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Total Quality Management and Corporate Social Responsibility (TQM-CSR) Measurement Items Design and Pilot Test

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Abstract

Objectives: This study aims to design and validate integrated TQM-CSR practices for Private Higher Education Institutions in the UAE, enhancing institutional excellence and stakeholder satisfaction. **Methods:** An empirical study was conducted, involving 30 Private Higher Education Institutions in the UAE. The methodology included survey-based data collection, statistical analysis, and reliability testing (Cronbach's alpha). Key modifications included the refinement of the TQM-CSR practices measurement scale, through outer loading analysis and item elimination. **Findings:** The study revealed strong consensus on the effectiveness of integrated TQM-CSR practices in PHEIs, with average scores between 3.77 and 4.22. Particularly effective were practices in Social and Legal Concerns and Educational Services Improvement. The robustness of these practices was confirmed by Cronbach's alpha values ranging from 0.826 to 0.927. The analysis led to the removal of less effective items (CIP5, SFS5), refining the measurement scale. These findings offer significant insights for educational administrators on improving quality management and social responsibility, diverging from and enriching existing literature. **Novelty:** This study pioneers in empirically validating TQM-CSR integration for quality management and social responsibility in UAE's private higher education sector.

Keywords: Total Quality Management; Corporate Social Responsibility; Higher Education; Measurement Development; UAE

1 Introduction

In the evolving landscape of modern business and academia, the integration of Total Quality Management (TQM) and Corporate Social Responsibility (CSR) is increasingly recognized as vital for sustainable success⁽¹⁾. TQM, a management philosophy centered on quality improvement through the participation of all organization members, aligns closely with CSR, which focuses on a company's social accountability and ethical

practices⁽²⁾. The synergy between these two concepts has become a focal point of contemporary research, offering insights into their combined impact on organizational effectiveness and societal well-being⁽³⁾. Abbas⁽⁴⁾ recommended that there are significant environmental benefits can be achieved through the integration of quality management and social responsibility. Similarly, Azam, Songjiang⁽⁵⁾ highlighted the role of TQM and CSR approaches in promoting sustainable practices. However, these studies presented TQM and CSR as separated constructs while there are some theoretical calls for integrated framework of these principles. According to Nogueiro, Saraiva⁽⁶⁾ illuminating how TQM principles can enhance CSR initiatives, thereby improving organizational performance. In addition, Tsou, Huang⁽⁷⁾ suggested that the integration of TQM and CSR leads to improved firm performance, setting a future research agenda to understand this interplay more deeply. In this context, Khurshid, Alhidari⁽⁸⁾ recently proposed an integrated framework of Total Quality and Socially Responsible Management (TQSR-M), offering a comprehensive view of how quality management and social responsibility are interconnected. But TQSR-M was found to be general framework and need more investigation and validation. Total Quality Management (TQM) in educational institutions is a comprehensive approach that emphasizes continuous improvement, stakeholder satisfaction, and operational excellence⁽⁶⁾. In contrast, CSR in education focuses on the institution's ethical, legal, and philanthropic responsibilities towards its stakeholders. The intersection of TQM and CSR, particularly in higher education, offers a unique perspective on institutional governance, emphasizing both operational effectiveness and societal impact⁽⁹⁾. In the context of higher education, particularly in the UAE, Almuntfjy and Kowang⁽¹⁰⁾ analyze the impact of TQM and CSR on financial performance. Their research underscores the relevance of these concepts in educational institutions, an area that has received relatively less attention in the literature. Although, there are some theoretical attempts to propose the integration of TQM and CSR by previous scholars, these studies did not practically investigate the possibility of integrating the TQM and CSR practices as one construct. Thus, this study is aiming to develop an instrument that integrates the concepts of both approaches and test the instrument items with pilot test in the context of Private Higher Education Institutions in UAE. This paper is closing the gap in the literature by the development and testing of integrated TQM-CSR practices measurement items to serve as a single construct. By focusing on the intersection of TQM and CSR in the specific context of the UAE's higher education sector, this research contributes to a more global understanding of these management approaches, highlighting their applicability and relevance across different cultural and institutional settings.

2 Methodology

2.1 TQM-CSR Measurement Items Design

The questionnaire measurement items are constructed based on the literature. Starting by the selected nine TQM-CSR practices highlighted as Practice 1: Continuous improvement (P1); Practice 2: Strategy and planning (P2); Practice 3: Leadership and commitment (P3); Practice 4: Stakeholders focus and satisfaction (P4); Practice 5: Educational services improvement (P5); Practice 6: Social and legal concerns (P6); Practice 7: Organizational governance and process management (P7); Practice 8: Ethics and human resources (P8); and Practice 9: Environmental protection (P9). The measurement items of these practices were generated from the perspective of TQM, CSR, and TQM-CSR scales.

