceed 0.2 are more likely to indicate a significant relationship. Meanwhile, the values in between, namely 0.11 to 0.19, cannot clearly determine the significance of a hypothesized relationship.

Similarly, confidence interval values strengthen the reporting of significance testing by providing a measure of accuracy for a p-value. The threshold of p-value ($p < .10$, $p < .05$, and $p < .01$) only provide a rough benchmark for accepting or rejecting the null hypothesis, thus resulting in a loss of information (Aguinis et al., 2010). Whereas, the confidence interval demonstrates how close the lower and upper bound limits are to the zero point (Ramayah et al., 2018). As Hahn and Ang (2016) explained, calculation of the confidence interval is part of rigorous results reporting in quantitative studies. Confidence interval upper limit (UL) and lower limit (LL) values must be either both

positive or both negative, indicating that zero does not fall into the range of upper and lower bound values (Hair et al., 2017). Figure 4.10 and Table 4.25 summarize the results of the significance testing for this study.
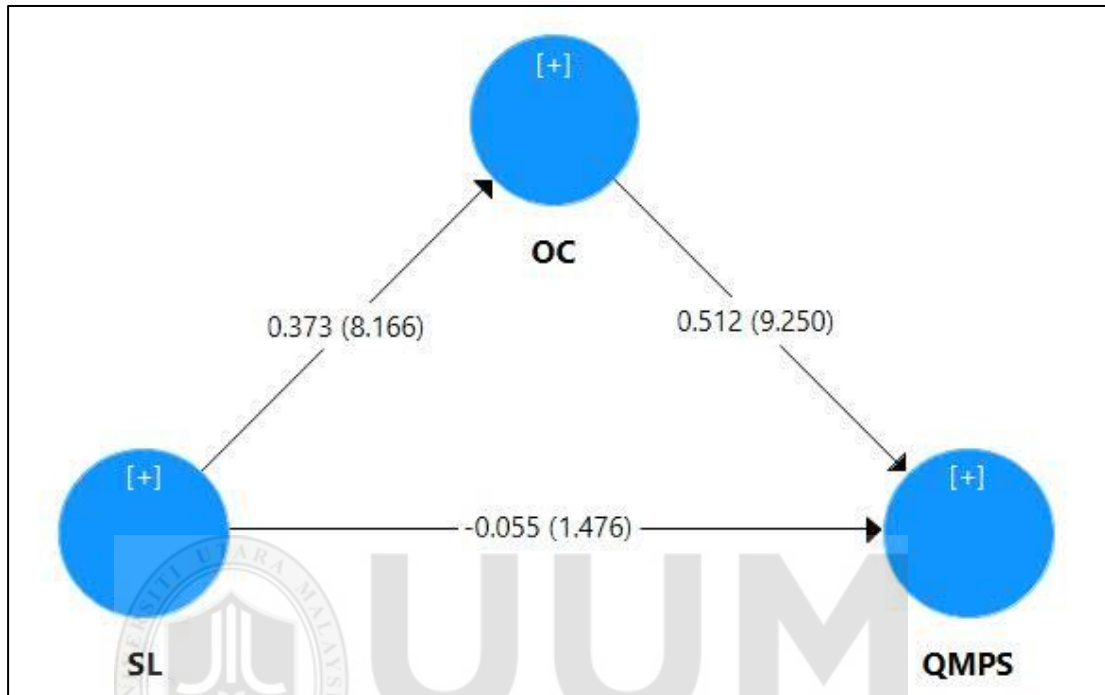
Figure 4. 10. Structural Model for Significance Testing
Note: Values on arrows = path coefficient (β), and the empirical t-values (inside brackets).

Figure 4.8 illustrates the direct relationships between the constructs in the study. There were three direct relationships, as shown by the three arrows, two of which represent the direct relationships between strategic leadership and OC with QMPS, while the remaining arrow shows the direct relationships between strategic leadership and OC. The arrows bear the values of path coefficient (*β*) and the empirical *t*-values (values inside brackets). Meanwhile, the values that appear inside the construct are the R^2.

Table 4. 25

Results Of Direct Relationships' Significance Testing (First Model)

Hypotheses	Relationships	β	Std. Dev	t -value	p -value	Confidence interval (BC)		Decision
						LL	UL	
$H_0$4:	SL → QMPS	-.055	.037	1.476	.140	-.124	.020	Non supported
$H_0$5:	SL → OC	.373	.046	8.166	<.001	.279	.460	Supported
$H_0$6:	OC → QMPS	.512	.055	9.250	<.001	.386	.610	Supported

Note: Two-tailed test. BC = Bias corrected.

Table 4.25 presents the result of all the direct relationships in the structural model. There were significant and positive relationships between

strategic leadership and OC ($\beta = 0.373$, $t = 8.166$, $p < 0.001$, LL = 0.279, UL = 0.460), as well as between OC and QMPS ($\beta = 0.512$, $p <$

0.001, $t = 9.250$, LL = 0.386, UL = 0.610). Thus, $H_0$5 and $H_0$6 were supported. In contrast, there was a non-significant and negative

relationship between strategic leadership and QMPS in $H_0$4at ($\beta = - 0.055$, $p = 0.140$, $t = 1.476$, LL = -0.124, UL = 0.020).
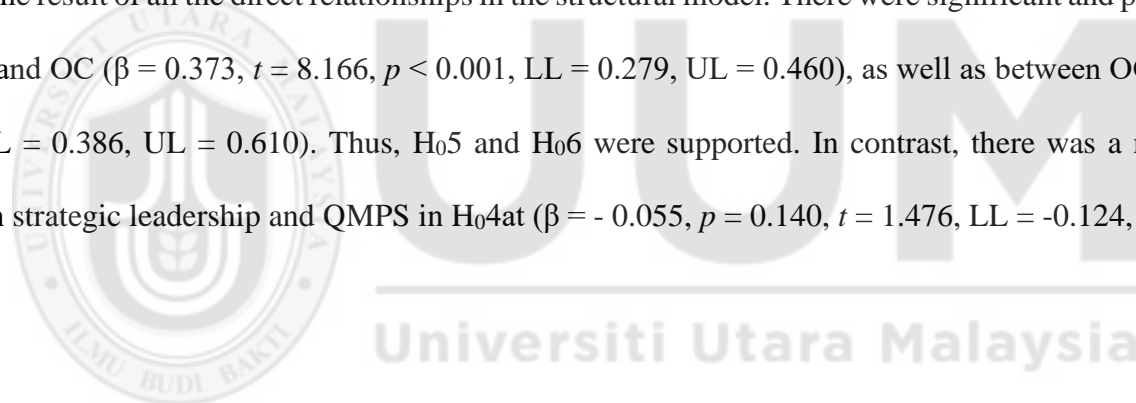
Finally, this study investigated the mediation effect of OC on the relationship between strategic leadership and the QMPS. The bootstrapping of the indirect effect technique developed by Preacher and Hayes (2004) was employed to fulfil these objectives. This technique was chosen to test the mediation effect, due to certain serious limitations of older techniques, such as the causal procedural method (Baron & Kenny, 1986), the Sobel test (Sobel, 1982), and Preacher and Hayes (2008). The causal procedure method is criticized as having a very low statistical power, and because the multiple steps involved cause the false conclusion that there is a mediation effect when actually there is not (Rungtusanatham, Miller, & Boyer, 2014). Meanwhile, the Sobel test was not appropriate for use, because the distributional assumptions do not hold for the indirect effect that yield a lower statistical power than other alternatives, especially in a study with non-normal data (Ramayah et al., 2018). Since this study possessed a non-normal data distribution, Preacher and Hayes's (2004) bootstrapping technique was deemed to be appropriate (see Table 4.26 for the mediation results).

Table 4. 26

Results of Hypotheses Testing (Mediating Relationships)

Hypotheses	Relationships	β	Std. Dev	t-value	p-value	Confidence interval (BC)		Decision
						LL	UL	
H_07	SL $\rightarrow$ OC $\rightarrow$ QMPS	.191	.029	6.512	<.001	.133	.248	Supported

Note: Two-tailed test. BC = Bias corrected.

As Table 4.26 shows, the indirect relationship was supported, as there were significant mediating effects demonstrated by OC on the strategic leadership and QMPS relationship at $\beta = 0.191$, $t = 6.512$, $p < 0.001$, LL = 0.133, UL = 0.248. Hence, the OC mediated the relationship between strategic leadership and QMPS.

In addition, researchers are advised to conclude their mediation results by identifying the types of mediation involved (Hair et al., 2017, Nitzl, Roldan, & Cepeda, 2016).

According to MacKinnon, Fairchild, and Fritz (2007), there are three types of mediation: (i) full mediation, (ii) competitive partial mediation, and (iii) complementary partial mediation. The mediating effect of the present study was considered to be a full mediation since the direct relationship between strategic leadership and QMPS was not significant, but the indirect relationship of OC was significant.

4.9 Importance-Performance Matrix Analysis (IPMA)

The IPMA, or the importance-performance map analysis, is an extra feature used to extend the presentation of the results of standard PLS-SEM estimations by contrasting the total effects of the latent variables on certain target variables with their latent variable scores (Hair et al., 2017). The graphical representation of the IPMA enables researchers to identify critical areas of attention and action easily (Hair et al., 2017), and consequently assists in explaining and discussing the findings of managerial implications further (Ramayah et al., 2018). The present study therefore employed an IPMA on a key target construct (QMPS) to identify potential areas of improvement that should receive a high degree of attention (see Table 4.22 and Figure 4.9).

Table 4. 27

Results of IPMA

Constructs	Importance (Total effects)	Performances (Index values)
OC	.522	79.759
SL	.119	61.460

Note: Sorted according to performance (index values).

Table 4.27 presents the IPMA results for each predictor construct in the structural model, including the importance level, according to the predictor's total effect, and the predictor's performance, according to latent variable index values.

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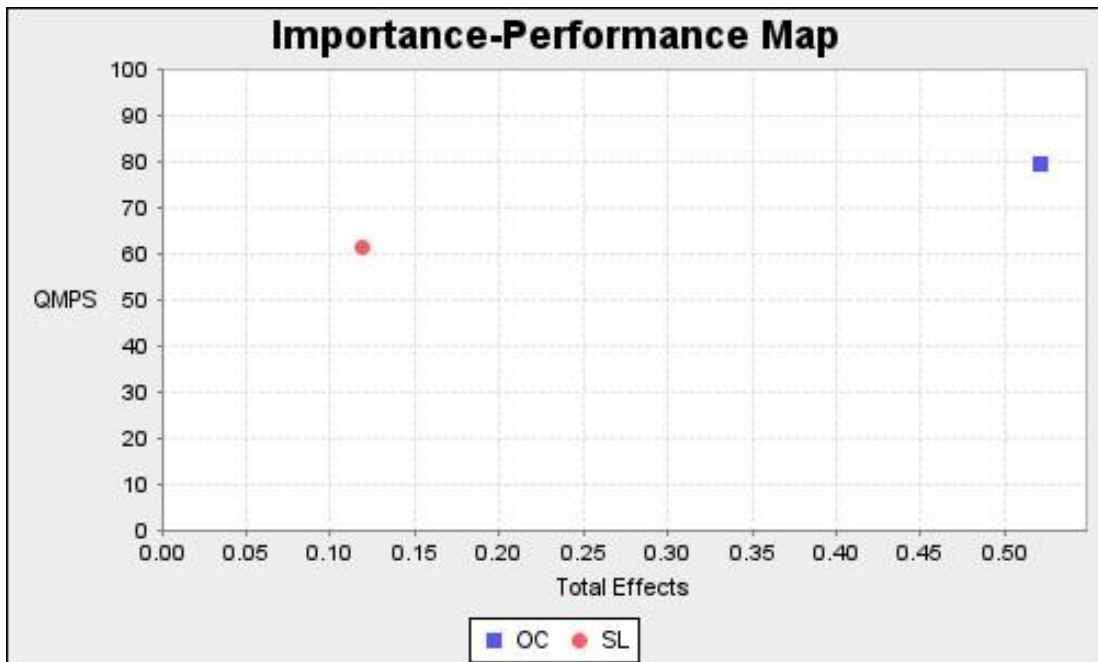
Figure 4. 11. Importance-Performance Map
Note: Total effects (Importance), IN (Performance).

The IPMA graphic in Figure 4.11 shows that OC showed the highest performance and was a highly important variable in the prediction of QMPS. In contrast, strategic leadership showed a lower performance and importance, compare with OC, suggesting that OC was a more critical factor than strategic leadership in predicting QMPS among academic staff.

Table 4.28

Summary of the Acceptance or Rejection of Hypotheses

No.	Hypothesis Statement	Decision
H_01a	There was no significant differences between gender and organizational strategic leadership in lecturers' perceptions at an Egyptian public universities	(Not Sig) Supported
H_01b	There was no significant differences between work experiences and strategic leadership in lecturers' perceptions at an Egyptian public universities	(Not Sig) Supported
H_02a	There was no significant differences between gender and organizational climate in lecturers' perceptions at an Egyptian public universities	(Not Sig) Supported
H_02b	There was no significant differences between work experiences and organizational climate in lecturers' perceptions at an Egyptian public universities	(Not Sig) Supported

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Table 4.25 Continued

H$_0$3a	There was no significant differences between gender and quality management practices in lecturers' perceptions at an Egyptian public universities.	(Sig) Rejected
H$_0$3b	There was no significant differences between quality management practices and organizational climate in lecturers' perceptions at an Egyptian public universities.	(Not Sig) Supported
H$_0$4	There was a significant relationship between strategic leadership and organizational climate at Egyptian public universities.	(Sig) Supported
H$_0$5	There was a significant relationship between strategic leadership and quality management practices at Egyptian public universities.	(Not Sig) Rejected
H$_0$6	There was a significant relationship between organizational climate and quality management practices at Egyptian public universities.	(Sig) Supported
H$_0$7	organizational climate mediates the relationship between strategic leadership and quality management practices at Egyptian public universities.	(Sig) Supported

4.10 Chapter Summary

This chapter discussed and presented the techniques, process, and results of the data analysis, presenting the findings using four comprehensive stages. The data screening stage ensured that the dataset used in this study was free of missing values, outliers, and CMB. The measurement model analysis then confirmed that all the constructs under study were valid and reliable. The structural model's explanatory power, according to the key target construct (QMPS) was found to be substantial. However, according to the PLSpredict statistics, $Q^2_{predict} > 0$, and RMSE (PLS-SEM < LM), the structural model indicated a low predictive power.

The findings of the hypotheses testing revealed that most relationships proposed in the structural model were statistically significant. Only one of the four hypotheses was not supported, which was the direct relationship between strategic leadership and QMPS, while full mediation was present for the relationship between strategic leadership and QMPS. Finally, the IPMA results suggested that OC was the most critical factor in predict QMPS. Therefore, higher education officials should heed the importance of OC.

CHAPTER FIVE
DISCUSSIONS AND CONCLUSION

5.1 Introduction

This chapter concludes the study by answering the research questions posed and confirming the outcomes for each of the hypotheses set out in chapter one. The chapter also presents a brief discussion of the empirical results given in chapter four. The chapter is organized into the following sections: the recapitulation of the study, which is then followed by a discussion of key findings, research implications, and research limitations and concludes with recommendations and suggestions for further research.

