

THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Total Quality Management, Organisational Learning and Performance of Public Universities in Kenya

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Abstract:

The use of organisational learning (OL) to attain organisational performance (OP) has become a major area of concern. Whilst past studies on OL examined continuous improvement, knowledge management, individual learning, creativity and innovation, organisational memory, technologies, beliefs, procedures and cultures; the moderating effect of TQM on the relationship between OL & OP in Kenya's Public Universities remains a relatively novel perspective. Hence, the purpose of this study was to examine the moderating effect of TQM on the relationship between two OL measures: combination and internalisation on OP of Kenya's Public Universities. The study used cross-sectional descriptive survey research design to ascertain the effect of TQM (continuous improvement) on the relationship between OL and OP in Kenya's Public Universities. A census survey was used since all the 22 Kenyan Public Universities authorised to offer higher education in Kenya were studied. The overall results indicated a significant linear relationship between combination and internalisation on OP of Public Universities in Kenya. TQM was found to significantly and positively moderate the relationship between OL and OP of Public Universities in Kenya. The study is expected to assist policy makers in formulating guidelines to improve the overall performance of Kenya's Public Universities. It is recommended that Public Universities in Kenya should fully adopt and embrace TQM as a management strategy to promote and enhance existing relationships between various determinants of OL on performance. The study proposes a model that could be further tested to assess the overall influence of TQM on the relationship of OL on performance of Kenya's Public Universities. These findings could also be put into practice in Government, Quasi-Government, industrial and other general business settings in Kenya.

Keywords: organisational learning, combination, internalization, organisational performance, Total Quality Management

1. Introduction

Total Quality Management (TQM), organisational learning (OL) and organisational performance (OP) play an important role in contemporary management research (Honarpour *et al.*, 2012). TQM is a practice that improves OP (Feng *et al.* 2006; Pinho, 2008). Customer focus and other related TQM practices lead firms to fulfil customer needs and adapt to changes. Continuous improvement enables employees learn and think creatively. Based on a study by Perdomo-Ortiz *et al.* (2009), positive effects of TQM on OP can be conceptualised in three aspects: market orientation and customer focus (Fuentes *et al.*, 2006; Hoang *et al.*, 2006; Hung *et al.*, 2011; Perdomo-Ortiz *et al.*, 2006); continuous improvement (Perdomo-Ortiz *et al.*, 2009; Prajogo & Sohal, 2003; Satish and Srinivasan, 2010); teamwork and employee management (Fuentes *et al.*, 2006; Hoang *et al.*, 2006; Perdomo-Ortiz *et al.*, 2009; Prajogo & Sohal, 2003), subsequently leading to improved OP. The paper presents the statement of the problem, objectives of the study, literature review, research methodology, conclusion and recommendations of the study.

2. Statement of the Problem

Survival of Kenya's Public Universities in today's dynamic and competitive economic environment depends on how changes are accepted to improve practices and enhance performance. There is a growing interest in examining how TQM implementation facilitates OL to ensure survival and ultimately to improve performance (Saru, 2007; Levitt and March, 1991). Public Universities across the globe are facing a slow but unrelenting worsening of financial conditions due to cutbacks in government funding (Sporn, 1999; Slaughter & Leslie, 1997; Johnstone, 1998, 2004). In addition, stiff competition from introduction of parallel degree courses and aggressive competition by foreign universities for local students (Rhoades and Sporn, 2002; Slaughter and Larry, 1997; Oketch, 2004) compel Public Universities to effectively attract and retain qualified employees and increase student enrolments to improve their revenue growth. Whilst past studies on OL examine continuous improvement (Pedler *et al.*, 1991); knowledge management (Lyles, 1992); individual learning (Argyris and Schön, 1996); creativity, innovation (Drew and Smith, 1995); organisational memory (Hastie *et al.*, 1984; Jonson and Hasher, 1987); technologies, procedures beliefs and cultures (Glynn *et al.*, 1992; Senge, 1990; Lam *et al.*,

2011; Hung et al. 2011; Irani et al., 2004), the moderating effect of TQM on the relationship between OL and OP in Kenyan Public Universities remains a relatively novel perspective.