Continuous improvement measurement items were constructed based on the survey of Azam, Songjiang⁽¹¹⁾ where the Cronbach's alpha was 0.72. The concept of continuous improvement, best exemplified by the ongoing iteration of Deming's PDCA (Plan, Do, Check, and Act) cycles, signifies a method of making gradual organizational changes that ultimately result in significant and sustained enhancements in organizational performance⁽¹¹⁾. The measurement items for strategy and planning in this study are derived from research conducted by Abbas⁽⁴⁾, which reported Cronbach's alpha coefficient of 0.60.

Leadership and commitment are defined as the deliberate selection of quality initiatives as integral components of an organization's operational and strategic processes. This involves actively participating in activities such as demonstrating visible quality leadership and allocating resources for the adoption and execution of quality initiatives⁽⁸⁾. However, for our study, we have incorporated the measurement items from the survey developed by Khurshid, Alhidari⁽⁸⁾.

It is very important for all educational institutions to satisfy stakeholders, which are more important or key factors for success. Often students, parents, research scientists, central and state government, community, staff / faculty members are considered to be the main stakeholders of the university⁽⁷⁾. The stakeholders focus and satisfaction measurement items were illustrated according to the survey of Faeq, Ali⁽¹²⁾ with a Cronbach's alpha of 0.774.

Concerns about the quality of education services have raised in the last half of the twentieth century, especially in the 1980s due to technological and scientific explosions related to economic change, scientific expansion, new social stress on higher education, and increased interest in academic education. Educational institutions have had the necessary requirements and standards to be identified and used to assess the level of quality in order to improve and develop this type of education⁽⁶⁾. The educational services improvement measurement items were taken from a survey used to investigate the educational services

Table 1. Continuous Improvement and Strategy and Planning Measurement Items

TQM-CSR practice	Measurement	Item coding	Source/ Cronbach's Alpha
Continuous improvement	This institution monitors the improvement activities (measures, follows-up).	CIP1	(11) / 0.72
	This institution generally supports employees who seek out training opportunities.	CIP2	
	This institution allocates some resources for improvement.	CIP3	
	This institution has a suggestion scheme for improvement.	CIP4	
	This institution has a general problem-solving format (e.g., PDCA).	CIP5	
Strategy and planning	In this institution, there is a clear strategic planning for short and long terms.	SPP1	-(4) / 0.60
	In this institution, our strategy planning encompasses both external and internal considerations.	SPP2	
	In this institution, there is a collaborative effort between top management and most department heads when formulating strategic plans	SPP3	
	In this institution, we actively identify major shifts in the market, including competition and technological advancements.	SPP4	
	In this institution, our mission statement, policies, and strategies are designed to reflect our commitment to total quality and social responsibility	SPP5	

Table 2. Leadership and Commitment; Stakeholders Focus and Satisfaction Measurement Items

TQM-CSR practice	Measurement	Item coding	Source/ Cronbach's Alpha
Leadership and commitment	In this institution, leaders demonstrate a strong dedication to their responsibilities.	LCP1	-(8) / 0.910
	In this institution, leaders engage in detailed discussions regarding the individuals responsible for attaining performance objectives.	LCP2	
	In this institution, there exists a genuine commitment to delivering high-quality services.	LCP3	
	In this institution, top management actively addresses numerous quality and social-related matters during their meetings.	LCP4	
	In this institution, senior managers distinctly outline quality and social initiatives for employees to pursue.	LCP5	
Stakeholders focus and satisfaction	In this institution, student satisfaction has continuously increased over last three years.	SFS1	-(12) / 0.774
	In this institution, shareholders satisfaction has continuously increased over last three years.	SFS2	
	This institution collects student complaints and evaluates them carefully.	SFS3	
	Relationship with authorities has continuously improved over last three years.	SFS4	
	This institution supports the student clubs and their activities.	SFS5	

improvement by Nogueiro, Saraiva⁽⁶⁾, with a Cronbach's alpha of 0.79.

The society and legal concerns are the integration of both society perspective and legal perspective in the corporate social responsibility. The social and legal concerns of the organization affect people who are not affiliated with the company such as local community and the government⁽¹⁰⁾. However, social and legal concerns measurement items were generated based on the surveys of Khurshid, Alhidari⁽⁸⁾, with Cronbach's value of 0.926.