5.2 Recapitulations of the Study

The current study was conducted to examine the direct relationship between strategic leadership, organizational climate (OC), and quality management practices (QMPs) in an Egyptian public University. Furthermore, the mediating influence or variable of OC was also investigated with regard to the above relationship. Therefore, seven hypotheses were tested, of which three were directional hypotheses, one a mediating hypothesis, and another three demographic hypotheses based on work experience and gender. In this regard, three variables were tested to achieve the overall purpose of this study.

The national strategy for the development of higher education (NSHED-EGYPT, 2016-2030) is based on transforming universities from knowledge consumers into knowledge producers, achieving professional skills in different areas of expertise that are compatible with the public and private sector, and assist the labour market, and thus universities, serving as a grounding for access to quality in education in the country and beyond. Furthermore, the Ministry of Higher Education announced the 2020 plan,

which includes seven (7) themes. The second theme aims to improve standards and QMPs in universities to meet the international standard at Egyptian Universities and raise their ranking (PMIC, 2020) in the webometric global rankings and beyond. However, despite the output in the sector, the results are not sufficiently comprehensive to cover the entire populace.

It is obvious that, in the true spirit of higher education in the public sector, QM is not practiced, largely because of the challenges encountered in the culture of higher education and the introduction of new management practices. Accordingly, the researcher investigates managerial philosophies in strategic leadership and the OC and their relationship with QMPs in public universities in Egypt. According to Arop et al. (2020), Mulyasa (2016), Omorobi et al. (2020), van Schalkwyk and Steenkamp (2016), and Venter (2020), educational institutions that are capable of accomplishing all QMPs that are able to achieve the desired results.

To achieve the study's goal, a thematic review was adopted in chapter two's literature review as guided by a structural model and theoretical framework. Theoretically, the study was based on Deming's theory. It was then combined with other appropriate theories to support the study. However, the study's research questions were answered using a quantitative method (through questionnaire administration) to highlight the relationship between the research study variables. They tested the proposed hypotheses to ensure a strategic leadership questionnaire for the independent variable, and the SLEQ questionnaire was also used to measure OC (mediating variable). A critical success factor questionnaire was then used to measure QMPs (dependent variable).

In this respect, the questionnaires were distributed among the academic staff at nine public universities in Egypt. The data was analyzed using two statistical software

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packages (SPSS version 26 and PLS version 3.3). The researcher carefully organized the data and tested the demographic hypothesis using SPSS version 26, while PLS version 3.3 was employed to test the influence of the mediating variables and their relationship with the other study variables. Subsequently, a descriptive and multivariate analysis was also adopted to analyze the study findings. With regard to the hypotheses testing the indirect relationship, the results showed that OC performs a fully mediating role in the relationship between strategic leadership and QMPs. Moreover, the hypotheses developed to test for a direct relationship were duly accepted. The relationship between strategic leadership and QMPs was not significant and so rejected. Meanwhile, the relationship between OC and QMPs and that between strategic leadership and the OC were positively significant.

The following section discusses the research findings relative to the research questions posed in this study. The findings also considered relevant theories and the results of this research study. This section involves a discussion of the significant differences in demographics in terms of gender and experience. Furthermore, this informs the relationship between strategic leadership, OC, and QMPs.

5.3 Level of Strategic Leadership, Organizational Climate, and Quality Management Practices

5.3.1 Strategic Leadership

This study used a seven-point Likert scale for strategic leadership. Dawes (2008) recommended that scores 1.00-2.20 = very low, 2.21-3.40 = low, 3.41-4.60 = moderate, 4.61-5.80 = high, and 5.81–7.00 = very high above are recorded as high. Therefore, the results of the statistical data analysis reported that the level of strategic leadership in a public university in Egypt overall was at a moderate level (M = 4.63). Furthermore, from the strategic leadership component analysis, it emerged that overall, the

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organizational capability component of strategic leaders is more prominent (M = 4.77) relative to the individual characteristics component (M = 4.45), demonstrating that leaders and educators in Egypt public universities do not always necessarily emphasize the importance of leadership practices confirming to the suggestion made by Alalfy and Elfattah (2014), Al Thani and Mishael (2020) and Khalil (2017), which highlighted the necessity of starting to apply strategic leadership patterns. Davies and Davies (2009) stressed that the organizational capabilities and individual characteristics exhibited by public university leaders triggered norms of close cooperation and strategic communication that are essential to driving the university's vision and mission.

Furthermore, Davies and Davies (2010) assert that an organizational capability component and individual characteristics support strategic leadership to be an effective leader in an organization. Adelakun (2015), Ali (2013), Hairuddin and Inas (2017), Nasruddeen (2015) and Nazifah (2012) contended that a high level of strategic leadership was due to the benefits of organizational capability and individual characteristics that leaders have. The studies recommended that strategic leadership style could be the future strength in the higher education sector in encountering the challenges of the 21st century in particular.

The moderate level of strategic leadership practice in Egypt public universities is contrary to the observations of scholars in the field, addressing the challenges of globalization in the 21st century that need a high level of strategic leadership to sustain the development of higher education outcomes (Davies, 2006, Davies & Davies, 2004, 2009, Eacott, 2010, Kinnunen, 2020). Moreover, the average level of strategic leadership in Egyptian universities is due to the lack of individual strategic leadership characteristics, which represented in this study on restlessness with present

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achievement, absorptive capacity, adaptive capacity, and wisdom as well as organizational ability that includes strategically oriented, translate strategy into action, align people and organize, effective strategic interaction points and strategic competencies. Accordingly, the findings of this study agree with the finding of Abdel-Satar (2013) that emphasized the need to improve the capabilities of university leaders in Egypt and transform them into influential leaders with a far-sighted vision that has the ability to bring about the desired change in line with the developments facing higher education. This finding supports the challenges related to leaders in implementing 21st Century Learning.

Moreover, the finding of this study is the line with the finding of Mohamad and Ismail (2018) found that strategic leadership was at a moderate level. The current also corresponds to the findings of Alkhdery (2018), Alghamdy (2021), and Makhdom (2020), who found a moderate level of strategic leadership in higher education. On the other hand, the findings of this study differ from those reported by Abdo (2017), Ahmad (2020), Alzahrani (2018), Deeboonmee et al. (2013), Mouns (2020), Samaraddin and Alqurashi (2020), and Thabet (2013) who found a high level of strategic leadership practices perceived at their sampled institutions. According to Ahmad et al. (2020), university policymakers need to raise awareness among their employees regarding this leadership style to develop a viable vision and train employees to develop strategic leadership skills. In light of this result, efforts must be made to enhance the effectiveness of diverse leadership patterns when managing subordinates.

5.3.2 Organizational Climate

This study adopts five points Likert scale, According to Darusalam and Hussin (2018), the mean scores of a five-point scale can be categorized under the following three

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levels: low = 1.00 to 2.33, moderate = 2.34 to 3.67, and high = 3.67 to 5.00. As a result, of current study the mean score for OC was high (M=4.24). Thus, reasonably high levels of OC are considered a mediating indicator of the OC's degree as practiced according to the magnitude selected in this study. Therefore, the university administration must pay attention to all dimensions of the OC, as it is a significant variable that contributes to influencing QM's effectiveness and practice (Hamuh, 2017). This is in accordance with the study by Abade and Betah (2017), Alrabiey (2018), Almzafer (2017), Alhaidary (2019), Awad (2019), and Chanpoom (2019). While, the findings of this study are quite different from those reported by Al-Andanusi (2019) and Al-Refaay (2017), which found that the degree of OC practice was at a moderate degree, contradicting studies conducted by Selamat, Samsu & Kamalu (2013), and Ali (2015) which reported that the OC was somehow weak.

Furthermore, those respondents of the current study reported high OC levels also reported significantly high university resources levels (Mean=4.28), indicating that the student support, collaboration, resource, decision making, and instructional innovation components are among the most important factors contributing to raising the level of the OC. Skuy et al. (2001) indicate that educators who are positive towards learners and always support students are more confident in preparing for a positive outcome by involving learners in the learning process. Likewise, Abidin (2017) hinted that collaboration among the educator could obtain assistance, advice, and encouragement and feel accepted by colleagues in increasing a proper climate. So, for educators to increase the level of climate, they have to activate the relationship with their colleagues to work as a team and discuss teaching strategies with other educators. Marambe (2015) demonstrated that educators need to present their lectures in a multiplicity of ways through innovative teaching and learning methods to create a positive climate in the

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organization. Futhermore, Johnson, Stevens, and Zvoch (2007) and Cavanaugh (2019) emphasize that to improve the level of educational institution climate, the school or university needs to have sufficient instructional equipment, materials, and resources to enhance the students' and lecturers' achievement. Besides, educational decisions must be made based on shared input from educators (Johnson et al., 2007, Malloy, 2015). Also, Burns and DiPaola (2013) demonstrated that educators' proposals need to be a part of the decisions that are made to encourage an organizational climate.

Moreover, Pinkas and Bulić (2017) find in all dimensions of organizational climate five dimensions of the organizational climate defined by Johnson, Stevens, and Zvoch (2007) collaboration, decision-making, instructional innovation, student relations, and school resources were the most major factor to ensure optimal functioning of the educational institutions. According to Abidin (2017), A high climate of educational organization has a positive significance to increase learner outcomes. Also, the study by Shamaki (2015) and Odeh, Oguche, and Ivagher (2015) showed that an appropriate level of organizational climate could influence learners' academic achievement. From the lecturers' perspective, they emphasized that OC is an essential factor contributing to the delivery of educational goals.

5.3.3 Quality Management Practices

Darusalam and Hussin (2018) recommended that scores below 2.33 are regarded as low, scores from 2.33 to 3.67 are considered to be moderate, and 3.67 and above are recorded as high when study used a five-point Likert scale. the statistical data analysis results pertaining to the dimensions of QMPs found that overall, internal customer focus dimensions recorded the highest mean (M = 4.08). This study proves that efforts to improve quality and the need to improve quality in services have become increasingly

prevalent in all areas of society, including education. On reflection, the integration of QMPs in education is not a new phenomenon. According to Iqbal and Asrar-ul-Haq (2018), QMPs are frequently spoken about among employees. Seyfried and Ansmann (2018) highlighted that the authority's and university management's responsibility is to constantly remind all stakeholders within educational institutions of the importance of maintaining quality practices in education. Accordingly, guarantees of the quality level of education will be made by implementing QMPs based on customer-focused efforts, continuous process improvement, and all-party involvement (Msallam et al., 2020).

The findings of the study align with views reported by Alfadel (2020), who agreed that QM was the focus in the majority of organizations and considered to be a major contributor to competitiveness and good business practice. In other words, QM has been used as a strategy to achieve a high level of excellence and competitiveness. The findings were also obtained in line with findings by Algameay (2019) and Shoman (2015), who observed that the organizations that have a culture of quality practices will always be ready to take the necessary action to implement QM. Therefore, efforts to establish a strong quality culture within the organization, which is an important foundation for the implementation of the principles of QM, should be afforded due focus and emphasis on each layer of management and operation within an organization. Furthermore, this study's findings show a significant difference in terms of mean value between all dimensions. All the dimensions record high mean values.

Altom (2017) stressed that the interest in training and developing the lecturers to keep pace with the comprehensive quality standards make them able to face the imposed challenges by activating their role as a mentor and guide for their students to produce the desired educational outcomes to be able to fulfill the labour market requirements.

Eby et al. (2019) also indicated that training is one of the most substantial methods used in developing the abilities and competencies of employees of the organizations. Noteworthy empirical research findings highlighted the significance of quality management practices to enhance the organizations' performance for instance, the results of Atieno, Patrick, and Ogweno (2014), Mukolwe (2019) explained that the communication aspect among public university members in Egypt effectively triggered motivation and improvement of university achievement. Additionally, the study of Bumjaid and Malik (2019) Asserted that academic staff needs the training to learn about all aspects of the educational institutions, from incoming resources to students' needs, including the impact that process variation has on what is done within the institution. Futhermore, Elahi and Ilyas (2019) illustrated that the organization could increase employees' effectiveness and share in the market by focusing on customer needs and issues. Ropianto et al. (2017) alluded that strategic quality planning is the most important factor to optimes the achievement of organizational goals of education. Saffar and Obeidat (2020) indicated that continuous improvement is an element of QM to accomplish customer satisfaction. It is one of the sources that support employee's improvement for quality improvement.

Consequently, in public universities, the quality of education and functioning of universities would be better if universities shift their attention to customers' matters and issues. They were keeping in view the relationship of the QMP approach with overall organizational quality. In summary, these results reveal that the QMP level was high at Egyptian public universities due to the lecturers 'realization of the importance of practicing QM in colleges to increase university outputs' effectiveness and quality.

5.4 Strategic Leadership, Organizational Climate and Quality Management Practices Based on Demographic Factor

5.4.1 Difference Between Gender, Work Experiences and Strategic Leadership

The empirical findings from this study showed that a weak leadership style substantiates the extent to which the management and academic staff within universities stress the importance of leadership by example, enlightened campaign, strategic leadership, and that the tasks and responsibilities of the leader were instrumental in the success and educational development. The findings of this study correspond to those in a study conducted by Abojumah and Alhamdy (2020) and Al-Aklaby (2018) that suggested strategic leaders should encourage teamwork among employees to enable them to perform their tasks flexibly and efficiently.

Moreover, differences in the level of strategic leadership practices were varied based on demographic variables, such as gender and experience in this study, and can be noticed in terms of lecturers' perceptions of strategic leadership practices. However, based on lecturers' perceptions in the public university, what is clear is that the level of strategic leadership practices in terms of gender was not significant. Meanwhile, experience does not play a role in increasing the maturity of lecturers. On the other hand, there were no significant differences associated with gender in terms of evaluating strategic leadership. The findings of the study also included the influence of duration or teaching experience on the perceptions of lecturers. It was found that, there were no notable differences in lecturers' perceptions of strategic leadership practices based on this variable.

The above findings conform with those of Ahmad and Al-Faqih (2011) and Ahmad (2019), who reported no differences in the perceptions of strategic leadership practices in the education sector according to the demographics of teachers and non-teaching

staff. Similarly, the current study outcomes confirmed those of Ahmad (2019), Ahmad et al. (2020), Al-loah and Abohagar (2017), Samaraddin and Alqurashi (2020), who found no evidence of significant differences in the perceptions of leadership practices in schools based on respondents' work experience. In contrast, Mouns (2020) and Thabet (2013), did report a significant difference between the variables on-duty period and level of importance attributed to strategic leadership practices. Logically, these differences seem to relate to the characteristics of the sample respondents. The analysis shows older lecturers share the perceptions of young lecturers when evaluating the level of strategic leadership practices. Consequently, the absence of a statistically significant difference in the experience category indicates unity among faculty members with regard to their perceptions of strategic leadership practices. This is likely to be due to the similar working conditions for all lecturers at all levels at Egyptian public universities.

5.4.2 Difference Between Gender, Work Experiences and Organizational Climate

Universities have increasingly become more aware that academics are central to their achievement of desirable outcomes. The correlation between quality in an institution and highly regarded academics is seen as the most important development parameter (Budiharso & Tarman, 2020). The study's findings also acknowledged no significant difference in lecturers' perceptions of OC associated with gender. The similarities of the perceptions among lecturers are a consequence of all faculty members' ability to access a suitable OC for teaching and learning (Awad, 2020). Moreover, Al-Ashmary (2020) emphasized that the similarity between the results from males and females is due to the fact that as faculty members, they perform the same tasks and work in the same environment. The findings of this study correspond to those studies of Aboalghnam (2019), Ashory (2017), Aobidah (2016), and Al-Ashmary (2020) who

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identified no differences in the perceptions of respondents regarding OC based on gender. However, the findings reported by Kailany and Alsaud (2016), Aboudahr and Bin Mohamad (2020) did differ from those obtained, as they noted a significant difference in the perception of lectures from the context of males specifically.

