A Relational Study of the Total Quality Management Practices and the Establishment of an Effective Learning Environment

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Abstract

Although there is some literature on the use of Total Quality Management (TQM) in education, there is a lack of research on its impact on creating an effective learning environment in the Arab region. This study aims to identify the best practices of TQM as a leadership style and to understand the key characteristics of an effective learning environment influenced by these practices. The study used a quantitative approach by administering a survey to 45 principals/vice principals, with 560 teachers randomly selected to respond. The results indicate that TQM practices are positively implemented to support the school learning environment, but their effects vary depending on how they are implemented. Further research is needed in this area.

Keywords: *TQM, Leadership Practices, Learning Environment, Principals, Teachers, High School*

INTRODUCTION

Over a few decades ago, industries understood that frequent assessment to increase organizational enactment is essential to keeping competitive and advantageous (Deming, 1986; Mele & Colucio, 2006). In this vein, Total Quality Management (TQM) has been acknowledged as a well-organized management procedure in the industry to survive against the changes in the global market, and special emphasis is given to quality in both products and services. It became a high priority and an essential demand of societies to indicate success in a competitive world.

Although Total Quality Management (TQM) has primarily been used in the industrial sector, there is a growing interest in adopting it in educational institutions (Bath et al., 2004; Jasti et al., 2022; Moreland & Clark, 1998; Peat et al., 2005; Srikanthan & Dalrymple, 2004; Telford & Masson, 2005). These scholars believe that the principles of TQM can have a positive impact on education, particularly in the areas of curriculum evaluation and reform.

Currently, education is facing criticism from stakeholders for not keeping up with the ever-changing market circumstances, socio-economic situations, and intense global competition. However, by constantly improving the educational processes and delivering high-quality education, education can address such a dynamic situation and meet the needs of its stakeholders (O'Neill & Palmer, 2004).

TQM is the philosophy originally developed for industry and business purposes. However, it attracted the attention of scholars in the educational field to be cost-effective and continuously improve while delivering quality services and outcomes (Ekemam & Njoku, 2020; Sajjad et al., 2021). Some studies and research (e.g., Jasti et al., 2022; Kilag et al, 2023; Pujiati et al., 2021; Seyfried & Pohlenz, 2020) refer that there is a relationship between quality management and other factors in education and business. Like other service organizations, those in education must adapt to changes in their business environment. Education, being a dynamic field, plays a critical role in responding quickly to changes in the world. Consistent improvement in the quality of education is the foundation of any improvement process. According to Akhtar (2007), "The quality of education will improve when administrators, teachers, staff, and school board members develop new attitudes that focus on leadership, teamwork, cooperation, accountability, and recognition" (p.24). TQM is a management model that focuses on long-term philosophy and rigorous self-assessment for leadership, teamwork, and work procedures. It differs from other quality theories as it aims to bring change processes rather than fixing specific issues. (Kanji, 1995; Sallis, 2002). Therefore, the main Emphasis was given to school leadership and its use of

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TQM and how the philosophy of TQM is translated into the field of education. Deming (1986) proposed a rule in which he argued that when there is a problem, most of its reason is the system, and little is attributed to the workers. This reflects that leadership is vital to any organization's success and continuous development (Tribus, 1994).

Quality is derived from the Latin word "quails," meaning "what kind of." It's difficult to define accurately, as it means different things to different people in different contexts (Sahney, 2015). Quality theory is used in various sectors, and customer satisfaction is the key criterion for measuring the quality of products or services. Service organizations implementing quality should provide employees with an environment that supports teamwork, collaboration, accountability, and satisfaction. Quality is characterized by continuous improvement and tailored procedures based on customer needs (Corrigan, 1995; Venkatraman, 2007).

The education sector will face new challenges and opportunities in the coming decades, requiring new strategies to develop human resources. Quality improvement strategies in education often originate from industrial backgrounds, but implementing management practices in educational institutions poses challenges. Overcoming these challenges is necessary to incorporate the best industrial practices into educational frameworks (Alshatnawi & Abd Ghani, 2018; Sohel-Uz-Zaman, 2016).

TQM has existed since the 1980s and has steadily developed. However, some Arab countries are still lagging due to political and economic conditions. Yet, some countries have made serious attempts to catch up and benefit from TQM. Successful applications of TQM have been noted in Arab universities in Algeria, Egypt, Saudi Arabia, Morocco, UAE, Oman, Kuwait, and Bahrain (Al-Najjar & Jawad, 2019).