2.1. Objectives of the Study

The specific objectives of the study were to examine the relationship between organisational learning and performance of Public Universities in Kenya. Additionally, the study sought to assess the moderating effect of TQM (continuous improvement) on the relationship between OL and OP of Public Universities in Kenya.

3. Literature Review

Total Quality Management (TQM), organisational learning (OL) and organisational performance (OP) play an important role in contemporary management research (Honarpour *et al.*, 2012). TQM is a practice that improves OP (Feng *et al.* 2006; Pinho, 2008). Customer focus and other related TQM practices lead firms to fulfil customer needs and adapt to changes. Continuous improvement enables employees learn and think creatively. Based on a study by Perdomo-Ortiz *et al.* (2009), positive effects of TQM on OP can be viewed as: market orientation and customer focus (Fuentes *et al.*, 2006; Hoang *et al.*, 2006; Hung *et al.*, 2011; Perdomo-Ortiz *et al.*, 2006); continuous improvement (Perdomo-Ortiz *et al.*, 2009; Prajogo & Sohal, 2003; Satish and Srinivasan, 2010); teamwork and employee management (Fuentes *et al.*, 2006; Hoang *et al.*, 2006; Perdomo-Ortiz *et al.*, 2009; Prajogo & Sohal, 2003) subsequently leading to improved OP.

Numerous scholars consider organisational learning as a major firm resource since it improves firm performance (Appelbaum & Gallagher, 2000; Curado, 2006; Saru, 2007). Organisational learning is conceptualised as the ability to make sense of the environment and develop new understandings, which ultimately manifest in improved performance through internal and external actions of the firm (Moore, 2007; Dimitriadis, 2005). Various studies assert that attaining superior competitive advantage and improved performance depends on the firm's ability to continuously learn (Thomas & Allen, 2006; Miltiadis & Pouloudi, 2006).

In general, there has been little convergence on the basic nature of organisational learning (Huber, 1991; Kim, 1993). Largely, convergence has not occurred because different researchers have applied the concept of OL to different domains. One group of authors focus their attention in the way individual learning is reflected in the context of the organisation. The second group of authors (Argyris & Schön, 1978) still focus on individual learning as the main engine driving OL. The results of individual learning are stored in the organisational memory and codified in individual images as well as in shared representations. Many behaviours and values are stored in the organisation's memory even though individuals come and go. Thus, OL is based on past knowledge stored in 'organisational memory' that depends on institutional mechanisms such as policies, strategies and procedures used to retain the knowledge (Stata, 1989).

A more comprehensive view of the constituent OL processes is provided by Zaim (2006) who claims that it is possible to compose a more inclusive process-oriented regards OL in view of all activities and processes such as generation and development, codification and storage, transfer and sharing and utilisation of knowledge for a competitive edge. In contrast, Jashapara (2004) revealed a process-oriented definition of OL which involves the practice or process of acquiring, creating, sharing, capturing and using knowledge, wherever it resides to improve firm performance. Various researchers have examined continuous improvement (Pedler *et al.*, 1991); organisational memory (Hastie *et al.*, 1984; Jonson & Hasher, 1987); processes/systems (Glynn *et al.*, 1992; Senge, 1990); knowledge management (Lyles, 1992; Fiol, 1994; Fiol & Lyles, 1985), and; individual learning (Drew & Smith, 1995); using different terms in appreciation of OL.

Nonaka and Takeuchi (1995) suggested four modes of knowledge conversion that are based on the transformation of tacit and explicit knowledge. The mode of converting tacit knowledge into tacit as socialisation; the mode of converting tacit knowledge into explicit knowledge was labelled externalisation; the mode of converting explicit knowledge into explicit as combination and the mode of converting explicit knowledge into tacit as internalisation process (Nonaka, 1994). The SECI model has a highly integrative OL approach, bringing together a wide range of knowledge processes including generating, codifying, storing, sharing and utilising knowledge (Aurum *et al.*, 2008; Grant and Grant, 2008; Haggie and Kingston, 2003; Mikic *et al.*, 2009). Nonaka *et al.* (1995; 2002) deduce that organisational learning is a never-ending process that continuously upgrades itself, as depicted in Figure 1.

