Information Sciences Letters

Volume 11
Issue 6 *Nov. 2022*

Article 25

2022

The Impact of TQM on Performance Measurement: Empirical Study of Bahraini Private Universities

A. Alrashed
Department of Measurement and Evaluation, School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, 81301 Skudai, Johor, Malaysia, atheer.al-Rashed@asu.edu.bh

A. Abdul Latif
Department of Measurement and Evaluation, School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, 81301 Skudai, Johor, Malaysia, atheer.al-Rashed@asu.edu.bh

S. Darwish
Department of Business Administration, College of Business Administration, Kingdom University, Sar, P.O. Box 40434, Kingdom of Bahrain, atheer.al-Rashed@asu.edu.bh

Information Sciences Letters
An International Journal

http://dx.doi.org/10.18576/isl/110625

The Impact of TQM on Performance Measurement: Empirical Study of Bahraini Private Universities

A. Alrashed[1,], A. Abdul Latif[1], and S. Darwish[2]*

[1]Department of Measurement and Evaluation, School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, 81301 Skudai, Johor, Malaysia
[2]Department of Business Administration, College of Business Administration, Kingdom University, Sar, P.O. Box 40434, Kingdom of Bahrain

Received: 21 May 2022, Revised: 22 Jun. 2022, Accepted: 4 Jul. 2022.
Published online: 1 Nov. 2022.

Abstract: An investigation on the impact of TQM dimensions on the performance of universities is the core of this paper based on Lecturers' perception in Bahrain Private Universities. Also, to investigate the effect of Performance Measurement due to the demographic data of Lecturers in Bahrain Private Universities (Gender, Age, Experience, and Education Level). Correlational and quantitative methods were used in the study. The instrument for this research is the questionnaire that was developed to address all studied variables. The target population was 517 lecturers that work in the Bahrain private universities from 13 universities and with a sample size of 100 lecturers. The researchers used SPSS version 26 for all statistical analyses, and Descriptive analysis included mean and standard deviation computation. Meanwhile, Pearson correlation, regression analysis, T-test, and One Way ANOVA test were incorporated into the inferential analysis. The results show that Continuous Improvement, Education and Training, and Quality of Work Life significantly affect performance measurement, while Resources and Teamwork significantly not contributed to explaining performance measurement. Furthermore, there is no significant effect on Performance Measurement due to Gender and Education Level. Moreover, the results disclosed a significant effect on Performance Measurement due to Age and Experience.

Keywords: Continuous improvements, higher education, performance measurement, quality standards, TQM.

1 Introduction

The goals of Bahrain's Economic Vision 2030 are to trigger, boost, and promote the private sector as an engine for Bahrain's development and empowerment as a workforce of choice in the labour market (Bahrain Economic Vision [1]. Higher education is critical to Bahrain's future economic, public-sector, and national development [2].

By improving overall quality, skills, entrepreneurship, and technology, the sector plays a vital role in addressing tomorrow's skills needs and developing a knowledge economy [3]. To assess the quality and performance of these higher education institutions, focusing on private universities in Bahrain. The Education and Training Quality Authority [4] reports highlight unresolved issues concerning and performance. This paper examines the relationship between aspects of Total Quality Management (TQM) (Leadership, Continuous Improvement, Education & Training, Resources, Quality of Work Life, and Teamwork). Bahrain's private universities target to attain excellence in teaching & learning, research, and community service, as well as their mission of continuous improvement in the areas of higher education. Additionally, they too concentrate on students, help the local community, and abide to the governance standards which cause the University to obtain a renowned place among universities globally based on The Education and Training Quality Authority [4].

Practically, performance measurement is an operation or method of forming and defining goals to see how one is progressing toward them [3]. It also includes activities and tasks that efficiently and effectively achieve organizational goals [5]. The comprehensive goal of performance measurement is to ascertain that the institution and its sub-areas (operations and management) are performing well to obtain the institution's expected goals [6]. Higher education is not different from other institutions as education needs to follow measurements for various reasons [5]. Some scholars define performance measurement as determining the effectiveness and efficiency of work such it is a preventative and diagnostic administrative control system