Organizational governance and process management is a system in which an organization decides and executes to achieve its goals by appropriate process management. Therefore, the organizational governance and process management measurement items were constructed according to Khurshid, Alhidari⁽⁸⁾ with Cronbach's alpha of 0.911.

Ethics and Human Resource focuses on specific tasks and issues within organizations such as ethical programs, education, compensation, staff, and evaluation. Measurement items of ethics and human resource were taken from three instruments developed by Singh, Chen⁽¹³⁾ with Cronbach's Alpha value of 0.84.

Table 3. Educational services improvement and Social and Legal Concerns measurement items

TQM-CSR pract- tice	Measurement	Item coding	Source/ Cronbach's Alpha
Educational services improvement	Students' needs are given careful consideration when designing the curriculum.	ESI1	(6) / 0.79
	The requirements and recommendations from the business community are taken into account in the curriculum and new academic program development.	ESI2	
	This institution includes its facilities (such as laboratories and hardware) and resources (including finances and human resources) in the enhancement and development of its curriculum and programs.	ESI3	
	This institution has clearly defined academic and administrative procedures, performance metrics, and policies.	ESI4	
	Continuous improvement is a regular practice in enhancing the quality of educational services.	ESI5	
Social and legal concerns	This institution participates in the management of public affairs.	SLC1	-(8) / 0.926
	This institution improves its social image.	SLC2	
	This institution ensures that the employees act within the standards defined by the law.	SLC3	
	This institution includes community responsibility into quality policies.	SLC4	
	This institution helps improve the quality of life in the community where we operate.	SLC5	

Table 4. Organizational governance & Process management and Ethics and Human Resource measurement items

TQM-CSR pract- tice	Measurement	Item coding	Source/ Cron- bach's Alpha
Organizational governance and process management	This institution has pinpointed the primary quality and social responsibility issues associated with our services.	OGP1	-(8) / 0.911
	The institution ensures that its facilities, including classrooms, laboratories, computers, heating systems, and air conditioners, are well-maintained as per scheduled maintenance plans.	OGP2	
	This institution gathers statistical data, such as error rates in student records, course attendance, and employee turnover rates, and analyzes them to oversee and enhance its processes.	OGP3	
	This institution compares its academic and administrative processes with those of other institutions as a benchmarking practice.	OGP4	
	Regular audits of current practices are conducted by this institution.	OGP5	
Ethics and human resources	The managerial decisions related with the employees are usually fair.	EHR1	-(13) / 0.84
	Human resources of this institution are evaluating the employees' performance and satisfaction	EHR2	
	There are formal training programs to teach our employees the skills they need to perform their jobs.	EHR3	
	This institution provides basic benefits (e.g., health care, transportation assistance, food aid, etc.) to its employees.	EHR4	
	This institution has ethical labour standards.	EHR5	

Environmental protection is the practice of protecting the environment by individuals, organizations and governments such as attempts to reduce CO₂ ^(14,15). Their goals are to protect their natural resources and the existing natural environment and to reduce the harmful and negative emission as possible ⁽¹⁶⁾. The environmental protection measurement items were collected based on prior works conducted by Singh, Chen ⁽¹³⁾, and Khurshid, Alhidari ⁽⁸⁾ with Cronbach's Alpha values of 0.849 and 0.947, respectively.

Table 5. Environmental Protection Measurement Items

TQM-CSR practice	Measurement	Item coding	Source/ Cronbach's Alpha
Environ-mental protection	Environmental issues are considered when we design our services.	EPP1	- ⁽¹⁷⁾ / 0.849 - ⁽⁸⁾ / 0.947
	This institution incorporates environmental objectives in our organizational plans	EPP2	
	This institution has clear and concrete environmental vision and mission integrated in its marketing events.	EPP3	
	In this institution, employees receive adequate environment training.	EPP4	
	This institution supports environmental initiatives in financial and educational terms.	EPP5	

2.2 Sample and data collection

Self-administered questionnaire was distributed to the entire group of population of this study which is The Private Higher Education Institutions (PHEIs) in UAE. The respondents for this study are the managers, heads and deans or their deputies in the faculties, departments and/or sections of these PHEIs. The pilot study was conducted for 30 respondents to test the content validity as well as reliability of the questionnaire.

2.3 Data Analysis

The collected data underwent analysis through Smart-PLS 4 software, focusing on assessing construct reliability and validity. This evaluation was achieved through the application of Cronbach's alpha, Composite Reliability, and Average Variance Extracted (AVE) metrics. Subsequently, an item loading analysis was conducted to identify any invalid items that required removal, thereby enhancing the overall construct validity and reliability.