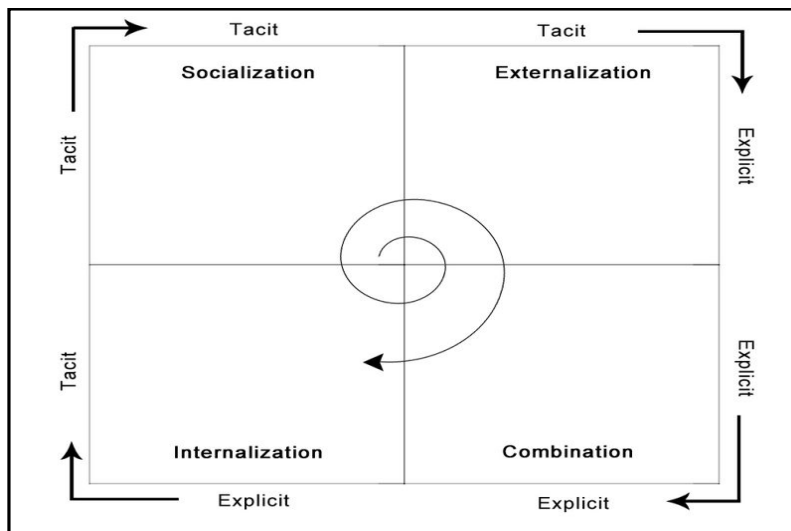


Figure 1: The SECI Spiral Model (Nonaka and Takeuchi, 1995)

4. Research Methodology

4.1. Research Paradigm

The underlying epistemology of this research was positivist, which focused on examining earlier established theories under the assumption that reality is objectively given and can be described by measurable properties independent of the observer and instruments. Thus, the study seeks to create knowledge by developing hypotheses and propositions, gathering and analysing data then testing hypotheses and propositions against external reality represented by the data generated.

4.2. Research Design

The study adopted a blend of descriptive cross-sectional survey design. According to Creswell (2009), descriptive and cross-sectional survey research designs are used to gather information, summarize, present and interpret the data for the purpose of clarification. This design was hence chosen since the study sought the personal views, opinions, attitudes and perceptions about moderating effect of TQM on the relationship between OL & OP in Public Universities in Kenya.

4.3. Target Population

The target population comprised senior managers in all 22 Public Universities in Kenya. A census survey was used since all the listed 22 Public Universities in Kenya were targeted. The sample population was made up of a total of 220 respondents, comprising 10 participants from each of the 22 Kenyan Public Universities. The study collected both primary and secondary data. Primary data were collected using survey questionnaires, although interviews and observations were also employed where necessary. Secondary data sources included journals, books and articles addressing the objectives of the study. The sample population comprised: The Vice Chancellor/ CEO, Deputy Vice Chancellor (Administration), Head of Quality Assurance, Registrar (Admin), Finance Officer, Human Resource Manager, Dean of Students' and one representative each from the University's Academic Staff Union (Uasu), Kenya University Staff Union (Kusu) and Kenya Union of Domestic, Hotels, Educational Institutions, Hospitals & Allied Workers (Kudheiha).

4.4. Data Analysis

Data analysis and presentation was both qualitative and quantitative in nature. Qualitative data that was obtained from the questionnaires was edited/cleaned and classified into classes or groups with common characteristics or themes. The content within the themes was then analysed guided by the research objectives. Inferential data analysis techniques (regression and factor analysis) were used to analyse the quantitative data. Descriptive Statistics such as frequencies and percentages were used to show the inherent relationship between variables and research questions in the proposed study. Findings of the study were reported in frequency tables before being interpreted and conclusions being made.