Organizations in Arab countries need to update their management styles to stay competitive in global productivity and technology. However, the adoption of TQM features like teamwork, innovation, and continuous improvement is limited. Competent leadership is needed to implement the TQM approach (Salameh et al., 2011; Zabadi, 2013). For example, in the United Arab Emirates (UAE), improving the quality of Education is a focal focus of the Government. In the Abu Dhabi Emirate, there is an agency called the Abu Dhabi Education Council (ADEC); its role is to increase the quality of education to the highest international standards (Soomro & Ahmad, 2012). According to Smadi and Al-Khawaldeh (2006), there have been significant efforts to improve higher education in the UAE through the expansion of high-quality education. Similarly, Alzahrani et al. (2016) noted that The Kingdom of Saudi Arabia has applied TQM in the establishment of the King Fahd Center for Quality to facilitate the conversion of institutions towards quality education. In Egypt, a special policy has been implemented to improve regulations to advance private education (Asif et al., 2011). Therefore, there is a need to investigate further the nature of TQM implementation in the Arab world's educational sectors. This can be done by understanding the features of TQM, how it affects the establishment of an effective learning environment, and the nature of leadership and TQM practices. The United Arab Emirates can be used as a representative context for this investigation.

One of the UAE's 2021 National Vision's main goals is to be ranked as the "first-rate education system." Therefore, several data sources (e.g., international assessment results) are constantly checked by educational specialists to measure the quality of the educational system in the UAE (Ibrahim & Alhosani, 2020). These reports indicated that students' performances on international tests, like TIMSS and PISA, have been increasing lately; however, their scores are still below the OECD average (500) in these tests. Therefore, a reform to the educational system is needed to help UAE students achieve top global scores in standardized tests. (UAE Ministry of Cabinet Affairs, n.d.).

Even though many studies have been conducted in many Arab countries to investigate the application of the TQM principles in education, most of them were interested in higher education. There is a need to explore the relationship between applying TQM and establishing an effective learning environment that promotes educational outputs in high schools. This study is significant in several ways. First, it is anticipated that it will contribute to a clear understanding of the missing elements of the TQM in the UAE's education field. Furthermore, this study is predicted to help international policymakers get a better idea about how the practices of TQM can lead to the establishment of an effective learning environment in high schools. More importantly, this study is expected to let leaders know where they are on the route to creating effective learning environments

and the extent to which they are required to develop educational policy standards. This research is proposed to add the new knowledge resource to the practical research because, despite the good account of the literature pursuing the application of the TQM in education, there is still a paucity of studies regarding its relationship with creating an effective learning environment in the Arab region.

Based on that, the main objectives of this study are to detect the leading practices of TQM as a leadership style and to recognize the focal characteristics of the effective learning environment and their relationship with the TQM practices. Therefore, the study is geared by the following research questions:

What are the leading practices of the TQM from the perspective of high school leaders and teachers?

What are the main features of an effective learning environment from the perspective of high school leaders and teachers?

What is the relationship between TQM practices and establishing an effective learning environment?

RESEARCH REVIEW

Total Quality Management and Education

Total Quality Management (TQM) is a wide-ranging and structured management style that aims to enhance the quality of any provided products or services. The definitions of TQM differ based on the field where it is applied. However, common features are found, such as providing the best quality, involving every part of an organization, and achieving customer satisfaction (Kigozi & On, 2019; MeClain, 2003).

TQM is a management process deployed in different industries and businesses, with no exception to education. It is recognized by developed and developing countries that the quality of education is a vital tool for boosting human capital development for more social, educational, and economic growth (Kigozi & On, 2019; Sahney et al., 2004; Salaheldin & Mukhalalati, 2009; Tarí & Dick, 2016). Within the TQM, stakeholders in any educational institution want to perform their best. The management's role is to create an environment that paves the way for continuous improvement of the educational system (Dahlgaard et al., 2002). Therefore, to improve education quality and satisfy stakeholders, adopt TQM practices with management and leadership components. (Dahlgaard et al., 2002; Demirbag et al., 2006; Kigozi & On, 2019; Lam et al., 2012; Manatos, 2017; Töremen et al., 2009). According to Tribus (1994), Leadership is motivating others with a vision, while management is organizing resources to achieve a goal efficiently. Therefore, TQM is a global educational culture where all parties actively participate. Quality is a main component of global competitiveness, and there is a real need to incorporate TQM principles in education. It is important to educate specialists in this field and propagate new ideas (Dahlgaard et al., 2002).