Furthermore, the results of this study prove there are no significant differences in terms of teaching experience based on the perceptions of lecturers about the OC affecting public universities in Egypt. Lecturers who have served a long period of teaching have the same perception as lecturers who served a few years in teaching. These findings suggest that working experience does not contribute to lecturers' evaluations of OC in the public university. This is because similar working conditions, laws, and administrative systems apply to all staff in Egyptian universities. Accordingly, there is no significant difference in terms of OC level based on years of experience. However, this finding is consistent with previous studies conducted by Aboalghnam (2019), Al-Agha (2015), Almansiy (2017), Al-Rkibat (2018), Al-Twian (2019), Ibrahem (2012), and Hashim (2013), all of which established that there was no significant difference in the level of OC arising from experience. On the other hand, this finding contradicts studies conducted by Alsaud and Kailany (2016) and Seyyedmoharrami et al. (2019), who reported a significant difference arising from work experience at the level of OC.

5.4.3 Difference Between Gender, Work Experiences and Quality Management Practices

To identify the significant differences between QMPs in terms of demographic factors (gender and work experience) at Egypt's public Universities. Universally, there are multiple individuals engaged in QMPs in the organization (university), all of whom would improve the performance of academic staff and support staff and enhance the

quality of education (Alfadel, 2020). In this regard, the demographic variable falls within the scope of gender and experience. At the same time, lecturers' perceptions are a part of the experience associated with this variable.

The perceptions of lecturers with regard to QMPs do not differ significantly in a public university of Egypt. The study's findings suggest that the influence of gender enhanced the level of QMP in public universities of Egypt. It was also observed that there was a significant difference in lecturers' perceptions of QMPs based on the gender category. Specifically, the differences in perception that exist appear to be due to the awareness of flaws and scope for improvement in the performance of all areas of the university community (Algameay, 2019). Furthermore, the differences that occur also reflect the association between the vision and mission of university lecturers who are consistently focused on attaining the goal of higher education and advancing QM at public universities in Egypt. The findings of this study correspond to those in a study by Al-Fadel (2020). Pour and Yeshodhara (2009) also identified a significant difference in the perception of QMPs and educational studies based on females' gender.

The observation of means between male and female lecturers in Egyptian public universities indicated that the mean score for females was higher than that for males. It is concluded that female lecturers have a clearer perception than male lecturers regarding QMP in the higher education sector. While the above result contradicts Al-sayegh and Khalifah (2020) study, Al-Asmary (2020) pointed that to a significant influence from male gender on QMPs. However, this finding also contrasts with research conducted by Ghallib (2020), Thakkar et al. (2006), and Temponi (2005) who found an equal perception among lecturers in a public university regarding QMPs, the perception of gender with regard to QMPs was statistically not significant.

Moreover, the results of this study not only prove the existence of significant differences in terms of experience based on the perception of lecturers with regard to QMPs at public universities in Egypt. This is despite that in terms of evaluating QMPs, the findings showed no significant differences based on the duration of the experience and QMP. This illustrates that the experience of lecturers plays a significant role in enhancing QMP, as also noted by Elsayed et al. (2020). The results indicated that lecturers who have served for more than 10 years recorded higher mean scores than lecturers who served less than 10 years. These findings suggest that work experience can contribute to lecturers' evaluation scores when completing QM in public universities. Long-serving teachers have better ideas for improvement and performance and are more transparent when implementing QM. This is due to the skills, competence, experience and awareness of the benefits of practicing QM within educational settings. Accordingly, there are significant differences affecting the aspects of QMPs at public universities based on teaching experience.

However, the above finding corresponds to studies by Al-badaai, Aloufi and AlHeji (2018), Al-kalbany and AL-shamly (2020). They observed a significant difference in the perceptions of the commitment of lecturers at public universities to QMP, based on the influence of respondents' working experience. They stressed that work experience contributes to different levels of evaluation processes and the ability of lecturers to employ QMP. This means that newly recruited academic staff, and those with long-term experience differ in their engagement with QMP at public universities of Egypt. This situation is probably because those with long-term experience attend a series of training/ workshops that enhance their knowledge, skills, psychology and have better understanding of the dire need and significance of QMP as a way to improve the educational process. However, these findings reveal that experienced and elderly

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academic staff in public higher education institutions (HEIs) have weak communication skills and find it challenging to compete with young lecturers to address the benefits of QMP in the public university context. The above submission is in parallel with studies by Al-Fadel (2020), Al-sayegh (2020), Elsayed et al. (2020) that point to the lack of a significant difference in the level of QMPs with experience acquired.

5.5 Strategic Leadership and Organizational Climate

The research questions were designed to examine the relationship between strategic leadership and OC. To answer this question, nine dimensions of strategic leadership, and five dimensions of OC were investigated. The findings from the correlational analysis found a statistically significant positive relationship between strategic leadership and OC. This shows that university leadership is a critical variable in creating a university climate that is conducive to quality outcomes. Vermeulen, Kreijns and Evers stated that to design a suitable climate in a university setting, leadership must be equipped, capable, and committed to developing a strategy and influencing subordinates. Improving the climate affects university practices' quality and ensures success (Demiröz, 2020, Al Damoe, Hamid and Sharif, 2017). However, organizational effectiveness depends on the nature of the prevailing OC. These findings explain the existence of a positive relationship between the dimensions of strategic leadership and OC in public universities in Egypt. Specifically, they indicate that OC is affected by the degree to which faculty Deans practice strategic leadership. This means strengthening strategic leadership can significantly enhance the positivity of the OC (Awad, 2020). This result is attributed to the fact that leaders who possess the characteristics of strategic leadership are capable of strategic planning in accordance with the organization's needs, creating a suitable climate for staff, students and parents to

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maintain the success and effectiveness of the organization (Tetik, Akkaya, 2021, Kohan, Safari & Teimouri, 2018).

Moreover, the majority of studies, such as those by Demiröz (2020), Jalapang and Raman (2020), Kawiana et al. (2021), and Pérez-Vallejo and Fernández-Muñoz (2020), supported the existence of a positive relationship between leadership and the OC. Thus, the study results correspond to these findings from previous studies. The study by Hamidianpour et al. (2015) reported that leadership style and management behavior are among the most significant factors affecting OC. Demiröz (2020) stated that the school climate affects collaboration between academic staff in schools, improves support for students, and enhances academic achievement. Furthermore, Aboalghanam (2019) proved that leadership has a distinctive role, that would affect all aspects of the educational process and works to create an appropriate climate ensuring the achievement of educational goals in an effective manner, and encouraging workers to respond to requests and directives and participate in the implementation of tasks and decision-making, as required by the nature of work (Esmaelzadeh, Abbaszadeh, Borhani & Peyrovi, 2017).

Furthermore, the findings demonstrate that strategic leadership in Egypt's public universities is deemed central to creating a positive climate among employees. Hence, the significance of findings delineating the relationship between strategic leadership and OC are supported by Jalapang and Raman (2020), who also found that leaders play a critical role in confirming the sustainability of an organization and in creating a positive OC. In many cases, efficient leaders demonstrate a concern for tasks while also establishing an individual relationship with their employees. Since there is a relatively direct connection between employees, their productivity, and organizational

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performance (Lai & Han, 2018), it is essential for leaders to maintain a positive work environment to maximize and enhance employees' efforts to achieve organizational efficacy. Kouzes and Posner (2010) found that a leader's behavior accounts for nearly 25 percent of the reason that people feel productive, motivated, energized, effective, and committed in their workplaces. Similarly, Momeni (2009) found that more than 70% of employees' perceptions of OC are shaped directly by their leader's style of leadership and associated behavior.

The importance of strategic leadership and the urgent need for it in public HEIs in Egypt is evident from the above, as there is no success in any university without effective strategic leadership to improve performance, support employees, and provide adequate resources to enhance the level of education. Moreover, additional freedoms are granted to faculty members to encourage them to exchange information and communicate with one another to increase their performance and improve the OC at the University. Furthermore, university leaders should be encouraging their subordinates to cooperate and work as a team, as well as involving faculty members in decisions making to help them to develop a spirit of initiative and reduce conflict among them. As indicated by Aldridge and McChesney (2018), Buckner-Capone (2019), Johnson et al. (2007), and Williams (2020), universities require sustainability and development and an appropriate OC.

5.6 Strategic Leadership and Quality Management Practices

A noticeable characteristic of this study is that limited information is available regarding the relationship between strategic leadership and OC practices and influence on QMPs. According to Crosby (1979), Deming (1982, 1986), Feigenbaum (1983), and Juran (1999), leadership holds a critical position in terms of determining QM within

organizations, however, the researchers did not focus specifically on strategic leadership. The influence of leadership is an essential element of productivity in any organization (Ran, 2020). This study aimed to identify strategic leadership and attempted to reveal whether strategic leadership would benefit QMP in Egyptian public universities. The study findings were expected to be of tremendous advantage to university managers and academic staff, helping them to understand the relationship between strategic leadership and QMPs in Egypt's higher education sector.

Based on the current study's findings, it was found that there is a non-significant relationship between strategic leadership and QMP in public universities in Egypt. Consequently, the component of organizational capacity and the individual characteristics component has a non-significant relationship with QMP in public universities. The study results indicate that strategic leadership does not have sufficient capacity to deliver QMP, due to the lack of training and weak policy by the management of universities in Egypt. Furthermore, Khater (2021) and Khalil (2017) detect insufficient enlightenment regarding the importance of strategic leadership among leaders at university and their role in supporting and providing the necessary elements to attain QMPs at the university. Alesy and Alshhry (2020) and Aboudahr (2021) accentuated that strategic leader need to have a holistic approach to the future of their organizations (university) through dialogue that involves enhancing participation to appreciate the necessity for change.

Moreover, strategic leadership in public universities requires alterations to the mindset and behavior of subordinates through strategic conversation, strategic participation and strategic motivation, this would help to create good personal and organizational capability (Davies and Davies, 2009, Prahalad & Hamel, 1990, Stalk et al., 1992).

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Abdullah (2018) proposed that the leaders in universities need to improve upon their efforts to develop their system and help to spread and consolidate QM among faculty deans and lecturers due to the direct bearing and importance of QMP to their professional performance. Deming (1986) emphasized that leadership is one of the key elements in establishing QMPs in an organization. While, Brown, Hitchcook and Willard (1994) noted that a potential reason for the omission of QMPs was that the fragile leadership commitment in educational institutions would explain weaknesses in QMPs. Consequently, low commitment to leadership might lead to lower QMPs.

From the perspective of Al-Masry (2015), the failure of an organization to implement organizational strategies might be a result of the lack of strategic leadership emanating from management. This result may be explained by the fact that a lack of good leadership often leads to low motivation among employees and an unwillingness to perform their duties in an innovative and effective manner (Fiaz, Su & Saqib, 2017). This may deter employees from performing effectively when facing challenges (Al-Zahrani, 2018). However, the inability of leaders to meet up with the corporate vision and objectives would affect subordinates within the organization equally (Gaitho & Awino, 2018).

This outcome is in line with research by Al-Adadi (2012), Al-Hawari and Al-Qans (2018). However, Ho et al. (1999) and Cho and Jung (2014) found that there is no evidence of a relationship between leadership and QMPs. Moreover, the findings of Ireland and Hitt (1999), Khalil (2017) and Knies Jacobsen and Tummers (2016) clarified that the need for strategic leadership creates an enabling environment towards improving QMPs. These conflicting results indicate either a lack of evidence establishing a direct association between strategic leadership and QM or the presence

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of confounding variables that make it difficult to demonstrate a clear cause and effect. The findings of a study by Elahi and Ilyas (2019), Coelli and Green (2012) and, Newton (2002), confirmed that leaders in the educational sector might enhance QMP through partnership and initiatives, enhancing moral conduct and strengthening learning culture in the organization alongside leadership wisdom. Farghaly (2018) discovered that despite the clarity of the controls and criteria for each university's strategic plan, whatever is put in place to formulate a strategic plan will not receive positive attention.

According to Dilawo and Salimi (2019), Krajcsak (2019) and Kumar and Sharmal (2018) have pontificated that the value of leadership in QMP in organizational development is highly associated with the fact that the main cause of QM failure is due to the inadequate policies of managers, or weak support and lack of cooperation within the leadership domain. Therefore, the success of QMPs is reliant to a great extent on suitable leadership. It is also the case that the most effective leadership for QMPs varies depending on the national culture (Cho and Jung, 2014). Furthermore, Fitza (2017) believed that actions associated with strategic leadership are impeded by situational constraints, apathy, or random effects, with little freedom to alter performance.

Moreover, the inconsistencies in findings show that either lack of evidence in establishing a direct relationship between strategic leadership and performance or the existence of many confounding variables make it hard to demonstrate a clear cause and effect (Knies et al., 2016). In addition, numerous scholars have maintained that methodological and statistical limitations, absence of relevant control variables, and contexts have systematically undermined the positive impact of strategic leadership on performance (Fitza, 2017 &Thomas, 1988). The findings also indirectly advocate the indications provided by Jun et al. (2006), that the conventional QM framework is beset

by fundamental problems because it was mostly based on survey data collected in developed countries. As such, our outcomes raise the issue that the traditional QM framework needs to be altered to be more generalizable to organizations or firms in developing and less well-developed countries. Shanmugapriya and Subramanian (2015) established that lack of awareness, and the inability of leadership to motivate employees to participate in the quality planning processes is a significant oversight because employee quality training has yet to be fully utilized. However, training has had a direct influence on cooperation between clients and suppliers and is a crucial factor that might improve performance and productivity in an organization.

Despite the widespread acceptance and application of Deming's Theory of QMP, the theory was criticized by numerous scholars due to its many pitfalls. For instance, Chorpa and Singh (2015) pointed out that, the theory does not offer a solution to reduce the costs associated with poor quality. Furthermore, the adoption of this theory led to an increase in operational costs as well as reduced profit maximization (Kafetzopoulos et al., 2015). In other words, the theory might involve high costs associated with prevention and appraisal (Grbac et al., 2015), with consequences for auditing activities and checking the quality level of products (Patiar & Wang 2020, Holbert et al. 2021). While some scholars viewed the role of leadership as being negatively influenced by lack of vision, values, and work ethics led to low performance within the institution and a lack of recognition due to low performance among all members of the organization (Alharbi, 2012). However, the lack of effective strategy and policy was due to ambiguous or unattainable targets, lack of prompts, and weak evaluations of quality assurance principles. Azoz (2018) and Abdalmotey (2015) confirmed that in order for some institutions to achieve QMP, the top management team must support all

employees and involve them in all areas of work, such as planning, implementation, problem-solving and improvement processes associated with employing QMPs.