*Corresponding author e-mail: atheer.al-Rashed@asu.edu.bh

designed to assist directors in tracking the performance of administrative actions [7] and [8]. Its role is also that of an information provider, which is the first step toward creating effective management. TQM became a gateway to institutional change and development for most institutions, notably higher education. Therefore, most institutions consider overall quality to be an effective way to develop a quality administrative philosophy and involve all parties within the institution to counter dangers and threats [9]. According to [10], Bahraini private higher education institutions lack planning and governance. In this regard, the Education and Training Quality Authority (BQA) made a total of 88 recommendations. From the many identified problems which need action include weak governance and administrative, capabilities. The former may or may not be related to the day-to-day operations of the institution. The owner is not only the chairman of the Board of Directors, but also the president of the institution; lack of good corporate governance, where the board of trustees did not meet often or perform their duties; tentative strategic plans that have somewhat confused the institutions; and a lack of benchmarking activities in key areas of provision, as well as programs. There was also a lack of mechanisms and systems to support high-quality service delivery. According to the literature mentioned above review, some studies on performance recommended looking into TQM. However, later research revealed a disregard in measuring TQM dimensions in the performance investigation proposed adding the work-life variable and their impact on performance [11] and [12]. Furthermore, [13] and [14] advocated for the use of teamwork to assess performance. Another study by [15] investigated measuring higher education performance in TQM, including dimensions such as (fitness for purpose, value, transformation, place and accountability, delivery mechanism, tangible elements, and physical elements raising awareness.

Now there is proof that other scholars did not cover the model dimensions of this study. Although (TQM) varies by country, situation, and peculiarity, its application is still a work in progress [11] and [12].

Higher Education in Bahrain

Higher education plays a vital role in Bahrain's economic development, innovation, and investment. The Higher Education Board's vision is to establish Bahrain as a hub for higher education excellence, presenting skillfully and knowledgeable graduates that can compete in the international market. Along with the other Gulf Council Cooperation countries, Bahrain witnessed a rapid evolution in the higher education sector. In 2000, 13 private universities were established to serve approximately one million residents. Several establishments were based in the United States, while others collaborated with universities in other countries.

In contrast to the 1990s, only three governmental universities served as higher education institutions. Figure 1 shows the distribution of the student population of private and public higher education institutions in Bahrain. The main reason for choosing private universities is to show that there is a big difference between them and public ones and to seek the lack of staff performance and quality.

Performance Measurement

[16] stated that managing higher education performance depends largely on one's skills and abilities. A lot of factors affect abilities and competency, such as stimulus, values, experience, personal characteristics, mental abilities, passionate matters, and beliefs. What a person believes has a significant impact on their behaviour. Hence, [17] claimed that the differences between a perfect performer and another is a gap that often appears in attitudes or career outputs.

For decades, measuring performance aspects has been widely recognized as a major issue in the management accounting literature. Most of these studies have followed the path of functionalism based on the perspective of measurement performance ascertained by pre-defined goals [18]. Nevertheless, there is a series of studies which include the perspective of performance as a socially constructed experience that is extremely part of determining the concepts of institutional goal formation and the meanings related to performance [19], [20] and [21].

The Contingency Theory of Performance Measurement [22] claimed that performance assessment has become a major issue and concern as the working environment has changed momentum in both the public and private sectors since the 1980s. As a result, the contingency theory assumes that no appropriate global criterion of performance gauge system is implemented uniformly across all institutions and in all conditions. According to [23], the contingency theory demonstrates how organizational characteristics are causally related. It demonstrates that no administration method is perfect in all situations, based on a set of variables in each situation.

The present study examines the accidental relationship between two variants of TQM and the quality of work life and teamwork.

Deming's TQM Theory

TQM is described as continuous quality development being offered in establishments to boost patron valued and satisfaction even as attaining extremely good institutional overall performance and possess a multidimensional structure [24], [25], [26] and [27]. First is system appreciation, the rules, and objectives an organization operates, and adherence of all members; Second, Knowledge-based variation are areas where something or a process change and determines the particular attention needed for a particular task or department; three, Deming's theory requires knowledge for guiding practice, finally, knowledge of psychology [28] and [29]. Several

educational studies back up Deming's principle in this regard. Nevertheless, despite some educational support studies are compatible with education, others offer slightly dissimilar findings. For instance, [30], finds it challenging to frequently attribute the improvement of "performance excellence or exemplary quality assurance" to a simple adoption of Deming's principles [28].