The pursuit of quality is not new. Since the beginning of civilization, people have been seeking techniques to aid them in doing their best. The business originated the quality movement to stay in business and obtain customer satisfaction. Organizations that seek to apply quality measures should provide a supportive environment for their employees to enhance group work, satisfaction, accountability, and collaboration. Based on that, TQM continuously improves the organizations' production processes, saving time and reducing money and effort (Maguad, 2006; Michael et al., 1997; Venkatraman, 2007). TQM involves using new tools and ideas to tailor the organization's approach to meet its needs. It fosters a shared responsibility culture and allows everyone to contribute to the whole (Doherty, 2008). TQM can be applied in education to enhance productivity and financial affairs. Some view it as a management system with student satisfaction as key, while others see it as a philosophy for change in educational institutions and reform (Jamalludin & Sarip, 2021; Shafqat etal., 2021).

The TQM theory approach to education involves three main phases: inputs, processes, and outputs. These three phases are incorporated within a boundary and environment. Within this framework, inputs within the environment cross various boundaries to act within the production process and are then released back into the environment as outputs. Inputs represent human, material, and financial resources, while the process is a sequence of activities or actions that lead to the ultimate output. In the context of education, a course is a succession of operations that lead to different outputs, such as learning (Bahia et al., 2023; Wani & Mehraj, 2014). Additionally, TQM offers a framework for morality in education because effective TQM tends to

exemplify perceptions of commitment, responsibility, honesty, and participation. By implementing the principles of TQM, schools can be improved, and quality education goals can be accomplished. Schools must communicate clearly their mission and policy for applying quality will help for better performance. Furthermore, the satisfaction of learners should be an aim of TQM in addition to safety and environmental topics within schools for teaching and non-teaching issues (Wani & Mehraj, 2014).

Various practices have been identified as effective in implementing Total Quality Management (TQM). These practices include management commitment, quality of educational institutions, strategic planning, stakeholders' involvement, teamwork, training workshops, design and management, management analysis, and superior quality management. Additionally, the nature of leadership, customer focus, supplier relationships, and continuous improvement are also categorized as TQM practices. For example, Studies by Owlia & Aspinwall (1997) and Manatos (2017) have found these practices to be prevalent in higher education institutions in the US and UK. In Kenya, Ngware et al. (2006) discovered that leadership, strategic planning, and the development of human resources are the most common TQM practices employed in high schools. In Turkey, Töremen et al. (2009) identified school life quality, school involvement, school principals, and management clarity and adopted the TQM philosophy as the most common TQM practice in primary schools. In the Arab world, Alsuhaimi (2012) and Alzhrani et al. (2016) found that a wide range of TQM practices are applied in higher education institutions, including leadership, customer focus, strategic quality planning, stakeholders' involvement, design quality, continuous improvement, fact-based management, physical evidence quality, faculty, students and curriculum quality, quality of education programs, and regulation quality.

Total Quality Management and Learning Environment

Schools are large and open environments with interrelated and complex social systems and sub-systems. Therefore, assessing the quality of a school system takes work. Part of this system is the learning environment, in which the nature of leadership and TQM impacts it and, in the end, affects the quality of the whole school system (Koh & Askell-Williams, 2021). The learning environment encompasses the school climate, culture, classrooms, facilities, equipment, curriculum, students, teachers, parents, administrative staff, attitudes, and behaviors (Birasnav et al., 2023). According to Lee and Tsai (2005), the learning environment is "the social-psychological contexts within which learning occurs" (p.162). The nature of the interaction between learning and the surrounding environment can influence the learners' ways of learning, and thus, the quality of education can be affected, too. Therefore, more attention should be given to the learning environment to ensure that the quality of learning is provided constructively (Illeris, 2004; Goh & Khine, 2002; Mukhopadhyay, 2020).

The learning environment plays a significant role in evaluating educational programs, as there is a consistent alignment between the classroom environment and students' outcomes. How schools' function is important for explaining differences in achievement between the students at different schools. Going deeply inside the school environment and trying to understand the nature of its practices seem promising to improve schools' practices and the schooling of children (Opdenakker & Damme, 2006; Mukhopadhyay, 2020). Therefore, a quality school environment "involved sincere efforts to broaden the base of leadership to include teachers and administrators, to define shared vision based on student learning and to provide a culture of continual support" (Huffman & Hipp, 2003, p. 148). More specifically, in a quality atmosphere, students believe they can learn. They are convinced that teachers care about them, consider their needs and abilities, and maintain interactive and effective classroom discipline. So, there are three dimensions of a positive learning environment: the caring atmosphere, the physical appearance of the learning environment, and its organization. In fact, the quality of the learning environment is not limited to testing; rather, it is about how students are stimulated and triggered within different created learning situations. These learning situations should be more conducive to students' needs, learning styles, and interests (Akbar & Alam, 2019; Adrian, 2000; Al-Tarawneh & Mubaslat, 2011; Huffman & Hipp, 2003; Mukhopadhyay, 2020).