Finally, the research findings showed that leaders at Egypt's public universities needed to improve their skills, especially in the organizational skills dimension. Despite this, some leaders could not articulate a vision for motivating their workers towards QMPs. University vice-chancellors must also organize training and re-training courses to develop strategic leadership, and QM to boost the morale of university staff with regard to leadership and QM. The university vice-chancellor might equally design a proposed training program (roster for training) for the staff to develop strategic leadership and promote QM in Egypt's universities. Ideally, however, leaders and university management should also focus on teamwork, employee empowerment, and motivational needs through training and re-training staff to ensure that wants are met appropriately.

5.7 Organizational Climate and Quality Management Practices

When defining the relationship between OC and QMPs in Egypt's public universities, the results of the analysis using smart PLS demonstrated that OC is significantly positive with QMPs. As confirmed in regard to the effective outcomes of the analysis, OC is significantly related to QMPs and has an effect on QMPs, as it is considered to have a medium effect. The findings of this study clarified the importance of the OC strengthening evidence from previous studies demonstrating the contribution of these elements to QM. The findings indicated that the dimensions of the OC contributed significantly to creating and strengthening QMPs in public universities.

The findings of the current study are also consistent with prior studies by AL jufri and Priyono (2018), Berberoglu (2018), Escamilla-Fajardo, García-Pascual and

Staškevičiūtė-Butienė (2021), and Siregar (2020), which examine the OC and QMPs, and revealed the significance of OC to improve QM in higher education. According to NaAyutthaya, Tuntivivat, and Prasertsin (2016), Dinibutun, Kuzey, and Dinc (2020), the OC yields the necessary evidence about the potential productivity of workers and the capacity to achieve previously planned objectives, a positive OC context enhances university faculty members' job satisfaction, increases their productivity, and reflects on their implementation of QMPs. Moreover, Al Shobaki et al. (2018) contended that the climate plays an important role in HEIs, due to its prominence in achieving employee satisfaction and development. Therefore, organizations choose to study their internal environment and work to develop and improve them to achieve advanced levels of quality. In view of this, the effectiveness of the organization depends on the nature of the general OC (Al Damoe, Hamid & Sharif, 2017).

Furthermore, the current study's findings aligned with those of Al-Subaie (2014), who determined that since HEIs are concerned with quality, the greatest efforts should be directed towards creating and improving the OC to enhance employees' ability to perform effectively. Moreover, Al-shreif (2013) revealed that a suitable OC within Universities helps faculty members execute their roles better. Consequently, creating a positive OC helps stabilize university life and encourages students to think effectively and find appropriate solutions to overcome their academic difficulties. It also helps lecturers perfect their teaching and supervisory performance and participate in the decision-making process.

In the same vein, Ibrahem (2012) and Siregar (2020) emphasized that the OC has a positive effect on supporting rational decision-making, reducing differences between employees, and improving job satisfaction, which helps them to cooperate and achieve

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the necessary objectives required to practice QM. Motrover and Sirega (2020) indicated that a positive OC could assist the development of QM in higher education. Furthermore, Berberoglu (2018) showed that OC is an important factor affecting employees' willingness to collaborate in achieving organizational goals.

In addition, the findings of the current study emphasized the importance of communication across the entire community at the public university, building student support, collaboration among lecturers, the availability of resources, involving lecturers in decision making and increasing the innovation of academic staff at the public university to enhance management practices. This finding was similar to that of Al-Subaie (2014), who clarified that that the success of educational institutions depends on their ability to create an appropriate environment for education, by ensuring continuous communication between officials, administrators, teaching staff and students, to ensure improved QMPs and to overcome the difficulties facing the university education system. The quality of university education is attributed to those officials who control the OC, as this can result in poor performance and create an atmosphere conducive to the application and practice of Judaism for high-quality education (Awad, 2020, Ashory, 2017). In light of this result, the study recommends strengthening the OC within Egypt's public universities to achieve the highest level of QMP.

5.8 Organizational Climate as a Mediator of the Relationship Between Strategic Leadership and Quality Management Practices

The importance of the organizational climate variable as a mediator of the relationship between strategic leadership and quality management practices in public university has been demonstrated in this study. These results indicate that organizational climate can

significantly and positively explain the relationship between strategic leadership and quality management practices. This also illustrates that the presence of high organizational climate variables in tandem with strategic leadership practices will be able to enhance quality management practices. The study also found the OC as a mediator of the relationship between the study variables. Despite the findings, OC has fully mediated the relationship. According to Mathieu and Taylor (2006), the degree of the mediation (partial or full mediation) can determine when direct effect and indirect are significant, indicating partial mediation. However, when the indirect and total effects are significant, the direct effect is not significant. Thus, the mediator is a full mediation. Empirically the results of this study recommended that a suitable and positive climate that provides support to students, boosts collaboration and decision making among students and their lecturers, and lecturers and their leader, as well as sufficient resources and innovative instruction, might encourage lecturers to understand the purpose of QM and therefore improve uptake of QMPs (Cavanaugh, 2019, Kunalan & Ali, 2020).

Universities provide a unique example of organizations that require an excellent regulatory Climate to improve QMP to effectively carry out their vital functions within society. Shobaki et al. (2018) and Ashory (2017) argue that building an excellent OC will directly impact HEIs' outcomes and implementation of standards of QM. Furthermore, Purvis, Zagenczyk, and McCray (2015), implied that the importance of OC has emerged through the active role of an organization's success or failure. OC has a significant impact on the attitudes of employees, as well as on their motivation and their satisfaction with work, as well as their overall behavior and performance (Budihardjo, 2017).

This study offered evidence emphasizing the importance of OC in mediating the relationship between strategic leadership and QMPS. OC appeared to be a mechanism that sustained strategic leadership and QMPs. As mentioned previously, the empirical evidence in the literature recommended an OC influenced be employee commitment to the organization, and that in addition, OC has a significant impact on the workforce's efficiency, as well as on individual workers' productivity, job satisfaction, and performance (Aiyadh et al., 2014, Alharbi et al., 2017, Alotaibi et al., 2015, Azameti, 2020, Bernal González et al., 2015, Ghavifekr & Pillai, 2016, Jelača et al., 2020, Sethibe &Steyn, 2018). Thus, one of the reasons for the results reported in previous research could be the utilization of a positive and appropriate OC.

Additionally, as with earlier studies by Alayoubi et al. (2020), Al-Naffar (2015), Barbosa et al. (2017), Rahman (2020), the findings exposed the extent to which strategic leadership has a positive impact on QMPs, but this study also indicated that the OC highly informs the relationship between strategic leadership and QMP. When strategic leadership was tested, a non-significant relationship to QMPs was found. Conspicuously, strategic leadership becomes significant when OC is added to the model. Overall, the findings suggest that where the purpose of higher education in Egypt is to improve quality outcomes by comprehending the significance of QMPs, the leader should strive to create a climate that is conducive to innovation and productivity by recognizing risk-takers for their willingness to champion new projects, whether or not they are eventually successful at doing so. This should be followed by articulating a vision of the organization to subordinates in a manner that appeals.

Moreover, the overall findings signify that the OC serves as a key mechanism through which strategic leadership influences QMPs in Egypt's public universities. Thus, this

research has unpacked OC relative to strategic leadership and QMPs. Moreover, the findings helped fill the literature gap regarding the influence of OC as a mediating variable associating strategic leadership with QMPs, also indicating that entrenched strategic leadership practices in Egypt's public universities are not enough to stimulate high levels of high levels of QMP without a conducive OC. In other words, higher levels of QMP at Egypt's public university require a change in the OC.

The overall findings presented in this section underscore the indispensability of OC as a tool to enhance QMPs at Egypt's public universities. This corroborates the claims made earlier in the thesis, based on Davies and Daives' SLEQ model, and Deming's management theory. OC configured to enhance QMPs should embody strategic leadership that stimulates knowledge, skills, motivation, creativity, and positive behaviors among employees to help enhance the achievement of a university's goals.

In summary, this research model broadened the scope of prevailing education management theories to investigate "when" "how" and "why" a particular relationship exists between key independent and dependent variables, and hence can enhance educational research designs, to produce more accurate and precise results.

5.9 Contributions of Study

Having investigated some of the issues associated with the theoretical, contextual, practical and methodological factors, this research offers significant contributions to the existing body of knowledge in this area, and raises some important implications for stakeholders and policymakers. The following subsections detail the chief contributions and implications of this research.

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5.9.1 Theoretical Contributions

The framework of this study was based on previous research evidence as well as theoretical gaps identified in the literature. This study expands the frontier of knowledge by employing a number of theories of QMPs, Organizational Climate, and Strategic Leadership in the context of Egypt. These theories include Deming's Theory of Quality, QM and TQM model theories, the Strategic Leadership Model, and the Cognitive Theory of Environment. The study drew most on Deming's Theory of QM, especially in terms of the established positive association between progressive leadership methods and QM. The study strategically evaluated leadership style theories as a force that can potentially be harnessed to effectively enhance QMPs to benefit organizations.

Furthermore, the study improves the theories by modelling the mediation effect of organizational climate on the relationship between strategic leadership and quality management practices. Thus, this study is the first of its kind as the researcher does not come across any studies that examined the effect of these variables in the Egypt context. In consideration of this, it is imperative to note that this study contributes by combining the hypothetical approaches from existing theories, to test a new model. The contributions would accordingly be widened both in the theoretical aspect as well as in literature. Consequently, the results from this present study would be a significant contribution due to its links between the variables in one model. Besides, this current study has also substantially enriched the understanding of how strategic leadership and organizational climate can affect Quality management practices. The three main variables in this study are second order (multi-dimensional) constructs. It will serve as a substantial contribution for leadership and lecturers in the universities.

The findings lend validity to the importance of enabling OC in Public Universities in Egypt and revealed the underlying processes involved in accomplishing tasks and evaluating performance to achieve thorough implementation of QMPs. It further revealed that even though leadership style is central, the school climate is unique in the context of Egypt, producing differences in outcomes compared to previous studies. Moreover, none of the existing literature linked the variables used in this study together in any context. Hence, the study serves as a hybrid of the literature, providing especially robust findings.

The majority of empirical studies in the field of Educational Management have been conducted in developed countries, where the organizational climate differs from that in Egypt (as it is a developing nation). For this reason, the conclusions of former studies might not be applicable to developing nations. Therefore, this study filled the existing gap in knowledge regarding employees' experiences in the educational sector in Egypt. Finally, the study aimed to expand horizons to introduce further studies in educational management to further understand how to develop organizational performance in HEIs. It will enable future researchers to identify gaps in the literature in the areas of education management and organizational behavior. Furthermore, it will contribute to existing knowledge by bridging the gap between practice and theory associated with the uptake of QMPs in the education sector.

5.9.2 Practical Contributions

The results of this study will contribute significantly to the fields of educational management, organizational behavior, and business administration by providing empirical evidence to fill the gaps in the literature. The research also provides data regarding the extent of QMPs adoption in the higher education sector in Egypt.

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Moreover, the results will assist learning institutions as well as other organizations in identifying the gaps to be filled in terms of leadership styles to create a supportive OC for QMPs enactment. The study also provides necessary information for all stakeholders in higher institutions and places of learning, such as, University governing councils, Vice-Chancellors, Provosts, Deans of Faculties, Heads of Departments, and Examination officers. The study also sets out information for managers in other organizations on adopting leadership styles that will enhance QMPs within an organization.

The research provides important recommendations to help avoid negativity towards QMPs and shortcomings on university leaders. The study assists university administrations in Egypt to identify the OC that prevails in the university setting, which will help in the adoption of new administrative policies to enhance positive aspects and reduce the negative aspects. This explains how best to improve the OC in universities to improve the mental health of employees and their moral spirit.

The study further provides assistance to the government of Egypt and policymakers to support the development process required to improve the education sector in the country. It will also draw the attention of educational decision-makers in the Ministry of Higher Education to encourage the development of policies that will help realize the goals set by universities.

The findings from this study highlighted that the QM process at public universities in Egypt relies on how well strategic leadership is implemented, as well as the type of organizational climate. The main reason why institutions struggle to accomplish QMPs and maximize customers' (students) satisfaction while minimizing operational costs is that the OC is unsupportive without an effective leadership style. Hence, this study

demonstrated the benefits that universities can achieve when implementing strategic leadership and OC effectively and efficiently.

5.9.3 Methodological Contributions

This study included rigorous statistical validation of the influence of strategic leadership on OC and QMPs. The relationship between key variables was strictly scrutinized for validity and reliability across a sample of Egypt's public universities and matched to latent constructs. Furthermore, the proposed model (i.e., the relationship between strategic leadership, OC, and QMP) was examined.

Generally, the findings from the study provided strong support for the proposed relationships. Universities could, in the future, utilize this instrument as the basis of measurements for basic pre-tests before returning to periodically managing and identifying the changes associated with QMP initiatives. Moreover, the academic implications for this study can be seen from the perspectives of the suitability of the questionnaire and the theory used. It can further be stated here that the analysis of the exploratory factors reported, and the research instruments used in this study are satisfactory. In addition, the back translation method contributed to the factoring and robustness of the reliability and validity of this study instrument. This aspect indirectly supports the views of scholars who stated that the instruments formed in western countries can be applied in the context of the local community with certain measures employed to adapt it to the situation and culture in the context of Egypt.

This study employed a Structural Equation Modelling (SEM) estimation technique to establish the direct, indirect (mediating), and total effects of the mediating variable (OC) on the relationship between the independent variable (Strategic Leadership) and the dependent variable (QMPs) simultaneously in Public Universities in Egypt. The

technique was also used to estimate the interrelationship between the determinants of QMPs (Strategic Leadership and OC), its latent constructs, and the predicting variables.

5.10 Research Limitations

Despite various significant contributions to the body of knowledge in this study, regarding the mediating influence of OC on university relationships between strategic leadership and QMPs, it was subject to a number of restrictions that would lead to further research opportunities in the areas of QM. The study primarily addressed academics in public universities in Egypt without paying attention to the private ones there. This limits its capacity to generalize findings. The next limitation was the common statistical shortcoming associated with collecting data from the same respondents, which occasionally led to statistical inflation of the results produced. Furthermore, the study's constructs were analyzed without interrelating the dimensions. Instead of focusing on how each of the factors related to their respective unobserved variables, they linked the exogenous variables to the endogenous ones.

Additionally, the study's nature was applied in a cross-sectional manner, indicating that the perception of individuals regarding the impact of the OC variable are collected at a single point in time, and conditions influencing the findings can change over time. The cross-sectional study only provides a snapshot of the researched phenomena, wherein the data on all measures were collected simultaneously. Additionally, Sekaran and Bougie (2010) emphasized the limitations of the cross-sectional research approach to data collection. Still, the current approach could not guarantee that causal inferences can be made from the population or extensive generalizability associated with the study findings. The study is quantitative in that it included a questionnaire for data collection purposes that was designed based on adapting valid scale items from the extant studies.

The variables contained in the survey were measured subjectively. Although the variables measured were subjected to reliability and validity tests and found reliable and valid, there is the possibility of a social desirability problem and judgmental biases.

5.11 Recommendation for Future Studies

Drawing on the limitations stated in the previous section, this section offers corresponding recommendations +for future studies. Since the cross-sectional research approach has been faulted on the grounds of causal inferences, the longitudinal research approach represents an alternative approach to successfully measure theoretical constructs at different time points to confirm study outcomes. Furthermore, the study adopted mixed methods to provide more reliable conclusions about strategic leadership and QMPs.