TQM in Higher Education Institutions

As stated by [31], a few steps need to be connected to performance to activate TQM and its roles at the universities. They emphasize on six elements of activating and adopting TQM. They are as follows: Determining stakeholders and knowing their needs, selecting gauges that meet the clients' needs, standardizing practices and enhancing efficiency, creating a quality management system, the responsibility of the administration to come up with an organizational strategy, and providing authority to all institutional staff to improve quality.
Furthermore, [32] suggests some factors for achieving educational TQM. These factors account for offering strategies to identify customer needs and determine quality throughout the education process. As [33] cited, the quality of education scheme should count in the quality of teaching methods, staff, learners, courses, and curriculum. In addition, the key competencies and quality of top management, the quality of law, and the quality of implementation assessments must be included.

Dimensions for TQM

The definition of TQM adopted by this research includes multidimensional dimensions like leadership, continuous improvement, education and training, resources, work-life balance, and Teamwork. TQM refers to the quality of practices used by higher education management in Bahrain's private universities. TQM will be measured using six dimensions in Bahrain's private universities.

Leadership.

Leadership is crucial in universities, as it is in other institutions, and it has become a self-justified action [34]. Since implementing the National Higher Education Strategic Plan in 2014, Bahraini higher education has undergone significant changes due to the sector's rapid expansion and rising community demand. In this current study, leadership encourages employees in Bahrain private universities to achieve desired objectives, so a human aspect binds the employees together and persuades them to work toward the goal.

Continuous Improvement.

Continuous improvement is a strategy for recognizing ways to simplify tasks and reduce waste. This practice evolved from the widespread adoption of Lean / Agile / Kaizen in the industry and at work, and today thousands of companies around the world are using it to determine cost-cutting opportunities. Several of these concepts and principles can be combined to produce productive outcomes. Continuous improvement is an important part of reducing university operating costs.

Education and Training.

Education and training in a TQM institution are critical for staff understanding what and why [35]. Furthermore, training and education are required to equip staff to overcome the obstacles that prevent institutional goals from being achieved. Furthermore, in a TQM institution, training and development is an ongoing process; it is a continuous operation that should incorporate a quality culture. Other researchers, such as [36], emphasize the importance of training, claiming that upper management implements TQM-based training programs.

Resources.

The term resources is in relation to how institutions manage their outbound partnerships and use resources successfully to attain the expected business performance [37]. Resources are assets or inputs to the organization that is managed by or temporary accessible to the organization [38]. Organizations need resources to address different organizational issues and inspire innovation.

Quality of Work Life.

"QWL encompasses the physical, technological, psychological, and social aspects of work that correspond to the ideals of a more humane and educational organization" [39]. Today, QWL is a significant concern, and numerous studies from various organizations covered this topic [40], [39], [41], [42] and [43].

Teamwork.

The researchers will use the following methodology for this study: [44] highlighted four components that describe and define a team. More than two people are needed, get in touch more often, participate in performance goals and commit to them. [45] defines a working team as a group whose members work hard to attain particular goals through great synergies, mutual accountability, and complementary skills. A team is distinguished from a working group by its members' mutual accountability.

2 Methodologies

The method used in this study is quantitative approach (survey research design) to measure the effect of every independent variable on the dependent and explain the

relationships between the independent variables and the dependent variable by gathering numerical data.

Population and Sample

The study enrolls scholars working at private universities, including 13 universities in Bahrain with 517 faculty members. To create our sampling frame, the researchers will analyse first 100 questionnaires completed with a response of 83.3 %. The sample provided information by filling in a survey questionnaire which is considered the core of data for this paper.

Research Hypothesis

Hypothesis 1: There is no significant effect of TQM dimensions on Performance Measurement based on Lecturers' perception in Bahrain Private Universities.

Hypothesis 2: There is no significant effect of Performance Measurement due to the demographic data of Lecturers in Bahrain Private Universities (Gender, Age, Experience, and Education Level).

Instrumentations

The instrument of this paper is the questionnaire with a five-point Likert adapted and adopted from existing literature. This study deals with six variables related to TQM: leadership, continuous improvement, education and training, resources, quality of work-life, and teamwork.