Several studies have explored the relationship between Total Quality Management (TQM) and the learning environment. Adrian (2000) emphasized the importance of creating quality learning experiences to meet the needs of students and empower them as part of TQM principles when implementing distance learning. Şafakli & Şan (2007) observed the behavior of principals, teachers, and students in a middle school to evaluate their

appropriateness in implementing TQM. The study found that principals and teachers rated their behaviors as good, while students rated their behavior as poor, and principals were rated as poor, but teachers were rated as good by students. Pool (2000) investigated the relationship between TQM and organizational culture and their impact on the learning organization. The study concluded that TQM principles in a supportive organizational culture have a positive relationship with the learning organization. Similarly, Al-Tarawneh and Mubaslat (2011) examined the nature of TQM implementation in higher education. They found that respondents had a moderate level of awareness and positive attitudes towards TQM principles. However, little attention was given to students' needs and complaints from their perspective. Furthermore, Akbar and Alam (2019) investigated the efficiency and effectiveness of TQM principles in private educational institutions. The study revealed several problems related to TQM implementation, such as teachers not being included in the process of curriculum modifications and a lack of cooperation between management and teachers. In addition, little attention was given to student affairs, services, and provided facilities. Therefore, more research is needed in this area due to the scarcity of studies on how TQM influences the learning environment.

Theoretical Framework

It is essential to review the background of the TQM due to its deep roots in quality control practices in the manufacturing industry. The TQM was closely related to Taylor's quality theory. According to Schwass (2010), the scientific management approach returns to the 1930s when quality control inspection was used to ensure that the products provided to the markets met the customer's demands. It was discovered then that the employees were indifferent to the quality of the product. Therefore, it was considered the employees' responsibility (Sallis, 2002). However, Lal (2008) argued that quality awareness should accompany all the production procedures until the retailing process when the customer gives the necessary feedback to promote the product's quality.

One of the fundamental principles of quality management is continuous improvement that enhances the organization's performance. It is mainly built on the four-step cycle of Shewhart: plan, do, check, and act (Marouni, 2010; Neyestani, 2017; Olson, 2009). Deming, Ishikawa, and Juran hold the belief that the primary goal of an organization is to remain in operation. This is so that it can contribute to the stability of the community, create products and services that are beneficial to customers, and provide an environment for the happiness and advancement of its members (Olson, 2009). Their concept was the TQM wisdom platform. Deming "is probably the person who has done most to influence quality management" (Sallis, 2002, p.6). In addition, Deming was also described by Marouni as the "father of the total quality movement" p.22. Deming's philosophy is to solve problems using the Plan, Do, Check, and Act cycle (PDCA) systematic approach. Furthermore, this philosophy was also built upon fourteen famous points: the constancy of purpose, new philosophy, building quality into processes, improving quality and productivity, removing barriers that rob people of pride, driving out fear, breaking down the barrier between departments, eliminating slogans, substitute leadership, institute leadership, institute training on the job, institute programs of education and self-improvement, end the practice of awarding business based on price alone, and the transformations are everybody's job.

Guru means a "respected teacher," "spiritual leader," and "good person" who makes a significant and innovative contribution in his field that results in a wide-range revolution. Based on Bahri et al. (2012) of them made a substantial contribution in providing a foundational block of the systematic approach of the quality theory: Deming 1950 presented 14 Principles in Quality and PDCA; Ishikawa, 1979 introduced statistical quality control and Fishbone; Crosby (1979) offered the top management and the 14 steps for improving quality; and Juran, 1988 produced quality cost, SPC Quality, and Juran's quality triangle. These four quality gurus have established philosophical quality trends to understand the nature of TQM. However, they approach it differently (Neyestani & Juanzon, 2016), as introduced in the following table (1) (Neyestani, 2016).

This theoretical framework serves as a lens to guide the scope of the current study by helping us understand the nature of TQM practices. A thorough understanding of TQM's nature contributes to demonstrating how its implementation creates an effective learning environment in the educational field.