3 Results and Discussion

3.1 Descriptive Statistics

In the results from Table 6 on TQM-CSR practices, mean scores range from 3.7733 to 4.2200, indicating a generally positive perception of these practices. The highest mean score is for Social and Legal Concerns (SLC) and Educational Services Improvement (ESI), suggesting these areas are particularly well-regarded. The skewness and kurtosis values, mostly negative and with magnitudes less than 2, imply that the data does not significantly deviate from a normal distribution ⁽¹⁸⁾.

Table 6. Descriptive Statistics for TQM-CSR practice

	N	Mean	Std. Devia- tion	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
CIP	30	3.8467	.63394	-.549	.427	.310	.833
SPP	30	4.0333	.69299	-1.291	.427	1.935	.833
LCP	30	4.1533	.69616	-1.273	.427	1.791	.833
SFS	30	3.7733	.59128	-.272	.427	-.123	.833
ESI	30	4.2133	.65165	-1.108	.427	1.509	.833
SLC	30	4.2200	.62444	-.791	.427	.192	.833
OGP	30	4.1667	.55853	-.987	.427	1.822	.833
EHR	30	3.8133	.65376	-1.225	.427	1.584	.833
EPP	30	3.9400	.60833	-.804	.427	.756	.833

3.2 Construct Reliability and Validity

The construct reliability and validity of the Total Quality Management-Corporate Social Responsibility (TQM-CSR) practices, as shown in Table 7, demonstrate robust internal consistency and convergent validity. Continuous Improvement (CIP) displays a solid Cronbach's alpha of 0.826, indicating reliable internal consistency, a measure crucial for the credibility of scale-based research⁽¹⁹⁾. Strategy and Planning (SPP) and Leadership and Commitment (LCP) exhibit even higher Cronbach's alpha values of 0.927 and 0.910, respectively, underscoring the reliability of these constructs. Notably, Environmental Protection (EPP) stands out with a Cronbach's alpha of 0.907 and a high Composite Reliability (CR), affirming its reliability as a construct. In terms of Average Variance Extracted (AVE), each practice shows values exceeding the recommended threshold of 0.5, indicating strong convergent validity⁽²⁰⁾. This suggests that the items within each TQM-CSR practice are adequately capturing the essence of the constructs they are intended to measure. Particularly, Strategy and Planning (SPP) demonstrates a high AVE value, signifying a strong shared variance and emphasizing its importance in the TQM-CSR framework.

Table 7. Construct reliability and validity values for each TQM-CSR practice

TQM-CSR practice	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
CIP	0.826	0.794	0.583
EIP	0.919	0.926	0.756
EPP	0.907	0.933	0.729
ERP	0.913	0.968	0.737
LCP	0.910	0.987	0.720
OGP	0.892	0.926	0.687
SLP	0.916	0.941	0.748
SPP	0.927	0.930	0.775
SSP	0.858	0.914	0.634

Comparing these findings with the previously published reports that involves TQM and CSR, such as Hussain, Wang⁽²¹⁾, the range of Cronbach's alpha, composite reliability and AVE values are close with this study's findings, but the previous studies did not present the values for each sub-construct of the TQM-CSR practices as shown in Table 7. They tend to present the result for TQM and CSR as separated variables.

3.3 Outer Loading

The outer loading results in Table 8 provide insights into the item loadings for each TQM-CSR practice, which are critical for assessing the strength and relevance of individual items in measuring their respective constructs. In the context of scale development and validation, loadings above 0.7 are generally considered satisfactory, indicating that an item is a good measure of the construct⁽²²⁾.

Table 8. Item loading for each TQM-CSR practice

	CIP	EHR	EPP	ESI	LCP	OGP	SFS	SLC	SPP
CIP1	0.833								
CIP2	0.745								
CIP3	0.904								
CIP4	0.917								
CIP5	0.102								
EHR1		0.764							
EHR2		0.914							
EHR3		0.828							
EHR4		0.881							
EHR5		0.898							
EPP1			0.887						
EPP2			0.927						
EPP3			0.918						
EPP4			0.729						
EPP5			0.788						

Continued on next page

Table 8 continued

ESI1	0.906		
ESI2	0.896		
ESI3	0.874		
ESI4	0.85		
ESI5	0.818		
LCP1		0.904	
LCP2		0.904	
LCP3		0.813	
LCP4		0.84	
LCP5		0.774	
OGP1		0.875	
OGP2		0.744	
OGP3		0.828	
OGP4		0.791	
OGP5		0.898	
SFS1		0.897	
SFS2		0.871	
SFS3		0.897	
SFS4		0.74	
SFS5		0.502	
SLC1			0.816
SLC2			0.828
SLC3			0.826
SLC4			0.922
SLC5			0.926
SPP1			0.864
SPP2			0.87
SPP3			0.909
SPP4			0.898
SPP5			0.859

Note: Bold values are to be removed due to low loading.