A. Objective: To examine the impact of TQM dimensions on Performance Measurement according to the views of Lecturers in Bahrain Private Universities. And to determine the impact of Performance Measurement based on the demographic data of Lecturers in Bahrain Private Universities (Gender, Age, Experience, and Education Level).

B. Description: The scale consists of (35) items distributed to (7) dimensions. The items (1-5) represent the dimension of Performance Measurement, the items (6-10) represent the dimension of Leadership, the items (11-15) denote the dimension of Continuous Improvement, the items (16-20) represent the dimension of the Education & Training, the items (21-25) represent the dimension of Resources, the items (26-30) denote the dimension of Quality of Work life, and the items (31-35) represent the dimension of Teamwork.

Table 1: Reliability indicates to the consistency of an instrument [46]. The researchers used Cronbach's α Statistic to measure the internal consistency of the questionnaire items.

Cronbach's α is the most employed test to ascertain the questionnaire's internal consistency. The result of the Cronbach's α contains a value between 0 and 1. The acceptable reliability factor is 0.7 or higher.

Table 1 shows that the Cronbach's α Coefficient is 0.978. This means that the questionnaire possesses internal consistency and highly correlated items. Furthermore, the same results can be achieved using the same methods (questionnaire) by another researcher.

Table 1: Reliability Cronbach's α

Cronbach's α Coefficient	No. of Questionnaire Items
0.978	35

C. Assessment: Each item involves five responses based on Five Likert Scale (Strongly agree, Agree, Moderately agree, Disagree, and Strongly disagree) evaluated with the scores (5-4-3-2-1).

3 Discussions

This section is divided into two parts. First part includes the descriptive analysis like Mean and Std. Deviation for the 7th constructs of the distributed research questionnaire. The second part reveals the test of research questions.

Descriptive Analysis

Descriptive analysis statistics are used to describe the basis characteristics of the sample and measure. The questionnaire respondents' rate was 83.3 %, which is satisfactory regarding to the research population.
As can be seen from the Table 9 the mean values ranged between (4.27- 4.45), which is considered as satisfied and most of respondents agree with the effect of TQM on Performance measurement. Moreover, Table 2 shows that highest mean was 4.45 of Continuous Improvement construct and the lowest mean was of Performance Measurement.

Table 2: Descriptive Statistics of the Constructs

Construct	Mean	Std. Deviation
Performance Measurement	4.27	0.68
Leadership	4.30	0.62
Continuous Improvement	4.45	0.54
Education and Training	4.40	0.55
Resources	4.31	0.64
Quality of Work Life	4.28	0.62
Teamwork	4.31	0.60

Testing Of Research Hypothesis
Hypothesis 1. According to the views of Bahraini private university lecturers, there is no significant effect on the TQM dimensions' significance level (α = 0.05) on Performance Measurement. To test hypothesis 1, the researchers used Multiple Regression Analysis using SPSS Software.
A value of 0.99 (R) in Table 3 indicates a good level of prediction of Performance Measurement. As well the

results reveal that the independent variables (Leadership, Continuous Improvement, Education and Training, Resources, Quality of Work Life, and Teamwork) explain 98.1% of dependent variable (Performance Measurement), and 1.9% of the variation is caused by factors other than the predictors included in this model.

Table 3: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.990[a]	0.981	0.980	0.097

a. Predictors: (Constant), Leadership, Continuous Improvement, Education and Training, Resources, Quality of Work Life, and Teamwork.

The F- value in Table 4 reveals that the independent variables (Leadership, Continuous Improvement, Education and Training, Resources, Quality of Work Life, and Teamwork) significantly forecast statistically the dependent variable (Performance Measurement), F = 790.985, sig. (0.00) < 0.05 (i.e., the regression model is a good fit of the data).

Table 4: Multiple Regression ANOVA

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	44.540	6	7.423	790.985	0.00[b]
Residual	0.873	93	0.009		
Total	45.412	99			

a. Dependent Variable: Performance Measurement
b.(Constant), Leadership, Continuous Improvement, Education and Training, Resources, Quality of Work Life, and Teamwork.