Table 1. Philosophical Perspectives for Providing Quality Management

The Guru	His approach, led by	Prominence	Prevailing Feature
Deming	Customer	Process	Variation control
Ishikawa	Value	People	Wide quality control
Crosby	Supply	Performance	No defect
Juran	Customer	People	Purpose fitness

CONCEPTUAL FRAMEWORK

The conceptual framework for this study is built on the principles of Total Quality Management (TQM) and its application within educational settings to create an effective learning environment(Stoica & Wardat, 2021; Alneyadi et al, 2022b). TQM is a management philosophy that emphasizes continuous improvement, customer satisfaction, and a holistic approach to organizational processes. In the context of education, TQM translates into practices that focus on enhancing the quality of teaching, learning, and administrative processes. This framework posits that effective leadership practices, when aligned with TQM principles, can foster a culture of continuous improvement, active teacher involvement, and a supportive learning environment(Tashtoush et al., 2023b; Wardat et al., 2024). The key elements of TQM—such as leadership commitment, strategic planning, data-driven decision-making, and stakeholder engagement—are hypothesized to directly influence the quality of the educational environment and, subsequently, student outcomes(Wardat et al., 2022 ; Jarrah et al., 2020; Gningue et al., 2022 ; Tashtoush et al., 2022).

Within this framework, the study aims to explore how TQM practices, as executed by school principals and vice principals, contribute to the establishment of an effective learning environment(Zakariya & Wardat, 2023; Jarrah et al., 2022b). The leadership practices under scrutiny include setting clear visions and goals, promoting collaboration among teachers, and implementing continuous improvement processes(Hidayat & Wardat, 2023; Tashtoush et al., 2023a; Alneyadi et al, 2022a; Jarrah et al., 2022a; Wardat et al., 2021). The framework suggests that these practices lead to higher levels of teacher satisfaction, engagement, and professional development, which in turn create a more conducive learning environment for students. Additionally, the study examines the variability in the impact of TQM practices based on different implementation strategies, acknowledging that the context-specific nature of schools necessitates tailored approaches. This conceptual framework serves as the basis for understanding the dynamics between TQM practices and the effectiveness of the learning environment in the Arab region see figure 1.
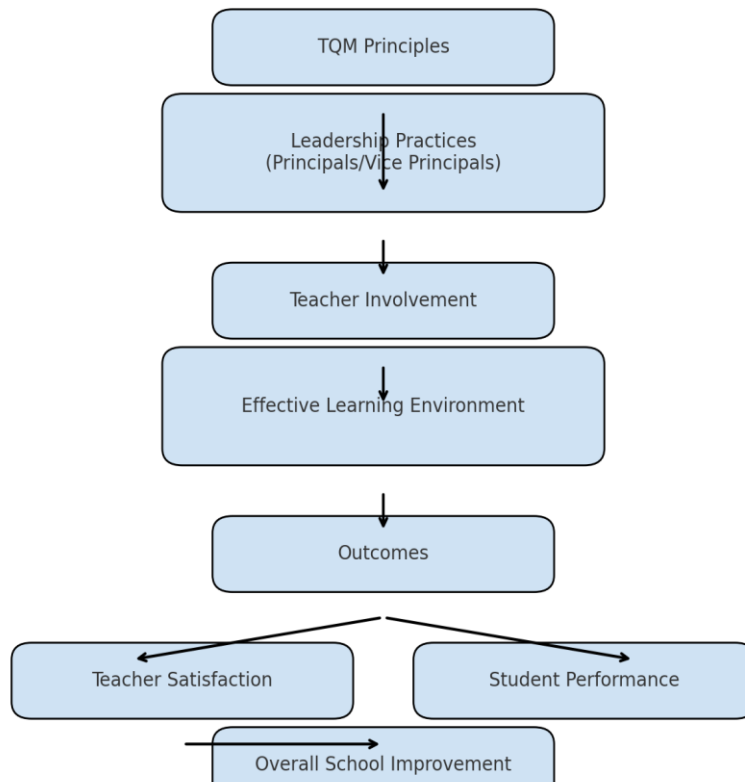
Figure 1: conceptual framework diagram for your study on TQM practices and their impact on establishing an effective learning environment

METHODOLOGY

This study employed a quantitative research design by adopting the survey study. The rationale behind selecting this approach is to find a relational association between the TQM implementation and the learning environment's effectiveness. Moreover, adopting a survey study served to measure the extent to which the participants are represented by providing solid numbers of valid and reliable shared experiences and perceptions (Demetriou et al., 2015; Gay et al., 2011). The survey was created based on a literature review and theoretical framework. To ensure the questions in the questionnaire were relevant, Lawshe's Content Validity Ratio (CVR) was used. Three experts rated each item in the questionnaire using a scale of "not necessary=1, useful but not essential=2, and essential=3" (Taherdoost, 2016, p.30) to confirm its content validity.