5. Results and Discussions

A sample population of 220 Public Universities was used for the study. Out of the total number of 220 questionnaires distributed, 172 questionnaires (78.18% response rate) were returned by the respondents.

5.1. Descriptive Statistics

5.1.1. Combination

The combination factor was measured using 5 statements. Most respondents generally agreed with the statement that their institutions promoted the use of computers and networks to update its databases. The results in Table 1 show that the mean score was 4.41.

	Mean	Std. Dev.
Use of info from external sources	3.90	.87
Updates databases from external sources	3.73	.99
External info to develop rules and regulations	3.78	.98
Support staff to classify/categorize info	3.81	1.04
Use of computers/networks to update databases	4.41	.74

Table 1: Descriptive Statistics of Combination

5.1.2. Internalisation

The internalisation factor was measured using 5 statements. Most respondents unanimously agreed with the statement that their institution encouraged learning by doing/joining training programs and that their institutions provided access to outcomes of trainings, workshops and seminars. The mean scores were 4.37 and 4.01, respectively as shown in Table 2.

	Mean	Std. Dev.
Learning by doing or training programs	4.37	.75
Use info trainings, workshops & seminars	4.01	.88
Support staff ideas for institutional challenges	3.93	.99
External experts to explain contents of trainings	3.93	.93
Documenting, diagramming or verbalizing info	3.77	1.08

Table 2: Descriptive Statistics of Internalisation

5.1.3. TQM (Continuous Improvement)

TQM (continuous improvement) factors were measured using 9 statements. Most of the respondents collectively agreed with the statements that their institutions enhance continuous monitoring, review and improvement; that their institutions implement the quality policy by using adequate resources, and; that their institutions had set up structures to monitor, review and improve performance. Mean scores were 4.32, 4.31 and 4.31, respectively as shown in Table 3.

	Mean	Std. Dev.
Sharing info from external sources	4.15	.94
New approaches to improve work	4.02	1.00
Continuous monitoring, review and improvement	4.32	.85
Resources/training to implement Quality Policy	4.31	.79
Monitoring, review, improve performance	4.31	.84
Identifying the root cause of errors	4.27	.84
Preventative action	4.22	.96
Focus on stakeholder requirements	4.23	.97

Table 3: Descriptive Statistics of TQM (continuous improvement)

5.1.4. Performance of Public Universities in Kenya

The performance factors were measured using 8 statements. Respondents collectively agreed with the statements that student enrolment and admission rates had increased and that their institutions attract qualified and capable employees. Mean scores in Table 4 for increased student enrolment and admission rates and attracting qualified and capable employees were: 4.45 and 4.39, respectively.

	Mean	Std. Dev.
Increased student enrolment rates	4.45	.86
Qualified & capable employees	4.39	.89
Revenue base has grown	3.58	1.19
Improved career paths	3.77	1.14
Improved job clarity	3.91	1.10
Carry out employee satisfaction surveys	3.79	1.18
Improved job security	3.98	.99
Improved working conditions	3.78	1.10
Better promotion opportunities	3.57	1.25

Table 4: Descriptive Statistics of Performance

5.2. Factor Analysis

5.2.1. Combination Measures

Combination was measured using 5 statements. Factor analysis was undertaken in order to check for any measures that were not key to combination, to validate the responses and also to check for consistency. The KMO test for combination showed that factor analysis on combination could be carried out because the KMO value was in the range of 0 to 1 and greater than 0.5 (Cerny & Kaiser, 1977). Bartlett's test of sphericity was significant (Chi-square 252.429, $p < 0.001$), which was within the acceptable level to test for significance and validity of the data. The combination construct was subjected to a variance test using the principal component analysis which aimed at identifying a group of factors that are able to explain most of the variation in the construct. Principal component analysis was carried out to simplify interpretation of the results and to formulate generalisations with regard to the overall combination construct. Table 5 explains the variances, Eigenvalues and cumulative percentages for the combination measure.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.762	55.242	55.242	2.762	55.242	55.242
2	.764	15.281	70.523			
3	.650	13.007	83.531			
4	.493	9.865	93.396			
5	.330	6.604	100.000			
Extraction Method: Principal Component Analysis.						