For Continuous Improvement (CIP), items CIP1, CIP2, CIP3, and CIP4 show strong loadings (0.833, 0.745, 0.904, and 0.917, respectively), indicating their relevance in measuring this construct. However, CIP5, with a loading of 0.102, falls below the acceptable threshold and should be considered for removal. CIP5 item is “This institution has a general problem-solving format (e.g., PDCA).” This item is very important according to Azam, Songjiang⁽⁵⁾, where in measuring the continuous improvement it is important to have problem-solving model, but according to our analysis, statistically problem-solving is not among the continuous improvement constructs.

In Ethics and Human Resources (EHR), all items (EHR1 through EHR5) demonstrate high loadings, ranging from 0.764 to 0.914, affirming their strong alignment with the EHR construct. This consistency suggests that the EHR items reliably measure the intended construct. Environmental Protection (EPP) and Educational Services Improvement (ESI) also display satisfactory loadings for all their items (ranging from 0.729 to 0.927 for EPP and 0.818 to 0.906 for ESI), indicating that these items are well-suited for measuring their respective constructs.

Leadership and Commitment (LCP) and Organizational Governance and Process Management (OGP) show a similar trend, with all items exhibiting loadings above the 0.7 threshold. This indicates a strong alignment of these items with their respective constructs. Stakeholder Focus and Satisfaction (SFS) mostly shows high loadings, but SFS5, with a loading of 0.502, falls below the acceptable threshold, indicating it may not be a robust measure of the SFS construct. SFS5 item is “This institution supports the student clubs and their activities.” According to Faeq, Ali⁽¹²⁾, clubs and students-based activities are important for stakeholder satisfaction construct, but from the statistical analysis we found that in higher education institutions, the clubs and students activities have less loading on stakeholder satisfaction construct.

Finally, Social and Legal Concerns (SLC) and Strategy and Planning (SPP) show consistently high loadings across all items, affirming their strong measurement properties.

In summary, the majority of items across the TQM-CSR practices demonstrate strong loadings, indicating their effectiveness in measuring their respective constructs. However, specific items such as CIP5 and SFS5 fall below the recommended threshold and should be reconsidered.

In comparison with the only attempt to design an instrument for integrated TQM-CSR practices, this study presents the details of items selection, testing and termination throughout the article. While the study conducted by⁽⁸⁾, just mentioned that they have validate the questionnaire and the items, therefore this study is providing a ready-to-use instrument items for examining the TQM-CSR as one construct in a framework, specifically in education sector.

4 Conclusion

This research has comprehensively explored the integration of Total Quality Management (TQM) and Corporate Social Responsibility (CSR) within the context of private higher education institutions, presenting a detailed assessment of TQM-CSR practices. The study provides a ready-to-use instrument to be adopted in future studies in term of integrated TQM-CSR as one construct. The items involved in this instrument were selected carefully from recent literature into sub-constructs then evaluated by Cronbach's alpha (above 0.826), Composite reliability (above 0.794), and AVE (0.583-0.775). Then the items were filtered by removing two items namely CIP5 and SFS5, because their outer loading is below 0.7. The novelty of this study is that it shows the design of integrated TQM-CSR practice measurement items step-by-step with validation, unlike the current literature where the integrated TQM-CSR framework is still a theoretical idea or proposed without clear validations. The conclusion drawn from this research is that TQM-CSR practices are not only well-received but are also being effectively implemented within the context of the studied private higher education institutions. This integration of TQM and CSR practices is indicative of a progressive approach towards quality management and social responsibility, reflecting an organizational culture that values continuous improvement, ethical conduct, stakeholder satisfaction, and environmental protection. Future research from this study includes extending TQM-CSR exploration to public higher education for insights into organizational influences. Longitudinal studies are recommended, and to enhance findings, conduct a full study with sufficient sample size. Exploring different populations can validate the model's applicability. Additionally, investigate cultural factors for tailored strategies. Finally, explore technology integration for insights into academic and practical applications.

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