The participants were selected using a random sampling technique where "intact groups are randomly selected" (Gay et al., 2011, p. 129) by targeting high school districts in the UAE. The target populations were principals, vice principals, and teachers working in public high schools. Therefore, 45 principals, vice principals, and 560 teachers responded to the survey study. The survey consists of three parts, using five Likert scales ranging from strongly disagree to strongly agree. Part, one included the demographic description of the participants by gender, job, qualification, and experience. Part two contained items that measured the implementation of TQM. Part three measured items related to the nature of the learning environment. The content Validity Ratio (CVR) was calculated for the designed survey with a high agreement value among the three raters (.885). To establish reliability, the Cronbach Alpha value was also calculated to check the consistency among the participants' responses, which was achieved (.973). Numerical data were analyzed using descriptive statistics and linear regression analysis to test the significance between means of variables and show the relationship among variables.

FINDINGS

What are the leading practices of the TQM from the perspective of high school leaders and teachers?

As shown in Table 2, leaders and teachers agree that slogans should be eliminated. Leaders better adopt a transparent reward system for distinguishing practice among students, teachers, parents, and the community, with the highest mean score (M=4.30, SD= .748). The following mean score was recorded for the constancy of purpose (M=4.30, SD= .709), where the school's vision aims to improve the learning environment based on regularly reviewed long-term planning. Adapting a new philosophy scored (M=4.23, SD= .735); schools need to set a clear vision and mission and build a culture of continuous improvement where all stakeholders should be part of it. Eliminating the use of quotas and work standers by substitute leadership was in the fourth place. It scored (M=4.21, SD= .725), indicating supervisors' involvement in the teachers' performance evaluation based on clear criteria and a continuous self-assessment plan. Then the participants moderately agreed on building the quality of the service, which was recorded (M=4.20, SD= .738) because there is always a need to monitor the level of the services introduced. Improving the system was rated with (M=4.17, SD= .736), where schools must focus on the outcomes and conduct regular parent-teacher meetings. For the pride of workmanship category, the mean score was (M=4.17, SD= .719) for feeling pride in their school, and their suggestions are considered and welcomed. Participants reported teamwork enhancement with a mean score of (M=4.15, SD= .692) as teachers work collaboratively for curriculum development and improving the learning environment. Training on the job got (M=4.06, SD= .813), indicating the participants' low satisfaction with the professional development programs. The least mean score was recorded for instituting programs of education and self-improvement (M=4.04, SD= .843), expressing the participants' opinion about the leaders' commitment to training their staff and that training courses are planned based on the school vision. Based on these results, participants agreed that there is no need for setting sounding slogans. Instead, clear and specific goals must be shared with all school staff, and they reported that more training regarding quality issues is required.

Table 2. The TQM Practices

Category	M	SD
Eliminate Slogans	4.30	.748
Constancy of Purpose	4.30	.709
Adapt the New Philosophy	4.23	.735
Eliminate Use of the Quota and Work Standers by Substitute Leadership	4.21	.725
Building Quality on the Service	4.20	.738
Improving the System	4.17	.736
Pride of Workmanship	4.17	.719
Enhancement of Teamwork	4.15	.692
Institute Leadership	4.14	.774
Drive Out Fear	4.12	.695
Transformation is Everybody's Job	4.08	.804
End Rewarding based on Price Alone	4.07	.852
Training on Job	4.06	.813
Instituting Programs of Education and Self-Improvement	4.04	.843

What are the main features of an effective learning environment from the perspective of high school leaders and teachers?