Table 5: Total variance of combination measures

The analysis of variance identified by Eigenvalues in Table 5 is the variance for all the measures of combination. The analysis of variance also included percentage of variance and cumulative percentages explained by the extracted factors before and after the analysis. The five measures of combination were subjected to factor analysis which showed that one critical factor accounted for 55.242% of the total variance. This factor had the greatest influence because it had an Eigenvalue of 2.762 which is greater than the required minimum value of 1.0.

5.2.2. Internalisation Measures

Internalisation was measured using 5 statements. Factor analysis was undertaken to check for measures that were not key to internalisation, to validate responses and also to check for consistency. The KMO test for internalisation of 0.825 in Table 6 showed KMO value was in the range of 0 to 1 and greater than 0.5 hence factor analysis could be carried out (Cerny & Kaiser, 1977). Bartlett's test of sphericity (Chi-square 267.623, $p < 0.001$) was within acceptable levels to test for significance and validity of the data. Internalisation was subjected to a variance test using the principal component analysis which identified factors that are able to explain most of the variation in the construct. Principal component analysis was carried out to simplify interpretation of the results and to formulate generalisations regarding the overall construct. Table 6 shows the variances, Eigenvalues and cumulative percentages for the internalisation measure.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.892	57.837	57.837	2.892	57.837	57.837
2	.724	14.485	72.322			
3	.491	9.818	82.140			
4	.473	9.451	91.591			
5	.420	8.409	100.000			
Extraction Method: Principal Component Analysis.						

Table 6: Total variance of internalisation measures

The analysis of variance in Table 6 is the variance for all the measures of internalisation. Analysis of variance also included percentage of variance & cumulative percentages before and after the analysis. The five internalisation measures were subjected to factor analysis showing that one critical factor accounted for 57.837% of the total variance which had the greatest influence on internalisation because it had an Eigenvalue of 2.892 which is greater than the required minimum value of 1.0.

5.2.3. TQM (Continuous Improvement) Measures

Principal Component Analysis (PCA) with Varimax rotation was performed on the eight (8) measures to assess TQM. This was done to reduce large number of variables into a few core factors that have the greatest influence on the TQM construct. The KMO test for TQM of 0.872 in Table 7 showed factor analysis could be carried out because the KMO value was in the range of 0 to 1 and greater than 0.5 (Cerny & Kaiser, 1977). Bartlett's test of sphericity (Chi-square 599.381, $p < 0.001$) was within acceptable levels for factor analysis. TQM was subjected to a variance test using the principal component analysis to identify the factors able to explain most of

the variation in TQM. Principal component analysis was used to simplify interpretation of results and to formulate generalisations on the overall TQM construct.

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.254	53.175	53.175	3.193	39.916	39.916
2	1.023	12.790	65.966	2.084	26.050	65.966
3	.712	8.904	74.870			
4	.554	6.924	81.794			
5	.448	5.606	87.400			
6	.416	5.201	92.601			
7	.318	3.973	96.574			
8	.274	3.426	100.000			
Extraction Method: Principal Component Analysis.						

Table 7: Total Variance of TQM Measures

TQM was subjected to a variance test using the component analysis to identify factors that explain the variation in TQM. As shown in Table 7, PCA identified two factors that explained most of the variation in TQM. Table 7 showed that two (2) factors with Eigenvalues of more than 1.0 explained most of the variation in TQM. The highest loading was 4.254 which accounted for 39.916% of the variance and the second had a loading of 1.023 which accounted for 26.050% of the variance in TQM which accounted for 65.966% of the cumulative variance in TQM.