The finding was based on the perceptions of academic staff from Egypt's public universities, therefore, future research examines the experiences of other stakeholders, such as top management and the managers in the department of QM at the university as well as the Dean, head of the department, non-academic staff and students. The author also recommends that other studies be carried out to compare public and private universities using the same questionnaire. Moreover, this study's findings did not prove a relationship between strategic leadership and QMPs, and so future research could employ different theories and reconceptualize the main study variables to test this.

Furthermore, this study did, to some extent, answer the research questions regarding the level of strategic leadership practice, the level of OC and the level of QMP, and the relationship between all variables. It also successfully identified predictors of effective OC and management practices that would develop more robust and effective QM implementation. However, future studies, which take these variables into account, will

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need to be undertaken regarding this aspect. Thus, based on the current study's findings, future research proposals should include the use of alternative research models, research methods, and additional variables. A proposed study model for the purpose of future studies is shown in Figure 5.1 below. The model could be used to guide university leaders to improve their strategic leadership skills to sustain QMPs and further defend the quality of the education system.
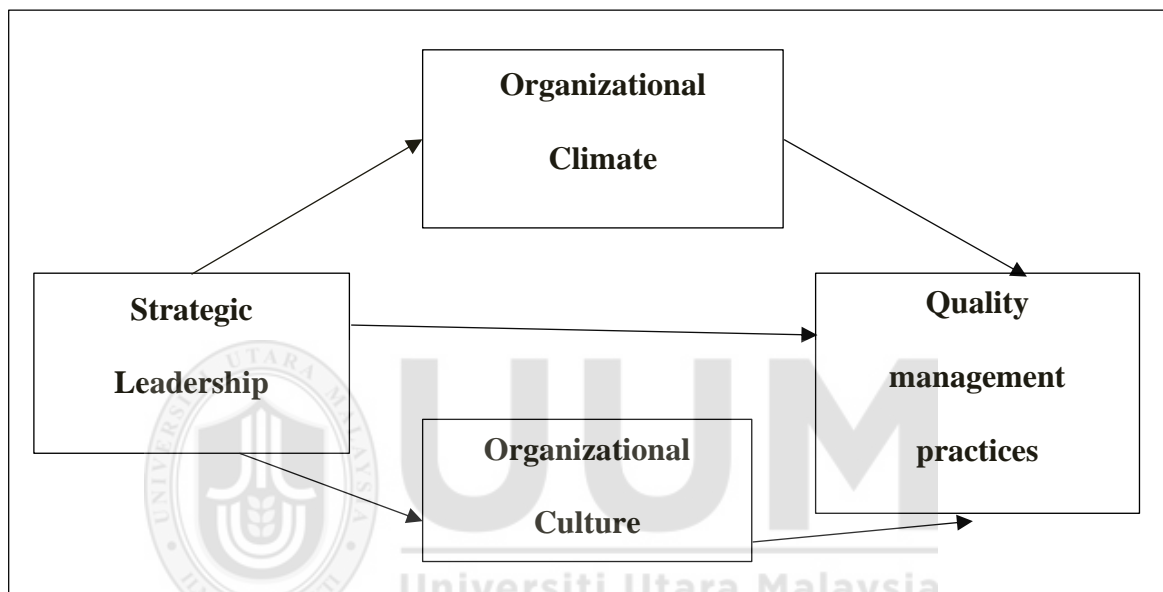
Figure 5. 1 Proposed Model for an Examination of Strategic Leadership's Influence on Higher Education Achievement

This study only examined the influence of strategic leadership on OC and QMPs without evaluating its relevance to continuous quality improvement practices among university managers overall. Further research can be conducted using continuous quality improvement practices, organizational culture, and training variables based on theories adapted from quality pioneers, such as Juran trilogy, or the Crosby QM principles set at the strategic leadership practice level. Therefore, the findings of the study will be more meaningful and in-depth.

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5.12 Chapter Summary

The current study's core objective was to clarify the relationship between strategic leadership, OC, and QMPs. The study adopted a quantitative research design using a questionnaire to collect data from respondents. The analysis was performed using SPSS (version 26) and Smart PLS 3 in the study. Overall, the study's results achieved the set objectives and answered the research questions. The study reported beneficial contributions to school leadership and management and various implications for public university QM policies and practices. The results showed that strategic leadership is an important component that shapes leadership practice among leaders and lecturers. Based on the perceptions of public university lecturers in Egypt, the importance of strategic leadership practices is apparent from their influence on university lecturers. It enhances the university climate and encourages employees to implement change and improve their skills and mastery of QMPs.

In conclusion, the study identified no significant differences in university lecturers' perceptions of strategic leadership and QMPs and OC based on gender or experience. However, in the case of factors leading to the implementation of QMPs, significant differences were associated with gender. The results also showed that OC acts as a mediator in the relationship between strategic leadership and QMPs in a public university. Thus, this mediation study offered some meaningful contributions to the body of knowledge and presented important implications for stakeholders and policymakers. Furthermore, the study also provides empirical evidence that strategic leadership and OC are predictors of QMPs in Egyptian public universities. This study's findings also confirm that the relationship between these variables is essential for determining the successful implementation of quality practices in a university setting.

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APPENDICES

Appendix A: 1The Permission Letter

UUM/CAS/ AHSGS/903528
November 3, 2019

TO WHOM IT MAY CONCERN

Dear Sir/Madam

DATA COLLECTION FOR PROJECT PAPER/ THESIS

This is to certify that **Mrs. Shorouk Mohamed Farag Mohamed Aboudahr (matric number: 903528)** is a full-time graduate student in Doctor of Philosophy (Education) at UUM College of Arts and Sciences.

She needs to do her field study and data collection for her project paper/thesis in order to fulfill the partial requirements of her graduate studies.

We sincerely hope that your organization will be able to assist her in the data collection and the distribution of the questionnaires for her research.

Thank you.

"KEDAH AMAN MAKMUR – HARAPAN BERSAMA MAKMURKAN KEDAH"
"KNOWLEDGE, VIRTUE, SERVICE"

Yours faithfully

AHMAD MUJAHID ABD. GHANI
Senior Principal Assistant Registrar
Awang Had Salleh Graduate School of Arts and Sciences
Universiti Utara Malaysia

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Dear respondent,

I am a PhD candidate in educational psychology from the School of Education and Modern Languages (SEML), UUM. I am conducting research on   the relationship between strategic leadership, organizational climate and quality management practices in egypt public university. The information obtained is crucial for me to complete my PhD research project. Thus, your sincere response is highly appreciated.

Please note that your response is **private and confidential**. Individual respondents will not be identified in any data or reports. If you have any enquiries about the survey, kindly contact or SMS me at 060-10-4686-015 or email to shroukaboudaher@gmail.com

Thank you very much for considering your involvement, time and cooperation in this survey.

Sincerely,

Shorouk Aboudahr

Ph.D. Scholar
School of Education
College of Arts & Sciences
Universiti Utara Malaysia

SECTION A:

Demographic information profile

Instruction: please fill in the blank on each item that is applicable to yourself.

1. Gender: **1** [ ] Male

2 [ ] Female

2. Age **1** [ ] 20-30   **2** [ ] 31-40

3 [ ] 41-50   **4** [ ] 51 and above

3. Highest Education **1** [ ] bachelor's degree   **2** [ ] master's degree
Qualification

3 [ ] PhD degree

4. Current Position **1** [ ] Professor   **2** [ ] Associate Professor

3 [ ] Lecturer   **4** [ ] Assistant Lecturer

5 [ ] Teaching Assistant

5. Tenure(years) **1** [ ] Below 5   **2** [ ] 6-15

3 [ ] 16-25   **4** [ ] 26-35

6. Status **1** [ ] Married   **2** [ ] Divorced

7. Name of University **1** [ ] Cairo   2 [ ] Ain Shams   **3** [ ] Helwan

4 [ ] Tanta   **5** [ ] Mansurah   **6** [ ] Manufia

7 [ ] Kafrelshikh   **8** [ ] Dmiat   **9** [ ] Sadat

Instruction: You are one of the disciples (followers) in your organization now. Please use the SCALE (1 to 7) below to show the extent of the statements 1 to 7 below, which explains the **STRATEGIC LEADERSHIP STYLE** of your current superior officer.

7	6	5	4	3	2	1
Every time	**Usually (%90)**	**Frequently (%70)**	**Sometimes (%50)**	**Occasionally (%30)**	**Rarely (%10)**	**Never**

On the following pages is a list of items that may be used to describe the STRATEGIC LEADERSHIP behavior of your supervisor, BUT NOT as you think he should act. It simply asks you to describe what an ideal leader ought to act in supervising his group. This is not a test of ability.

No	(Be strategically oriented)	Never	Rarely	Occasional	Sometimes	Frequently	Usually	Every time
1	The head of the department has generated improvement strategies together with the organization community.							
2	Head of department always disseminating organization improvement strategies to the organization community.							
3	Head of department always reminds strictly to all departments' community to always strive for the betterment of the organization.							
4	Head of department always concerned about the effectiveness and efficiency of the implementation of the daily tasks of the organization community.							
	(Ability to translate strategy into action)							
5	Head of department is always suggested new strategies to overcome any weaknesses in the everyday members' routine tasks.							
6	Head of department is always making decision together with members of the organization regarding new development strategy.							
7	Head of the department have been put forward new ideas in order to enhance the development and organizational excellence.							
8	It is the practice of the present head of the department to provide encouragement to all members to implement the organization's strategic plan efficiently and effectively.							
	(Align people and organization)							
9	As a leader, the head of department strives to use interpersonal skills on the members of the organization.							
10	It is the practice of the head of department to motivate members of the organization to be doing an outstanding job.							
11	Head of department provide encouragement to the members of the organization who have excelled in their duties and provide assistance to those who is not.							

	(Determine effective strategic interaction points)							
12	Head of department is capable and smart enough to make modifications to the organizational development strategies progress plan.							
13	Head of department is capable to present new strategies for replacing old strategies which are not effective.							
14	Head of department is wise in determining the appropriate time to use new strategies organizational development.							
	(Ability to develop strategic competencies)							
15	The head of the Department understands the factors essential to enhance teaching and learning activities/maintenance and repair.							
16	The head of the department will be able to solve the problem without a culture of blaming others.							
17	The head of the department will be able to use the results of student achievement information/staff to enhance learning/duties.							
18	The head of the department can solve problems through member consultation.							
	(A dissatisfaction or restlessness with the present achievement)							
19	Head of department always encouraging all staff to work towards organizational excellence.							
20	The head of the Department consistently expresses his intention to go along all members to enhance the organization to a greater level of excellence.							
21	The head of the department is always open to all, suggestions, and comments to enhance further efforts to develop organization excellency.							
	(Absorptive capacity)							
22	The head of the department is always concerned with the latest information in order to enhance the organization to improve performance.							
23	Head of department is continuously analyzing new information received from various sources in order to advance student/staff achievement							
24	The head of the department always shows the determination to learn from the errors of the past.							
	(Adaptive capacity)							
25	The head of the department demonstrates the ability to make significant changes to the strategies in enhancing organizational excellence.							
26	The head of the department is always ready to accept new opinions, which can enhance organizational excellence.							
27	The head of the department was always flexible in order to increase organizational excellence.							
	(Wisdom)							
28	Head of department displaying his intellectual brilliance.							

2 9	The head of the department exhibits wisdom to create a balance between individual interests with the interests of all members of the organization.					
3 0	The head of the department can tolerate the strategy execution implementation period, but he firmly emphasizes the level of performance.					
3 1	The head of the department has been holding on to the grip the value that built together with members of the organization.					
3 2	Head of department always applying knowledge for the benefit of all members and the organization.					

SECTION B: ORGANISATIONAL CLIMATE QUESTIONNAIRE (OC)

Directions: The following are statements about the school in which you work and you're working environment. Think about how well each statement AGREES WITH YOUR DESCRIPTION OR VIEWS of your organizational climate. For each statement, please indicate your response choices on your answer sheet. A- Strongly Disagree, B- Disagree, C- Neither Agree nor Disagree, D- Agree, E- Strongly Agree.

NO	ITEMS	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
Collaboration						
20	Classroom instruction is rarely coordinated across lecturers.					
11	I have regular opportunities to work with other lecturers.					
6	There is good communication among lecturers.					
21	Good teamwork is not emphasized enough at my university.					
16	I seldom discuss the needs of individual students with other lecturers.					
1	Lecturer's design instructional programs together.					
Student Relations						
2	Most students are well mannered or respectful of the academic staff.					
12	Students in this university are well behaved.					
7	Most students are helpful and cooperative with lecturers.					
17	Most students are motivated to learn.					
University Resources						
18	The supply of equipment and resources is not adequate.					
3	Instructional equipment is not consistently accessible.					
13	Video equipment, tapes, and films are readily available.					
8	The university library has sufficient resources and materials.					

	Decision Making					
4	lecturers are asked to participate in decisions.					
14	I have very little to say in the running of the university.					
9	Decisions about the university are made by the dean.					
	Instructional innovation					
15	We are willing to try new teaching approaches in my university.					
5	New and different ideas are always being tried out.					
19	Lecturers in this university are innovative.					
10	New courses or curriculum materials are seldom implemented.					

SECTION C: QUALITY MANAGEMENT PRACTICES SURVEY

Instructions: Please indicate your level of agreement or disagreement with the following statements:
1= strongly disagree 2= disagree 3= neither disagree nor agree 4= agree 5= strongly agree.

NO	ITEMS	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
	TRAINING AND EDUCATION					
1	Universities employees are given training in how to identify and act on quality improvement opportunities.					
2	Universities employees are given training in statistical and other quantitative methods that support quality improvement.					
3	Universities employees are given the needed education and training to improve job skills and performance.					
4	Universities employees are recognised (e.g., financially and/or otherwise) for improving quality					
	TEAMWORK AND INVOLVEMENT					
5	Teamwork and consensus are important in our university.					
6	Our university encourages employees to participate in decision making.					
7	Our university tries to understand the point of view of lecturers in defining the quality of education services.					
8	Our university's senior management encourages teamwork across disciplines.					
	STRATEGIC QUALITY PLANNING					
9	University employees are given adequate time to plan for and test improvements.					
10	Each department and work group within this university maintains specific goals to improve quality.					
11	The university's quality improvement goals are known throughout the organisation.					
12	University employees are involved in developing plans for improving quality.					
13	Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality improvement.					
14	External customers are playing a key role in setting priorities for quality improvement.					

15	Non-managerial employees are playing a key role in setting priorities for quality improvement.					
	CUSTOMER FOCUS					
16	The university does a good job of assessing current lectures needs and expectations.					
17	University employees promptly resolve lecturers' complaints.					
18	Lecturers complaints are studied to identify patterns and prevent the same problems from recurring.					
19	The university uses data from lecturers to improve services.					
20	The university does a good job of assessing lecturer's satisfaction with educational services.					
21	The university uses data on customer expectations and/or satisfaction when designing new services.					
	INFORMATION AND ANALYSIS					
22	The university collects a wide range of data and information about the quality of education and services.					
23	The university uses a wide range of data and information about the quality of education and services to make improvements.					
24	The university continually tries to improve how it uses data and information on the quality of education and service					
25	The university continually tries to improve the accuracy and relevance of its data on the quality of education and services provided.					
26	The university continually tries to improve the timeliness of its data on the quality of education and services provided.					
27	The university compares it's data to data on the quality of care and services at other universities.					
	CONTINUOUS IMPROVEMENT					
28	Associates in the university try to improve the quality of their service.					
29	Associates in the university believe that quality improvement is their responsibility.					
30	Associates in the university analyse their work services to look for ways of doing a better job.					