As shown in Table 3, participants rated the well-maintained and safe playground (M=4.22, SD= .775) as the most compelling feature of the learning environment. Providing healthy and safe food came to be next as it scored (M=4.12, SD= .786). At the same time, a well-maintained covered gym with good and safe equipment recorded the third place with a mean score (M=4.09, SD= .790). The participants agreed with a well-maintained equipped resource center or library that facilitates learning; well-designed classes that allow group work; well-

designed classes regarding the location of windows, light, and A.C.; and Classrooms are always wealthy with students' work or activities as all of them scored (*M*=4.06, *SD*= .881) which demonstrated their reasonable satisfaction with the teaching and learning resources. They also collectively reported the same for the: nurse and clinic equipped with medical equipment; well-maintained equipped laboratories (science, IT, Language… etc.) that support students learning; and well-maintained theatre used for school activities (*M*=4.04, *SD*= .855). The participants' opinions were unclear regarding the facilities supporting the learning environment. There is no precise classification of whether they are satisfied with the school building, the teaching resources, or the services introduced by the school because the categories are mixed.

Table 3. Effective Features of Learning Environment

Category	M	SD
There is a well-maintained, covered, and safe playground.	4.22	.775
There is a well-maintained cafeteria that provides healthy food.	4.12	.786
There is a well-maintained covered gym with good and safe equipment.	4.09	.790
There is a well-maintained equipped resource center or library that facilitates learning.	4.06	.881
There are well-designed classes that allow group work.	4.06	.881
There are well-designed classes regarding the location of windows, light, and A.C.	4.06	.881
Classrooms are always rich with students' work or activities.	4.06	.881
There is a well-maintained swimming pool with maximum safety standards.	4.04	.763
There is a nurse and clinic equipped with medical equipment.	4.04	.855
There are well-maintained equipped laboratories (science, IT, Language… etc.) that support students learning.	4.04	.855
There are well-designed classrooms in terms of furniture.	4.04	.855
Classrooms are equipped with different technological facilities.	4.04	.855
There is a well-maintained theatre used for school activities.	4.04	.786

What is the relationship between the TQM practices and establishing an effective learning environment?

As displayed in Table 4, looking at the relationship between The TQM and the Learning environment, it can be indicated that transformation is everybody's job has the highest positive association with the learning environment compared to the other TQM practices (R^2 = .951, p < 0.001). This means that 95.1% of the learning environment's effectiveness is attributed to being transformative within the school environment, although it was classified as one of the lowest leading practices of the TQM by the participants. While table 5 shows that constancy of purpose has the lowest positive association with the learning environment (R^2 = .723, p < 0.001). This indicates that 72.3% of the learning environment's effectiveness is ascribed to the regularly reviewed long-term planning, although constancy of purpose was rated as the leading practice in schools based on the respondents.

Table 4. The highest relationship of TQM Practices with the Learning Environment

Model 1: Transformation is Everybody's Job & Learning Environment								
R	R Square	F Change	Model (1)	Unstandardized Coefficients		Standardized Coefficients	*t*	*Sig.*
				B	Std. Error	Beta		
.975ᵃ	.951	11714.640	(Constant)	.226	.036		6.257	<.001
			Transformation	.945	.009	.975	108.234	.000
Model 2: Training on Job & Learning Environment								
R	R Square	F Change	Model (2)	Unstandardized Coefficients		Standardized Coefficients	*t*	*Sig.*
				B	Std. Error	Beta		
.958ᵇ	.918	6777.409	(Constant)	.343	.046		7.434	<.001
			Training on Job	.917	.011	.958	82.325	.000
Model 3: Institute Leadership & Learning Environment								
R	R Square	F Change	Model (3)	Unstandardized Coefficients		Standardized Coefficients	*t*	*Sig.*

R	R Square	F Change	Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.957c	.916	6581.651	(Constant)	.079	.050		1.588	.113
			Institute Leadership	.963	.012	.957	81.127	.000

Model 4: Instituting Programs of Education and Self-Improvement & Learning Environment

R	R Square	F Change	Model (4)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.933d	.870	4035.087	(Constant)	.584	.056		10.433	<.001
			Self-Improvement	.862	.014	.933	63.522	<.001

Model 5: Pride of Workmanship & Learning Environment

R	R Square	F Change	Model (5)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.925e	.856	3592.421	(Constant)	-.107-	.071		-1.508-	.132
			Pride of Workmanship	1.001	.017	.925	59.937	<.001

Model 6: Improving the System & Learning Environment

R	R Square	F Change	Model (5)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.901f	.812	2612.991	(Constant)	.089	.079		1.125	.261
			Improving the System	.954	.019	.901	51.117	<.001

Table 5. The Lowest Relationship of TQM Practice with the Learning Environment

Model 1: Building Quality on Service & Learning Environment

R	R Square	F Change	Model (1)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.892a	.796	2363.655	(Constant)	.114	.083		1.378	.169
			Service Quality	.942	.019	.892	48.617	<.001