5.2.4. Performance Measures

Principal Component Analysis (PCA) with Varimax rotation was performed on the nine (9) measures used to assess performance. This was carried out to group the large number of variables into a few core factors that have the greatest influence in measuring performance. The KMO test for performance of 0.854 showed factor analysis on performance could be carried out because the KMO value was in the range of 0 to 1 and greater than 0.5 (Cerny & Kaiser, 1977). Bartlett's test of sphericity (Chi-square 698.704, $p < 0.001$) was within the acceptable level to carry out factor analysis. Principal component analysis was carried out to simplify interpretation of results and to formulate generalisations on the overall performance construct. Table 8 shows the variances, Eigenvalues and cumulative percentages for the performance measure.

The analysis of variance in Table 8 is the variance for all the measures of performance. The analysis of variance also included percentage of variance & cumulative percentages before and after the analysis. The 9 performance measures were subjected to factor analysis which showed one critical factor accounted for 40.687% of the total variance.

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.427	49.194	49.194	3.662	40.687	40.687
2	1.241	13.786	62.980	2.006	22.294	62.980
3	.934	10.378	73.359			
4	.572	6.358	79.717			
5	.491	5.450	85.167			
6	.447	4.967	90.134			
7	.394	4.379	94.514			
8	.272	3.027	97.541			
9	.221	2.459	100.000			

Table 8: Total Variance of Performance Measures

5.3. Multiple Linear Regression Analysis

Moderated multiple linear regression analysis was used to predict the moderating effect of TQM on the relationship between OL and OP of Public Universities in Kenya. The results indicate that internalisation and combination explained 50.5% of variation in performance of Public Universities in Kenya. After moderation, the coefficient of determination increased by 8.7% implying that the level of variation increased from 50.5% to 59.2% after moderation. Moreover, the Durbin Watson statistic of 2.094 showed that the model did not suffer significantly from autocorrelation since the value was between 1 and 3.

5.4. Analysis of Variance (ANOVA) Model

ANOVA test was carried out to test the overall significance (R^2) of the predictor variables in influencing the level of performance of Kenya's Public Universities. Table 9 exhibits the F statistic result for both models which showed goodness of fit in both cases.

		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.243	2	24.622	86.238	.000 ^a
	Residual	48.251	169	.286		
	Total	97.494	171			
2	Regression	57.682	3	19.227	81.136	.000 ^b
	Residual	39.812	168	.237		
	Total	97.494	171			
a. Predictors: (Constant), Internalisation, Combination						
b. Predictors: (Constant), Internalisation, Combination, TQM						
c. Dependent Variable: Performance						

Table 9: Analysis of Variance (ANOVA^b)

Multiple regression coefficients Table 10 presents unstandardised and standardized coefficients of the model, the t-statistic for each coefficient and associated p-values.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.603	.257		2.348	.020
	Combination	.327	.081	.299	4.054	.000
	Internalisation	.506	.079	.473	6.406	.000
2	(Constant)	-.103	.262		-.393	.695
	Combination	.198	.077	.181	2.587	.011
	Internalisation	.326	.078	.305	4.181	.000
	TQM	.457	.077	.394	5.967	.000
a. Dependent Variable: Performance						

Table 10: Multiple Regression Coefficients with Moderation of TQM

The multiple regression coefficients show that the outcome variable had a significant positive relationship with combination and internalisation under both models. The findings verify that internalisation and combination had a statistically significant influence on performance of Kenya's Public Universities. Thus, every additional unit increase in combination while holding internalisation to a constant increases the level of performance. Moderating effect of TQM was observed to significantly influence the relationship between organisational learning and performance. The effect of moderating resulted in a decline in the coefficients values for both combination and internalisation.

6. Conclusion

The key findings of the study indicate that individual OL variables had a positive influence on the level of performance of Kenya's Public Universities. A moderate reduction in significance, however, was noted when TQM was simultaneously tested on the relationship between individual OL variables and OP. The overall results indicated that TQM positively and significantly moderated the relationship between OL and OP of Kenya's Public Universities.

7. Recommendations

In view of the findings, the researcher recommended that Public Universities in Kenya should fully adopt and embrace the continuous improvement facet in TQM as a management strategy to promote and facilitate organisational learning in order to enhance performance of Kenya's Public Universities.

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