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Appendix C: The Arabic Questionnaire

السادة أعضاء هيئة التدريس الأعزاء

تحية طيبة وبعد

أود بدايةً أن أعرب عن خالص تقديرى وامتنانى لكم لاستكمال هذا الاستبيان.

أفيدكم بأننى أقوم بدراسة ميدانية للقيام ببحث علمى بعنوان (تأثيرالقيادة الاستراتيجية والمناخ التنظيمى على ممارسة إدارة الجودة بالجامعات العامة المصرية "جامعة القاهرة أنموذجا" للحصول على درجة الدكتوراة فى مجال الإدرة التعليمية من جامعة الشمال الماليزية (University Utara Malaysia-UUM).

نظرا لما تتمتعون به من خبرة فى مجال التدريس مما يزيدنا ثقة فى شخصكم الكريم, الرجاء التكرم بتعبئة هذه الاستبانة ليتم الإجابة على أسئلة الدراسة وسوف يكون لتعاونكم أثر كبير للتوصل إلى نتائج قيمة لهذه الدراسة.

وتود الباحثة أن تؤكد أن جميع البيانات الواردة بهذا الاستقصاء سوف يتم معالجتها إحصائيا بطريقة سرية ولن تستخدم إلا فى أهداف البحث العلمى فقط.

شاكرين لكم تعاونكم

الباحثة : شروق محمد فرج أبوضهر

للاستفسار عن أية أسئلة أو نقاط غير مفهومة أرجو التواصل عن طريق واتس أو الايميل أدناه

E-mail:shrouq.aboudaher@gmail.com   WatsApp:+6010468015

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القسم الأول / بيانات عامة

الرجاء التكرم بوضع علامة (√) أمام العبارة المناسبة

1- نوع الجنس   ذكر( )   أنثى ( )

2- العمر

20- 30سنة ( )   31-40 سنة ( )   36-40 ( )   41-50 ( )   أكثر من (50)

3- المستوى التعليمي

بكالوريوس/ ليسانس ( )   ماجستير ( )   دكتوراة( )

4- لمستوى الوظيفي

معيد ( )   مدرس مساعد ( )   مدرس( )   أستاذ مساعد(
)   أستاذ ( )

5- سنوات الخبرة

أقل من 5 سنوات ( )

6-15 سنوات   ( )

16-25 سنوات   ( )

26-35 سنة   ( )

6- الحالة الإجتماعية

أعزب( )   متزوج ( )   مطلق ( )

7- اسم الجامعة

القاهرة ( )   عين شمس ( )   حلوان ( )   طنطا ( )   منوفية ( )   كفرالشيخ ( )

دمياط ( )   السادات ( )

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القسم الثاني: القيادة الإستراتيجية

نموذج من يقوم بالتقييم// يصف هذا الاستبيان سلوك القيادة الاستراتيجية لمسؤول الإدارة العليا الحالى بكليتك وليس ما يجب أن فعله. يُطلب من حضراتكم وصف ما يتصرف به قائدك في الإشراف على مجموعته.

الرجاء تحديد درجة اتفاقك أو عدم اتفاقك مع الجمل التالية بوضع علامة (√) تحت الخانة المناسبة

دائما	عادة (90%)	بشكل متكرر	أحيانًا 50%	في بعض...	نادرًا (10%)	أبداً	الوصف المتعلق بأسلوب القيادة الاستراتيجية لمسؤول الادارة العليا	م
							أن يكون ذا توجه استراتيجى	1
							يُعد رئيس القسم استراتيجيات التحسين جنبا إلى جنب مع أعضاء المنظمة.	1
							يسعى رئيس القسم دائمًا لنشر استراتيجيات تحسين المنظمة على أعضاء المنظمة.	2
							يُذكر رئيس القسم دائما جميع الأعضاء بالسعى بقوة لتحسين المنظمة.	3
							يهتم رؤساء الأقسام دائمًا بفعالية وكفاءة تنفيذ المهام اليومية لأعضاء المنظمة.	4
							(القدرة على تحويل الاستراتيجية إلى أعمال)	2
							يبحث ويقترح رئيس القسم استراتيجيات جديدة للتغلب على أي نقاط ضعف في المهام الروتينية اليومية للأعضاء.	5
							يقوم رئيس القسم دائمًا بالتشاور واتخاذ القرارات مع أعضاء المنظمة فيما يتعلق باستراتيجية التطوير الجديدة.	6
							يطرح رئيس القسم أفكارًا جديدة من أجل تعزيزوتحسين التطوير والتميز المؤسسي.	7
							تتمثل ممارسة رئيس القسم الحالي للادارة في تقديم التشجيع والإيمان لجميع الأعضاء لتنفيذ الخطة الإستراتيجية للمنظمة بكفاءة وفعالية.	8
							التوفيق بين الأشخاص والتنظيم	3
							يسعى رئيس القسم جاهدًا لاستخدام المهارات الشخصية كقائد لمساعدة أعضاء المنظمة.	9
							يتمثل عمل رئيس القسم في تحفيز أعضاء المنظمة على القيام بعمل بارزومميز.	10
							عادة ما يقدم رئيس القسم التشجيع لأعضاء المنظمة الذين تميزوا في واجباتهم وتقديم المساعدة لأولئك الذين يحتاجون التحفيز والتوجيه.	11
							تحديد نقاط التفاعل للاستراتيجية الفعالة	4
							يمتلك رئيس القسم الذكاء والقدرة الكافيين لإجراء تعديلات على خطة التقدم لاستراتيجيات التطوير في الجامعة.	12
							رئيس القسم قادر على تقديم استراتيجيات جديدة لاستبدال الاستراتيجيات القديمة غير الفعالة.	13
							يمتلك رئيس القسم الذكا والحكمة في تحديد الوقت المناسب لإستخدام استراتيجيات جديدة للتنمية في الجامعة.	14
							القدرة على تطوير الكفاءات الاستراتيجية	5
							يفهم رئيس القسم العوامل الأساسية لتعزيز أنشطة التعليم والتعلم وكذلك الصيانة والإصلاح.	15
							رئيس القسم لديه القدرة على قادرًا على حل المشكلات دون إلقاء اللوم على الآخرين.	16

							الأسئلة	م
							رئيس القسم يستطيع استخدام نتائج التحصيل الدراسي للطالب و للهيئة التدريسية لتعزيز التعلم / الواجبات	17
							رئيس القسم قادر على حل المشكلات من خلال مشاورة الفريق والأعضاء.	18
					عدم الرضا أو الأرق مع الإنجاز الحالي			6
							يشجع رئيس القسم دائمًا جميع الموظفين على العمل نحو التميز المؤسسي.	19
							يُعرب رئيس القسم باستمرار عن عزمه على المضي قدماً مع جميع الأعضاء الجامعة لتعزيز الجامعة إلى مستوى أعلى من التميز.	20
							يتقبل رئيس القسم دائمًا من الجميع الاقتراحات والتعليقات لتعزيز الجهود المبذولة لتطوير التميز المؤسسي.	21
					القدرة على الاستيعاب			7
							يهتم رئيس القسم دائمًا بأحدث المعلومات من أجل تحسين المنظمة لتطوير الأداء.	22
							يقوم رئيس القسم باستمرار بتحليل المعلومات الجديدة الواردة من مصادر مختلفة من أجل تعزيز تحصيل الطلاب / الموظفين.	23
							يظهر رئيس القسم العزم على التعلم من أخطاء الماضي.	24
					القدرة على التكيف			8
							يُثبت رئيس القسم قدرته على إجراء تغييرات مفيدة على الاستراتيجيات من أجل تعزيز التميز المؤسسي.	25
							يَتقبل رئيس القسم الآراء الجديدة التي يمكن أن تعزز التفوق التنظيمي.	26
							يتمتع رئيس القسم بالمرونه من أجل زيادة التميز المؤسسي	27
					الحكمة			9
							يظهر رئيس قسم تألقه الفكري.	28
							يبدى رئيس القسم الحكمة عن طريق خلق توازن بين المصالح الفردية ومصالح جميع العاملين بالجامعة.	29
							رئيس القسم يمكن ان يتسامح عن فترة تنفيذ الاستراتيجية ، لكنه يؤكد بشدة على مستوى الأداء.	30
							يحافظ رئيس القسم على القيم التى أعدت مع اعضاء هيئة التدريس بالجامعة.	31
							يطبيق رئيس قسم المعرفة دائما لصالح جميع الأعضاء والجامعة.	32

القسم الثالث: المناخ التنظيمي

افيما يلي بيانات عن الجامعة التي تعمل بها وبيئة عملك. فكر في مدى توافق كل عبارة مع وصفك أو رؤيتك لمناخك التنظيمي. الرجاء تحديد درجة اتفاقك أو عدم اتفاقك مع الجمل التالية بوضع علامة (√) تحت الخانة المناسبة.

موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة	الاسئلة	م
					التعاون	
					نادرا ما يتم تنسيق تدريس المحاضرات فى الفصل الدراسي بين المحاضرين.	20
					يوجد لدي فرص عمل منتظمة للعمل مع المحاضرين الآخرين.	11
					يوجد تواصل جيد بين المحاضرين.	6
					فى جامعتى لا يوجد اهتمام كاف بالعمل الجماعي.	21
					نادرا ما اناقش الاحتياجات الفردية للطلاب مع المحاضرين الآخرين.	16

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					يتم تصميم البرامج التعليمية عن طريق تعاون المحاضرين مع بعضهم البعض.	1
					العلاقة مع الطلاب	
					يتسم معظم الطلاب بالأدب واحترام المحاضرين.	2
					حسن التصرف من سمات الطلاب فى هذه الجامعة بحسن.	12
					يتعاون ويساعد معظم الطلاب المحاضرين.	7
					يوجد حافز التعلم عند معظم الطلاب.	17
					موارد الجامعة	
					لا يوجد توريد موارد وووسائل تعليمية كافية.	18
					لا يمكن الحصول على الوسائل التعليمية باستمرار.	3
					تتوفر وسائل الفيديو والأشرطة التعليمية بسهولة.	13
					يوجد بمكتبة الجامعة موارد ووسائل تعليمية كافية.	8
					اتخاذ القرارات	
					يشارك المحاضرين بصورة كبيرة فى اتخاذ القرارات.	4
					لدي القليل لأقولة فى إدارة الجامعة.	14
					العميد هو المسؤول عن اتخاذ القرارات فى الجامعة.	9
					الابتكار التعليمي	
					يمكت تجربة مناهج تعليمية جديدة بالجامعة.	15
					دائما يتم تجريب الأفكار الجديدة والمختلفة.	5
					يتسم المحاضرون بالإبتكار فى هذه الجامعة.	19
					نادرا ما يتم تنفيذ دورات أومناهج جديدة.	10

## القسم الرابع: ممارسة إدارة الجودة

الرجاء اختيار الى اي مدى تقوم كُلِيتكم بالاهتمام بالنقاط التالية من اجل التأكد من قدره المؤسسة على تنفيذ خططها وتحقيق اهدافها

يرجى تحديد درجة اتفاقك أو عدم اتفاقك مع الجمل التالية بوضع علامة (√) تحت الخانة المناسبة.

غير موافق	غير موافق	محايد	موافق	موافق	الأسئلة	م
					التعليم والتدريب	
					يتم إعطاء موظفى الجامعة التعليم والتدريب اللازمان لكيفية التعرف على الفرص المتاحة لتحسين الجودة.	1
					يتم إعطاء موظفى الجامعة التعليم والتدريب فى الأساليب الإحصائية والطرق الكمية الأخرى لدعم تحسين الجودة.	2
					يحصل موظفى الجامعة على التعليم والتدريب اللازمان لتحسين مهارات العمل والأداء .	3
					يحصل موظفى الجامعة على المكافآت والتقديرات المالية وغيرها لتحسين جودة.	4
					فرق العمل والمشاركة	
					العمل الجماعى والتوافق فى الأراء مهمان فى جامعتنا.	5
					تشجع إدارة الجامعة الموظفين على المشاركة فى اتخاذ القرارات.	6
					تحاول إدارة الجامعة فهم وجهة نظر أعضاء هيئة التدريس فى تحديد نوعية الخدمات التعليمية.	7
					إدارة الجامعة تشجع العمل الجماعى بالأقسام والإدارات داخل الجامعة.	8
					التخطيط الاستراتيجي للجودة	
					يتم إعطاء أعضاء هيئة التدريس بالجامعة الوقت الكافى للتخطيط واحتبارات تحسين الجودة.	9

						كل الإدارات وفرق العمل داخل الجامعة لديها أهداف خاصة لتحسين الجودة.	10
						أهداف تحسين الجودة بالجامعة معروفة لجميع أعضاء هيئة التدريس.	11
						يشترك جميع أعضاء هيئة التدريس فى وضع خطط تحسين الجودة.	12
						رؤساء الاقسام و المشرفين يلعبون دورا أساسي فى وضع أولويات تحسين الجودة.	13
						يلعب المستفيدون من العملية التعليمية أدوارًا أساسيًا فى وضع أولويات تحسين الجودة.	14
						يلعب الموظفون غير الإداريين دورًا أساسيا فى وضع أولويات تحسين الجودة.	15
						التركيز على العملاء	
						تقيم الجامعة احتياجات المحاضرين الحالية وتوقعاتهم المستقبلية بأفضل الطرق.	16
						يقوم مسؤولى الجامعة بحل شكاوى أعضاء هيئة التدريس على وجه السرعة.	17
						تُدرس شكاوى أعضاء هيئة التدريس للتعرف على أنماط المشاكل المتكررة والمنع من حدوثها مرة أخرى.	18
						تستخدم الجامعة البيانات والمعلومات اللازمة لتحسين الجودة من أعضاء هيئة التدريس.	19
						لتقييم رضا أعضاء هيئة التدريس عن الخدمات التعليمية المقدمة لهمم. تتبع الجامعة أفضل الطرق	20
						تتخذ الجامعة توقعات وتطلعات أعضاء هيئة التدريس عند الشروع فى عداد خدمات جديدة.	21
						المعلومات والتحليل	
						تسعى الجامعة لجمع مجموعة واسعة من البيانات والمعلومات حول نوعية الجودة والخدمات التعليمية المقدمة.	22
						تستخدم الجامعة البيانات والمعلومات المُجمعة حول نوعية التعليم والخدمات المقدمة لإدخال تحسينات على الجودة.	23
						تحاول الجامعة باستمرار تحسين طريقة استخدام البيانات والمعلومات وذلك لتحسين نوعية الخدمات التعليمية.	24
						تحاول الجامعة باستمرار تحسين دقة البيانات الخاصة بها وصلاحيتها لأجل تحسين نوعية الخدمات التعليمية.	25
						تحاول الجامعة باستمرار تحسين بياناتها المتعلقة بنوعية التعليم والخدمات المقدمة فى الأوقات المناسبة.	26
						تقوم الجامعة بمقارنة بياناتها المتعلقة بجودة الخدمات التعليمية مع الكليات الأخرى.	27
						التحسين المستمر	
						يحاول جميع العاملين بالجامعة تحسين نوعية الخدمات التعليمية المقدمة.	28
						يؤمن جميع العاملين بالجامعة بأن تحسين الجودة من مسؤلياتهم.	29
						يقوم جميع العاملين بالجامعة بتحليل الخدمات المقدمة للبحث عن أفضل الطرق للقيام بعمل أفضل.	30

Appendix D: The Percentage of Allocation on education, total (% of Govt. expenditure) among Middle East Countries.