Model 2: Quota and Work Standers by Substitute Leadership & Learning Environment

R	R Square	F Change	Model (2)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.887b	.787	2234.997	(Constant)	.051	.086		.597	.551
			Training on Job	.953	.020	.887	47.276	<.001

Model 3: Enhancement of Teamwork & Learning Environment

R	R Square	F Change	Model (3)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.883c	.779	2131.348	(Constant)	-.048-	.090		-.534-	.594
			Teamwork	.993	.022	.883	46.167	<.001

Model 4: Drive Out Fear & Learning Environment

R	R Square	F Change	Model (4)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.878d	.770	2027.006	(Constant)	.013	.091		.142	.887
			Self-Improvement	.983	.022	.878	45.022	<.001

Model 5: Adapt the New Philosophy & Learning Environment

R	R Square	F Change	Model (5)	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
.867e	.751	1823.620	(Constant)	.183	.092		1.976	.049
			New Philosophy	.918	.021	.867	42.704	<.001

Model 6: Constancy of Purpose & Learning Environment

R	R Square	F Change	Model (5)	Unstandardized Coefficients		Standardized Coefficients	*t*	*Sig.*
				B	Std. Error	Beta		
.850a			(Constant)	.088	.102		.868	.386
	.723	1578.963	Improving the System	.934	.024	.850	39.736	<.001

DISCUSSION

Based on the statistical results, TQM practices are implemented to positively support the school learning environment. However, their implementation varies, which causes them to have different effects on the learning environment. The TQM implementation strongly goes with the scholars' philosophies that TQM can positively enhance education development, especially in curriculum evaluation and reform (Kigozi & On, 2019; Sahney et al., 2004; Salaheldin & Mukhalalati, 2009; Tarí & Dick, 2016). School leadership has the most critical role in implementing effective TQM practices. For example, results showed that leaders are keen to set a clear vision to improve the learning environment based on long-term planning, which is regularly reviewed, and to share the main goals with everybody in the school, as confirmed by Dahlgaard et al. (2002) who concluded that building a culture where the school stakeholders participate is an essential practice for TQM application is very crucial. Moreover, parents' involvement in discussing their children's achievements and considering their feedback in the teachers' evaluation process is another leading practice that creates an effective learning environment. Moreover, providing training courses for TQM issues is the school leadership's responsibility. At the same time, teachers need to adapt self-assessment plans and work collaboratively to develop the curriculum and support their students. These results were inconsistent with Akbar & Alam (2019), whose results revealed many problems related to the TQM implementation, such as teachers are not included in the curriculum modification process and a lack of corporation between the management and teachers. In addition, little attention is given to the students' affairs, services, and the provided facilities. Therefore, the impact of the TQM practices on the learning environment needs to be addressed to get the full benefit for enhancing education improvement by considering the nature of the context where the TQM practices are implemented as one of the variables that might affect the degree of TQM implementation.

Creating a school climate that enhances the idea of being transformative is one of the leading practices of TQM that significantly impacts establishing an effective learning environment. This result is supported by (Arcaro (1995; Doherty, 2008; Kanji, 1995; Michael et al., 1997; Sallis, 2002; Tribus, 1994; Venkatraman, 2007; Wani & Mehraj, 2014) that the nature of leadership is vital to any organization's success and continuous development by working collaboratively in a healthy environment and thus increase productivity and by believing that everybody takes responsibility and should contribute to the school. Although most of the studies (e.g., Alsuhaimi, 2012; Alzhrani et al., 2016; Manatos, 2017; Ngware et al., 2006; Töremen et al., 2009) consented that the nature of leadership, customer focus, strategic planning, stakeholders' involvement, continuous development, and clarity of management are the most leading practices, as also confirmed in this study, this study showed that having the principle that transformation is everybody's job is the ultimate practice that significantly impacts on creating an effective learning environment. It leads the other TQM practices to be performed effectively.

CONCLUSION & RECOMMENDATIONS

Although this study adds to the literature by trying to understand the relationship between the TQM and the effective learning environment, there were some limitations. For example, this study might be extended by adding the qualitative part to deeply understand the nature of creating an effective learning environment while implementing the leading practice of TQM. Future research should consider the consistencies and variations between the administrators' and teachers' views to pave the way for understanding issues that hinder the optimal implementation of the TQM. One revealed from the study is the context where the TQM is implemented. A comparative study is recommended to understand the nature of TQM implementation and how it affects the learning environment in more than one context.

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