The usefulness of the coefficients tests of significance are to investigate if each variable needs to be in the model, given that the others are already there. The t- value and corresponding Sig. value in Table 5 reveal that Leadership Sig. (0.009) < 0.05, Continuous Improvement Sig. (0.00) < 0.05, Education and Training Sig. (0.00) < 0.05, and Quality of Work Life Sig. (0.00) < 0.05 are significant, but Resources Sig. (0.78) > 0.05 and Teamwork Sig. (0.247) > 0.05 are not significant. This means that the variables Resources and Teamwork are no more useful in the model when the other variables are already in the model. That is to say, Leadership, Continuous Improvement, Education and Training, and Quality of Work Life in the model, Resources and Teamwork no more significantly add contribution to explain Performance Measurement. According to standardized coefficients (beta weights), given in the Beta column, Quality of Work Life is the highest contribution (1.144) predictor to explain Performance Measurement, the next is Continuous Improvement (0.455), while the lowest contribution predictor is Leadership (-0.195).

Table 5: Multiple Regression Coefficients

Coefficients [a]

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	- 0.297	0.094	-3.157	0.002
Leadership	-0.213	0.080	-2.674	0.009
Continuous Improvement	0.576	0.067	8.601	0.000
Education and Training	-0.426	0.067	-6.379	0.000
Resources	-0.019	0.067	-0.280	0.780
Quality of Work Life	1.252	0.115	10.873	0.000
Teamwork	-0.112	0.096	-1.165	0.247

a. Dependent Variable: Performance Measurement

Hypothesis 2. There is no significant effect at the significance level (α= 0.05) of Performance Measurement due to the demographic data of Lecturers in Bahrain Private Universities (Gender, Age, Experience, and Education Level).

To test research hypothesis 2, the researchers used Independent Sample T- Test and One-Way ANOVA through using SPSS Software as the following tables: There is no significant effect at the significance level (α= 0.05) of Performance Measurement due to Gender

Table 6 shows that there are 75 males and 25 females, the mean of Performance Measurement for male is 4.23 (84.6% of agreement) and the mean of Performance Measurement for female is 4.41 (88.2% of agreement).

Table 6: Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Performance Measurement	Male	75	4.23	0.679	0.078
	Female	25	4.41	0.667	0.133

From Table 7 the results present that there is no significant effect at the significance level (α= 0.05) of Performance Measurement due to Gender, whereas the Sig. value is greater than 0.05 (0.255>0.05) so the null hypothesis is accepted.

Table 7: Independent Samples Test

Performance Measurement	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
	-1.144	98	0.255	-0.179	0.156	-0.489	0.131

There is no significant effect at the significance level (α= 0.05) of Performance Measurement due to Age, Experience, and Education Level.

The ANOVA statistics from Table 8 give test values F= 2.791, Sig. value=0.045; 6.899, Sig. value<0.05 and 0.926, Sig. value 0.338, for Age, Experience, and Education level,

respectively. So, both Age and Experience are needed to explain Performance Measurement. In other words, there is significant effect at the significance level (α= 0.05) of Performance Measurement due to Age and Experience, and no effect of Performance Measurement due to Education Level.

Table 8: One- Way ANOVA Statistics

Demographic characteristics	Type	Mean	Std. Deviation	Test value- F	Sig. value
Age	Less than 30 years	4.20	0.000	2.791	0.045
	30-39 years	4.15	0.654		
	40- 49 years	4.15	0.784		
	More than 50 years	4.57	0.403		
Experience	Less than 5 years	3.85	0.833	6.899	0.000
	5- 9 years	4.23	0.433		
	10- 14 years	3.87	0.836		
	More than 15 years	4.51	0.530		
Education Level	Bachelor degree	4.07	1.277	0.926	0.338
	Graduate degree	4.29	0.596		
	Diploma	*	*		

Recommendation

The research recommends that the other researchers add another dimension of TQM to gauge performance based on their study requirements, the rationale, and the specific field they are studying. Future studies may also examine other factors that contribute to performance measurement.

Acknowledgment:

The researcher expressed her appreciation to Dr Adiba Abdul Latif and Prof. Saad Darwish for their supporting to the conduct of this research. In this research, the researcher would like to thank the lecturers at Bahrain Private Universities for providing the necessary data.

References

[1] Bahrain Economic Vision [BEV] Bahrain Economic Vision 2030. https://www.bahrain.bh/wps/portal/ (2019).