Figure.D.1& Table D.1
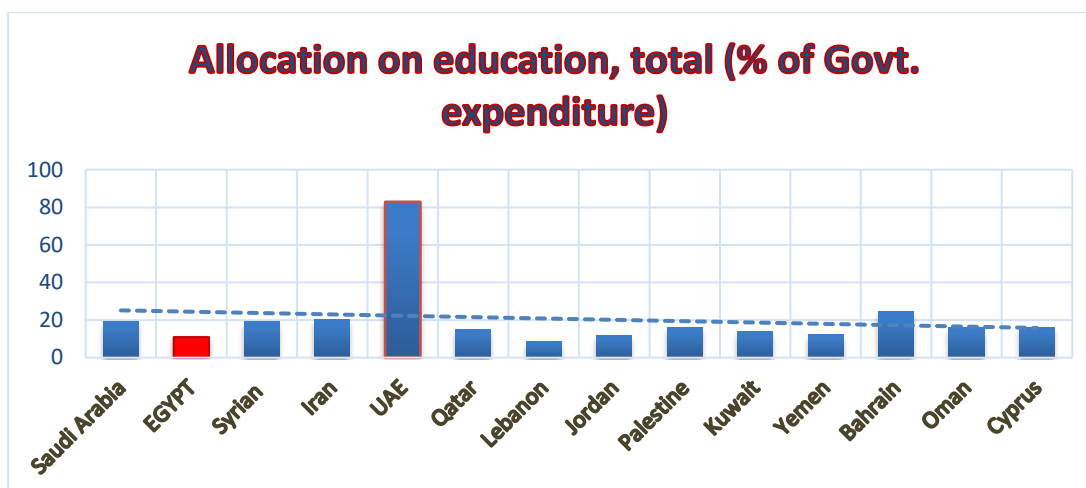
| S/No	COUNTRY	Allocation on education, total (% of Govt. expenditure)	Rank
1	Saudi Arabia	19.25742	4th
2	**EGYPT**	10.9418	13th
3	Syrian	19.18405	5th
4	Iran	20.04203	3rd
5	UAE	82.91099	1st
6	Qatar	14.83565	9th
7	Lebanon	8.57552	14th
8	Jordan	11.74613	12th
9	Palestine	16.21137	7th
10	Kuwait	13.85411	10th
11	Yemen	12.48924	11th
12	Bahrain	24.40469	3nd
13	Oman	15.96524	8th
14	Cyprus	16.27625	6th

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Appendix E: 1The Percentage of Unemployment with intermediate education among Middle East Countries.

Figure.E.1& Table E.1
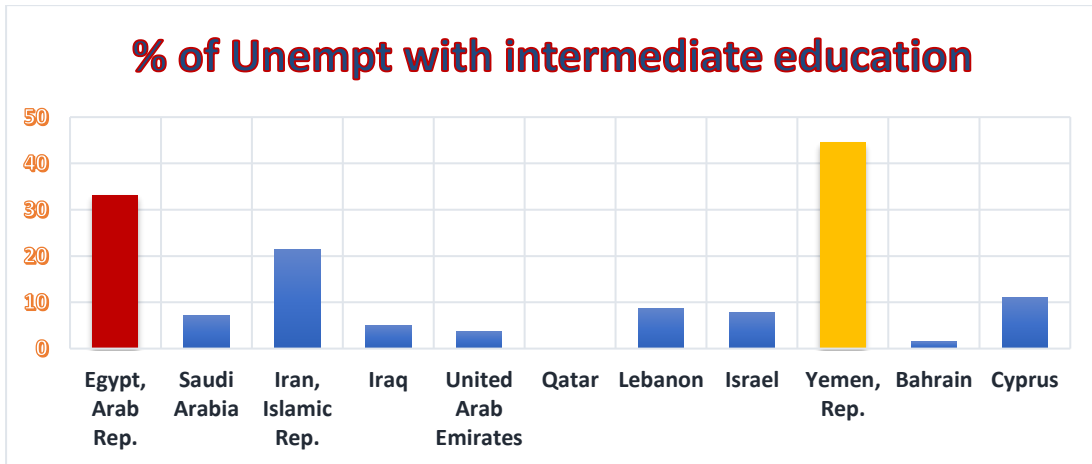
S/No	COUNTRY	% of Unemployment with intermediate education	Rank
1	Egypt, Arab Rep.	33%	2nd
2	Saudi Arabia	7.13%	7th
3	Iran, Islamic Rep.	21.44%	3rd
4	Iraq	5.06%	8th
5	United Arab Emirates	3.70%	9th
6	Qatar	0.12%	11th
7	Lebanon	8.76	5th
8	Israel	7.70%	6th
9	Yemen, Rep.	44.60%	1st
10	Bahrain	1.54%	10th
11	Cyprus	11.01%	4th

Appendix F: 1The Optimal Sample Size Calculated via G*
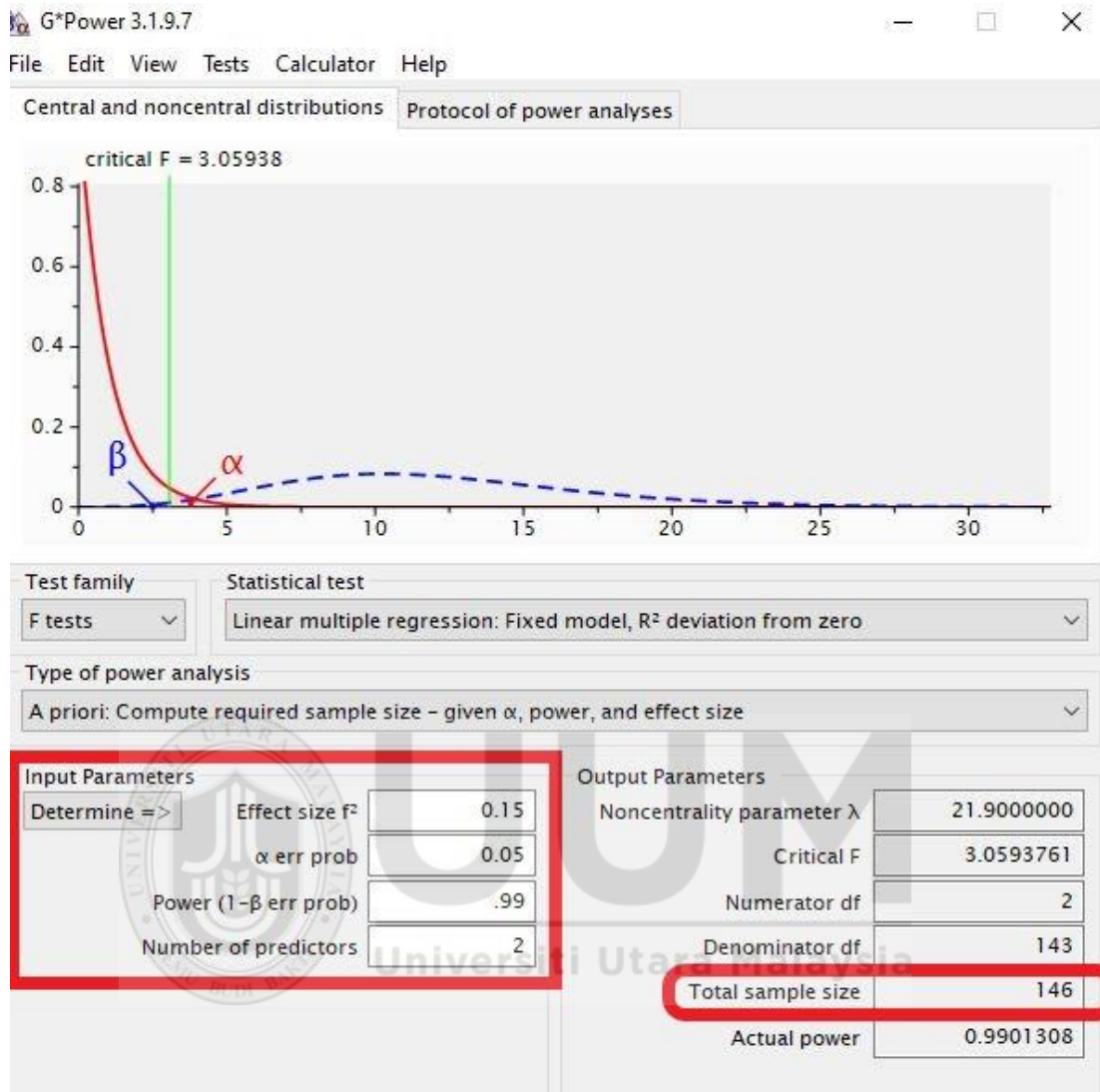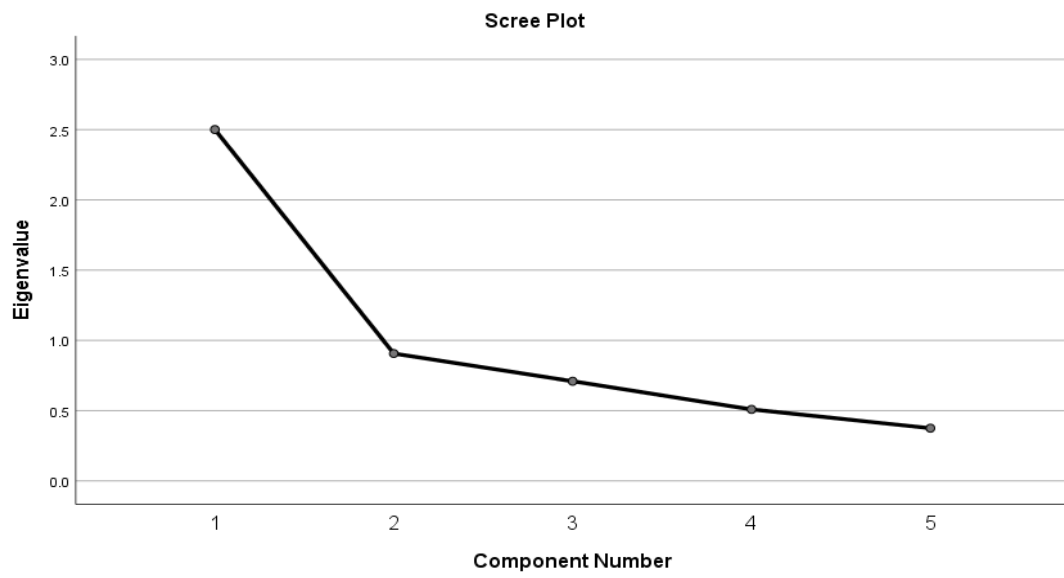
Appendix G: 1The Scree Plot for Variables

1. Quality Management practices
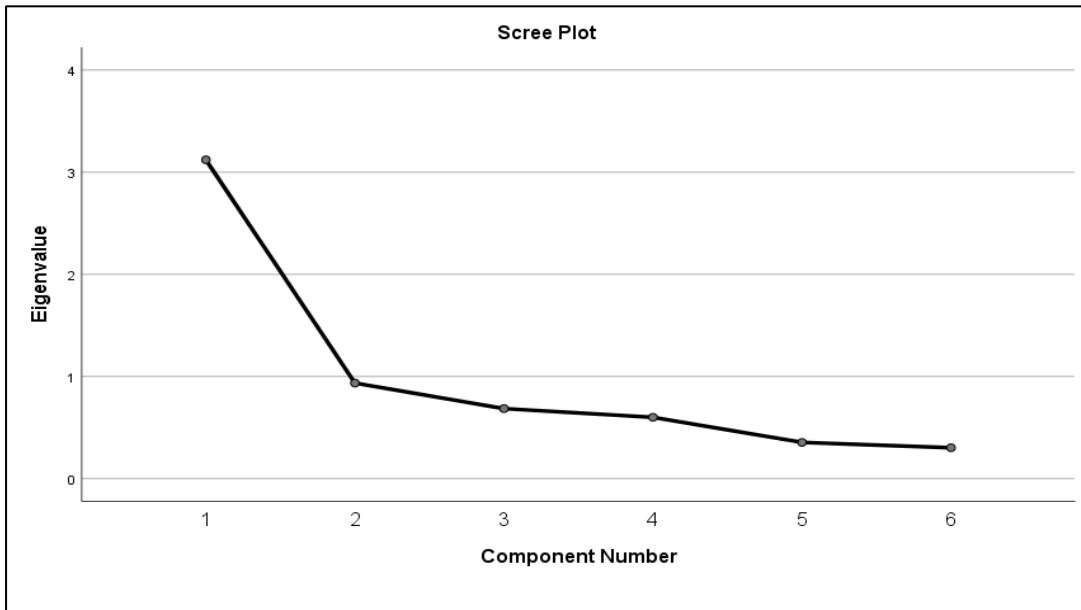
2. Strategic Leadership

Appendix G continued

3. Organizational Climate

Scree Plot
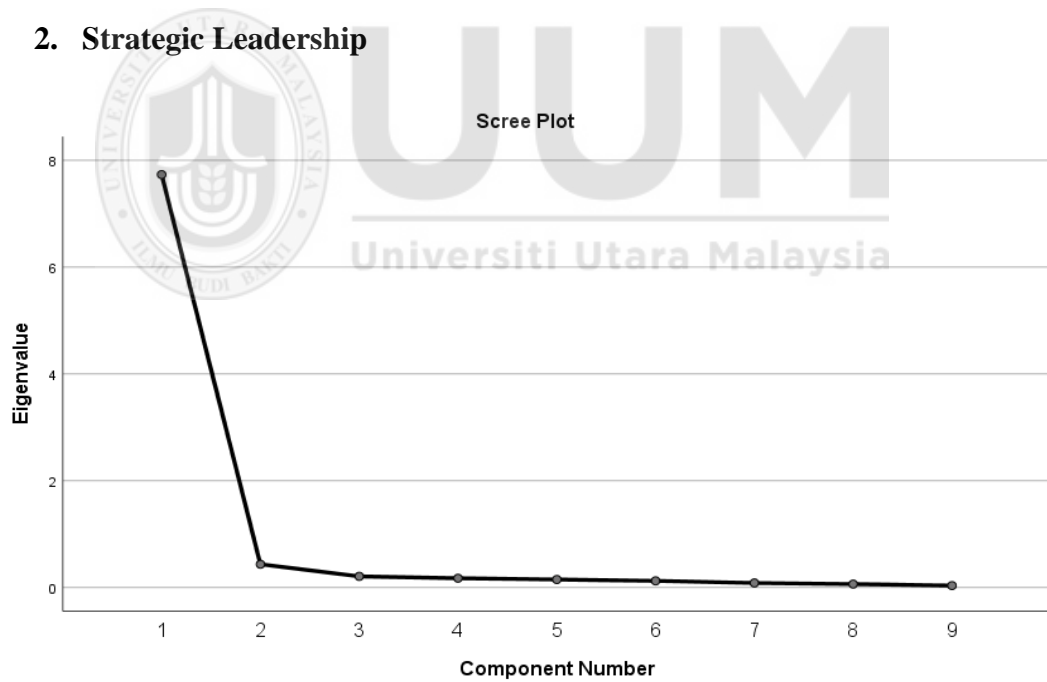
Appendix H: 1Power Chi-square probability distribution table