[2] Alhalwaki, H., & Hamdan, A. M. M. *Factors affecting the implementation of internationalisation strategies in higher education institutions: Evidence from Bahrain*. International Journal of Management in Education, 13(1), 1–27, 2019.

[3] Bititci, U., Cocca, P., & Ates, A. *Impact of visual performance management systems on the performance management practices of organisations.* International Journal of Production Research, 54(6), 1571–1593, 2016.

[4] The Education and Training Quality Authority [BQA]. *Kingdom of Bahrain education & training quality authority.* http://www.bqa.gov.bh/ (2017).

[5] Kearney, R. *Public sector performance: Management, motivation, and measurement*. Routledge, 2018.

[6] Keyes, J. *Managing IT performance to create business value*. CRC Press, 2016.

[7] David, R., & Jenson Joseph, E. *Study on performance measurement systems–Measures and metrics*. International Journal of Scientific and Research Publications, 4(9), 577, 2014.

[8] Lee, W., & Sabetzadeh, F. *Contemporary knowledge and systems science*. IGI Global, 2018.

[9] Psomas, E., & Antony, J. *Total quality management elements and results in higher education institutions*. Quality Assurance in Education, 25(2), 206–233, 2017.

[10] Jawaher, A.-M., & Tariq, A.-S. *The impact of the national authority of qualifications and quality assurance for education and training in Bahrain higher education impact of QA and the effects of external and internal QA: Regional perspectives to a shared issue.* (2018). https://www.inqaahe.org/sites/default/files/pictures/50.pdf

[11] Azrol, M., & Dali, M. *Business excellence model and its impact on organizational performance*.PhD thesis, Universiti Utara Malaysia, Malaysia, 2016.

[12] Homaid, A. *The mediating effect of IT capability on the relationship between TQM and MO with microfinance institutions performance*. Phd thesis, Universiti Utara Malaysia, Malaysia, 2016.

[13] Nor Hidayah, I. *Social media usage, leadership style and job performance among administrative officers of Universiti Utara Malaysia*. PhD thesis, Universiti Utara Malaysi, Malaysia, 2016.

[14] Para-González, L., Jiménez-Jiménez, D., & Martínez-Lorente, A. R. *Exploring the mediating effects between transformational leadership and organizational performance.* Employee Relations, 40(2), 412–432,2018.

[15] Zabadi, A. M. *Implementing total quality management (TQM) on the higher education institutions – A conceptual model*. Journal of Finance & Economics, 1(1), 42–60,2013.

[16] Saif, N. M., Nipa, N. J., & Siddique, M. A. *Assessing the factors behind choosing universities for higher education: A case of Bangladesh*. Global Journal of Management And Business Research, 6(11-A). 2017.

[17] Muda, H., Ali, M. H., & Jusoh, M. *Measuring teaching and learning performance in higher education*. International Journal of Education, 2(6), 57–70, 2017.

[18] Franco-Santos, M., Lucianetti, L., & Bourne, M. *Contemporary performance measurement systems: A review of their consequences and a framework for research.* Management Accounting Research, 23(2), 79–119, 2012.

[19] Arnaboldi, M., & Azzone, G. *Constructing performance measurement in the public sector.* Critical perspectives on Accounting, 21(4), 266–282, 2010.

[20] Cooper, D. J., & Ezzamel, M. *Globalization discourses and performance measurement systems in a multinational firm.* Accounting, Organizations and Society, 38(4), 288–313, 2013.

[21] Hall, M., Millo, Y., & Barman, E. *Who and what really counts? Stakeholder prioritization and accounting for social value*. Journal of Management Studies, 52(7), 907–934, 2015.
[22] Rejc, A. *Toward contingency theory of performance measurement*. Journal for East European Management Studies, 243–264, 2004.
[23] Rompho, N. *An economic value added and balances scorecard for a university in Thailand*. PhD thesis,University of Glasgow, Thailand, 2006.
[24] Mehralian, G., Nazari, J. A., Nooriparto, G., & Rasekh, H. R. *TQM and organizational performance using the balanced scorecard approach*. International Journal of Productivity and Performance Management, 66(1), 111–125, 2017.
[25] Zhao, X. S, Fan, X., & Rungtusanatham, J. M. *TQM and brand-building by Chinese original brand manufacturers: impact on business performance.* International Journal of Production Research, 52(3), 825–846, 2014.
[26] Hietschold, N., Reinhardt, R., & Gurtner, S. *Measuring critical success factors of TQM implementation successfully–a systematic literature review.* International Journal of Production Research, 52(21), 6254–6272, 2014.
[27] Jaca, C., & Psomas, E. *Total quality management practices and performance outcomes in Spanish service companies*. Total Quality Management & Business Excellence, 26(9–10), 958–970, 2015.
[28] Deming, W. E. *Out of the crisis*. The MIT Press. (1995).
[29] Darwish, S. *Risk & knowlegde in the context of Organizational Risk Management*. European Journal of Business and Management, 7(15), 117–126, 2015.
[30] Pedró, F. *Is technology use related to educational performance? Evidence from PISA, OECD CERI*. http://bit.ly/ZK8rlT (2009).
[31] Dotchin, J. A., & Oakland, J. S. *Theories and concepts in total quality management.* Total Quality Management, 3(2), 133–146, 1992.
[32] Doherty, G. D. *Towards total quality management in higher education: A case study of the University of Wolverhampton*. Higher Education, 25(3), 321–339, 1993.
[33] Berrish, M. M. *The integration between knowledge management and total quality management and its impact on educational performance*. PhD thesis, University of Salford, England, 2016.
[34] Maassen, P., Gornitzka, Å., & Fumasoli, T. *University reform and institutional autonomy: A framework for analysing the living autonomy.* Higher Education Quarterly, 71(3), 239–250, 2017.
[35] Spenley, P. *World class performance through total quality: A practical guide to implementation*. Springer Science & Business Media, 2012.
[36] Goetsch, D. L., & Davis, S. B. *Quality management for organizational excellence.* Pearson, 2014.
[37] Wongrassamee, S., Gardiner, P. D., Simmons, J. *Performance measurement tools: The Balanced Scorecard and the EFQM Excellence Model*. Measuring Business Excellence, 7, 14-29, 2003.
[38] Helfat, C. E., & Peteraf, M. A. *The dynamic resource-based view: Capability lifecycles.* Strategic Management Journal, 24(10), 997–1010, 2003.
[39] Daubermann, D. C., & Tonete, V. L. P. *Quality of work life of nurses in primary health care.* Acta Paulista de Enfermagem, 25(2), 277–283, 2012.
[40] Almalki, M. J., FitzGerald, G., & Clark, M. *Quality of work life among primary health care nurses in the Jazan region, Saudi Arabia: A cross-sectional study*. Human Resources for Health, 10(1), 30. https://doi.org/10.1186/1478-4491-10-30 (2012).
[41] Goudarznand-Chegini, M., & Mirdoozandeh, S. G. *Relationship between quality of work-life and job satisfaction of the employees in public hospitals in Rasht.* Zahedan Journal of Research in Medical Sciences, 14(2), 108–111, 2012.
[42] Lee, Y. W., Dai, Y. T., Park, C. G., & McCreary, L. L. *Predicting quality of work life on nurses' intention to leave*. Journal of Nursing Scholarship, 45(2), 160–168, 2013.
[43] Swamy, D. R., Nanjundeswaraswamy, T., & Rashmi, S. *Quality of work life: Scale development and validation.* International Journal of Caring Sciences, 8(2), 281, 2015.
[44] Daft, R. L. *New era of management* (International student edition). Thomson-South-Western, 2012.
[45] Robin, M. *Higher excited states of polyatomic molecules*. Vol. 3, Elsevier, 2012.
[46] Heale, R., & Twycross, A. *Validity and reliability in quantitative studies.* Evidence-based Nursing, 18(3), 66–67, 2015.
[47] Abdaziz, A., Jusoh, M. S., Omar, Amlus, H., & Salleh, T. *Construct validity: A Rasch measurement model approaches.* Journal of Applied Science and Agriculture, 9(12), 7–12, 2014.
[48] Ministry of Education, Kingdom of Bahrain. Statistic reports. https://www.moe.gov.bh/statistics.aspx?lan=en (n.d.).
[49] The Education and Training Quality Authority [BQA] Directorate of Higher Education Reviews. https://www.bqa.gov.bh/en/qaactunits/dhr/pages/default.aspx (2019).