Critical values of the Chi-square distribution with *d* degrees of freedom

	Probability of exceeding the critical value				Probability of exceeding the critical value		
d	0.05	0.01	0.001	*d*	0.05	0.01	0.001
1	3.841	6.635	10.828	11	19.675	24.725	31.264
2	5.991	9.210	13.816	12	21.026	26.217	32.910
3	7.815	11.345	16.266	13	22.362	27.688	34.528
4	9.488	13.277	18.467	14	23.685	29.141	36.123
5	11.070	15.086	20.515	15	24.996	30.578	37.697
6	12.592	16.812	22.458	16	26.296	32.000	39.252
7	14.067	18.475	24.322	17	27.587	33.409	40.790
8	15.507	20.090	26.125	18	28.869	34.805	42.312
9	16.919	21.666	27.877	19	30.144	36.191	43.820
10	18.307	23.209	29.588	20	31.410	37.566	45.315

INTRODUCTION TO POPULATION GENETICS, Table D.1
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Appendix I: 1WebPower output

Appendix J: 1Measurement Model Stage 1
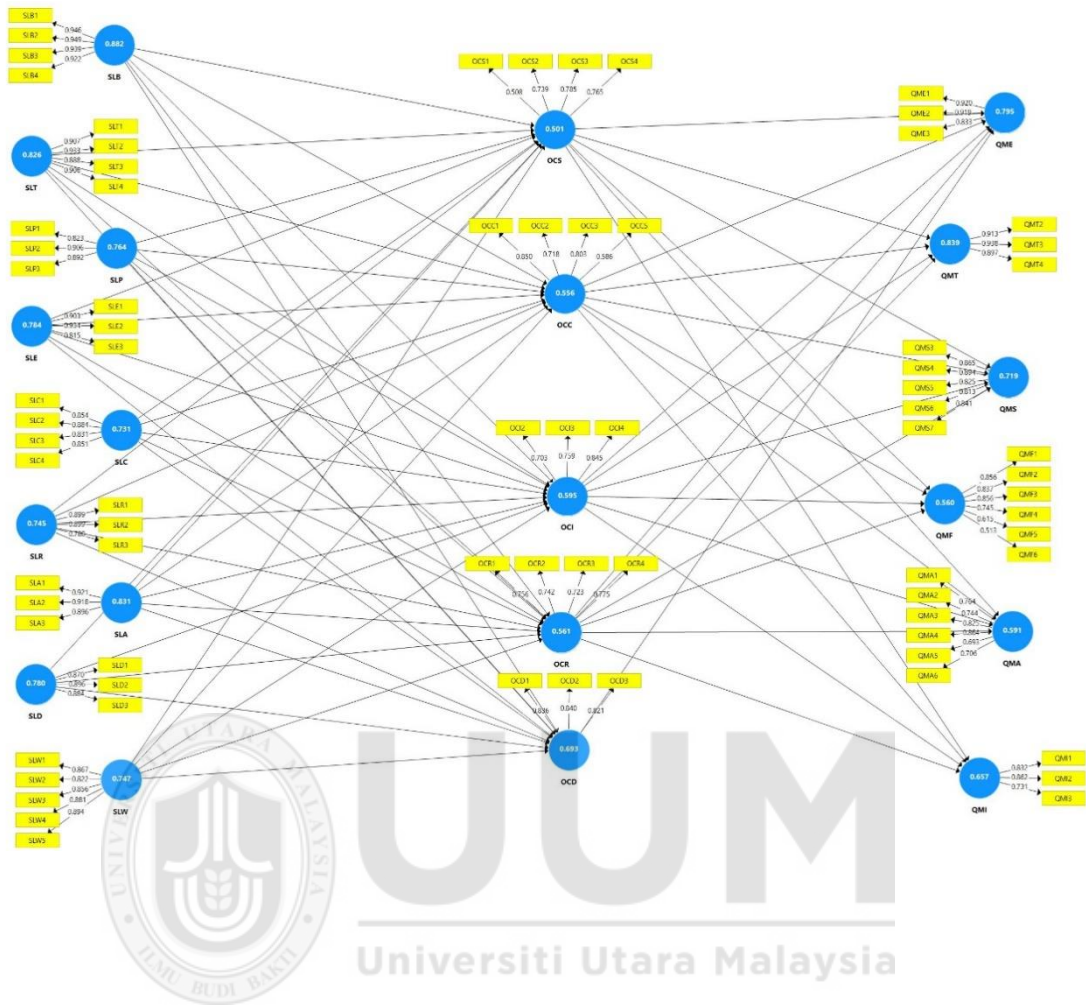
Appendix K: 1Measurement Model Stage 2
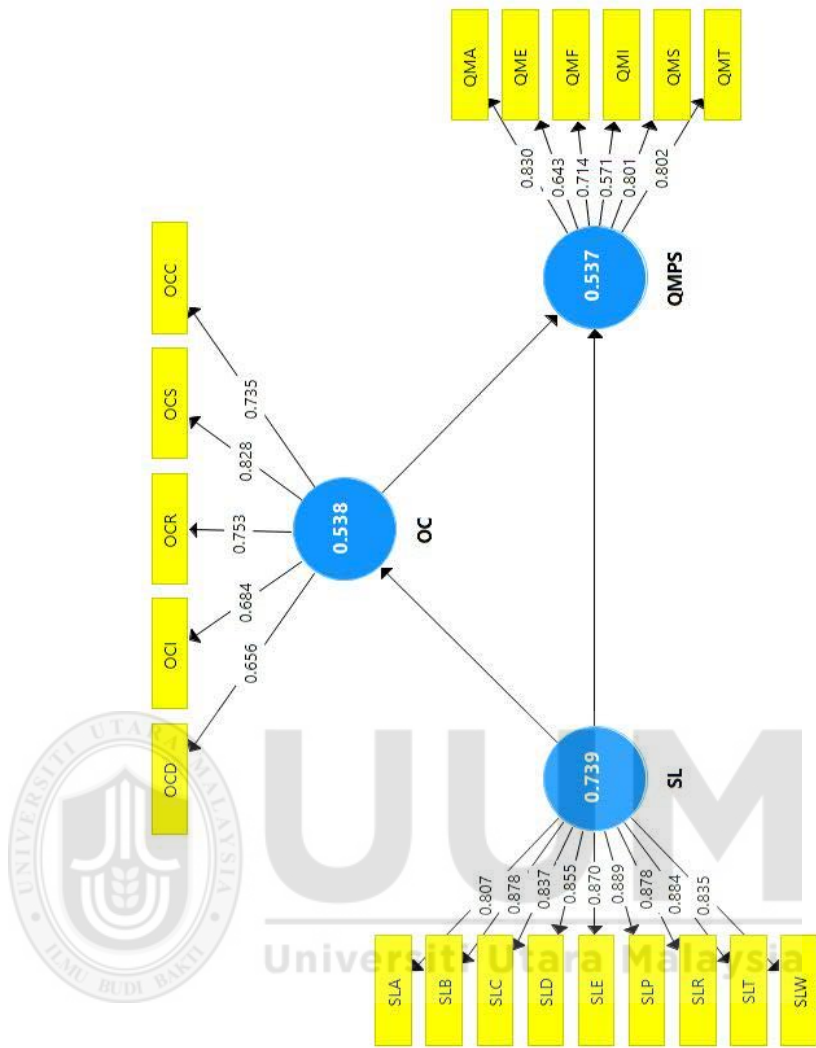
Appendix L: 1PLS Algorithm output

Construct reliability and validity (Stage 1)

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
OCC	0.724	0.831	0.556
OCD	0.780	0.872	0.693
OCI	0.768	0.814	0.595
OCR	0.740	0.837	0.561
OCS	0.758	0.797	0.501
QMA	0.861	0.896	0.591
QME	0.870	0.921	0.795
QMF	0.838	0.881	0.560
QMI	0.744	0.851	0.657
QMS	0.905	0.927	0.719
QMT	0.904	0.940	0.839
SLA	0.898	0.936	0.831
SLB	0.955	0.968	0.882
SLC	0.877	0.916	0.731
SLD	0.860	0.914	0.780
SLE	0.864	0.916	0.784
SLP	0.845	0.907	0.764
SLR	0.833	0.897	0.745
SLT	0.930	0.950	0.826
SLW	0.916	0.937	0.747

Construct reliability and validity (Stage 2)

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
OC	0.785	0.853	0.538
QMPS	0.828	0.873	0.537
SL	0.957	0.962	0.739

HTMT Ratio (Stage 2)

	OC	QMPS	SL
OC			
QMPS	0.566		
SL	0.418	0.159	

HTMT Confidence Interval

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
SLP -> SLE	0.906	0.904	-0.002	0.855	0.948
SLR -> SLC	0.922	0.923	0.001	0.869	0.960
SLR -> SLD	0.908	0.907	-0.001	0.851	0.952
SLT -> SLA	0.663	0.662	-0.001	0.575	0.725
SLT -> SLP	0.984	0.985	0.001	0.946	0.985

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HTMT Ratio (Stage 1)

	OCC	OCD	OCI	OCR	OCS	QMA	QME	QMF	QMI	QMS	QMT	SLA	SLB	SLC	SLD	SLE	SLP	SLR	SLT	SLW
OCC																				
OCD	0.454																			
OCI	0.489	0.482																		
OCR	0.600	0.423	0.577																	
OCS	0.667	0.678	0.751	0.771																
QMA	0.333	0.176	0.241	0.471	0.381															
QME	0.210	0.185	0.258	0.259	0.386	0.527														
QMF	0.543	0.216	0.173	0.330	0.296	0.679	0.442													
QMI	0.177	0.232	0.128	0.125	0.154	0.656	0.381	0.429												
QMS	0.531	0.199	0.208	0.295	0.353	0.598	0.346	0.451	0.399											
QMT	0.350	0.340	0.289	0.382	0.567	0.640	0.494	0.545	0.453	0.395										
SLA	0.278	0.264	0.246	0.218	0.285	0.055	0.059	0.039	0.148	0.118	0.062									
SLB	0.402	0.315	0.325	0.314	0.406	0.097	0.173	0.139	0.144	0.233	0.167	0.641								
SLC	0.290	0.214	0.231	0.229	0.262	0.120	0.041	0.060	0.094	0.097	0.045	0.806	0.705							
SLD	0.306	0.263	0.303	0.214	0.292	0.058	0.054	0.041	0.124	0.143	0.067	0.878	0.720	0.866						
SLE	0.264	0.241	0.231	0.265	0.292	0.054	0.063	0.073	0.147	0.197	0.084	0.760	0.781	0.814	0.837					
SLP	0.342	0.268	0.294	0.344	0.360	0.122	0.180	0.132	0.174	0.210	0.159	0.668	0.894	0.780	0.783	0.906				
SLR	0.312	0.239	0.275	0.262	0.334	0.067	0.069	0.070	0.112	0.155	0.052	0.871	0.780	0.922	0.908	0.883	0.836			
SLT	0.396	0.341	0.287	0.323	0.384	0.145	0.181	0.156	0.213	0.252	0.186	0.663	0.901	0.684	0.724	0.800	0.984	0.761		
SLW	0.271	0.209	0.258	0.217	0.269	0.109	0.026	0.048	0.089	0.101	0.042	0.867	0.661	0.864	0.895	0.799	0.719	0.890	0.662	

Inner VIF

	OC	QMPS
OC		**1.162**
SL	**1.000**	**1.162**

R square

	R Square	R Square Adjusted
OC	0.139	0.137
QMPS	0.244	0.241

f square

	OC	QMPS
OC		**0.299**
SL	**0.162**	**0.003**

Appendix M: 1Blindfolding and PLSpredict output Q square

	SSO	SSE	Q² (=1-SSE/SSO)
OC	2145.000	1989.223	0.073
QMPS	2574.000	2267.279	0.119
SL	3861.000	3861.000	

Appendix N: 1PLSpredict output Latent Variable Q square predict

	RMSE	MAE	Q²_predict
QMPS	1.000	0.713	0.014

Manifest Variable Q square predict: PLS Model

	RMSE	MAE	MAPE	Q²_predict
QMI	0.995	0.756	104.688	0.014
QME	0.997	0.736	159.274	0.012
QMF	1.003	0.690	119.519	-0.001
QMA	1.006	0.686	103.093	-0.009
QMT	0.998	0.685	150.483	0.008
QMS	0.991	0.722	137.129	0.023

Manifest Variable Q square predict: LM Model

	RMSE	MAE	MAPE	Q²_predict
QMI	1.006	0.765	131.074	-0.008
QME	1.000	0.744	300.201	0.004
QMF	1.007	0.700	143.613	-0.009
QMA	0.983	0.696	132.657	0.037
QMT	0.991	0.694	211.375	0.023
QMS	0.984	0.722	274.580	0.037
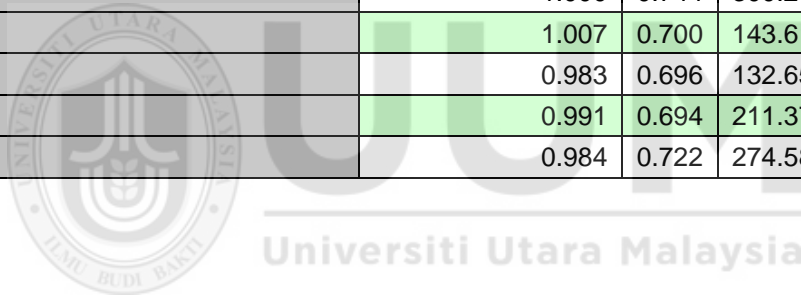
Appendix O: 1Bootstrapping output

Direct relationships

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
OC -> QMPS	0.512	0.055	9.250	**0.000**
SL -> OC	0.373	0.046	8.166	**0.000**
SL -> QMPS	-0.055	0.037	1.476	**0.140**

	Original Sample (O)	Bias	2.5%	97.5%
OC -> QMPS	0.512	0.006	0.386	0.610
SL -> OC	0.373	0.005	0.279	0.460
SL -> QMPS	-0.055	0.000	-0.124	0.020

Indirect relationships

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
SL -> OC -> QMPS	0.191	0.029	6.512	**0.000**

	Original Sample (O)	Bias	2.5%	97.5%
SL -> OC -> QMPS	0.191	0.004	0.133	0.248
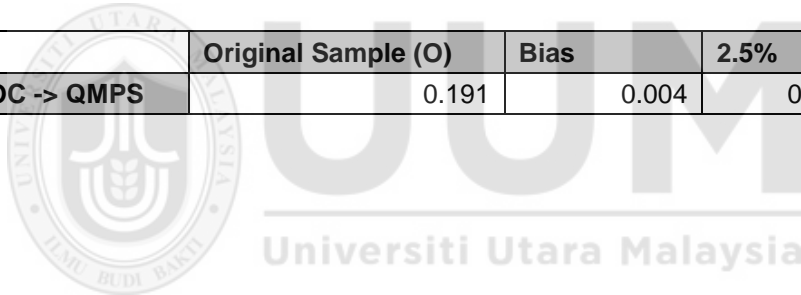
Appendix P: 1IPMA output

Construct Total Effects for [QMPS]

	QMPS
OC	0.522
SL	0.119

Construct Performances for [QMPS]

	Performances
OC	79.759
SL	61.460