RESEARCH ARTICLE

EFFECT OF IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT ON ACADEMIC ACHIEVEMENT OF PUPILS IN PRIMARY SCHOOLS

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ABSTRACT

The purpose of this study was to explore the relationship between the extent of implementation of Total Quality Management (TQM) and the academic achievement of pupils in primary schools in Kenya. The extent of implementation of TQM was assessed through a TQM principle namely reward and motivation. This study was conducted in Teso North sub-county which was purposively sampled due to low learning outcomes as compared to other sub-counties in Kenya. The study was guided by the following objectives: to determine the extent to which TQM was implemented and to establish the extent to which the implementation of reward and motivation affects the academic achievement of pupils r=.859. Descriptive survey was used. Stratified sampling technique was employed to select 44 deputy head teachers and 196 teachers in public primary schools while saturated sampling was used to select 11 deputy head teachers and 83 teachers in private primary schools. Data was collected by structured questionnaire. Descriptive statistics in terms of means and standard deviations were used to determine the respondents' perception on extent of implementation of TQM. Spearman's rho was used to measure the strength of relationship and regression analysis was used to measure the extent to which the implementation of reward and motivation predicted the academic achievement. The findings revealed that the extent of implementation of TQM was low. Spearman's correlations showed positive and significant relationship between extent of implementation of reward and motivation and academic achievement of pupils (r = p <.05). Regression analysis revealed that the effect of extent of implementation of TQM principle on academic achievement was significant (F = 930.282; p< .05). The implication of these results is that implementation of TQM principle of reward and motivation is associated with enhanced academic achievements of pupils in primary schools. Based on these findings, the study proposed that policy makers at the Ministry of Education and the head teachers should formulate strategies for maximizing the influence of implementation of TQM for enhancing academic achievement of pupils in primary schools.

INTRODUCTION

Total quality Management (TQM) refers to a management philosophy that builds customer-driven learning organization dedicated to total customer satisfaction through continuous improvement in the effectiveness of the organization and its process (Charantimath, 2003; Corrigan, 1995). Taking this further, Zairi and Youssef (1995) define TQM as a positive attempt by an organization concerned to plan and implement a continuous improvement process focused on satisfying customers' expectations. Moreover, Mural and Rajesh (2010) define TQM as a general management philosophy and a set of tools which allow educational institutions pursue a definition of quality and a means of attaining it. Taking each of these definitions into account and finding the overlaps in each of the definitions, it can be concluded that TQM is a well-structured and systematic approach for meeting customer needs and expectations by creating an organization wide participation and commitment in planning and implementation of continuous improvement.

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Total Quality Management is generally acknowledged as an approach to organizational management which brings about enhanced performance. It is a management approach that was established to seek sources of continuous motion of improvement to provide quality products and services to customers (Wani, 2014). The advantages of implementing TQM have been valued by many organizations around the world. Many organizations have achieved excellence and competitive lead by putting into practice TQM principle of top management support. Most of the principles of TQM can be implemented in the area of education and training (Sudha, 2013). Bhala (2012) noted that if educational institutions really want to improve their academic performance, then it is necessary for them to embrace the principles of TQM. While hitherto education has largely been viewed as a social service, it is now assuming a business outlook and resources put to it are viewed as investment whose payoffs must be continuously assured (Wani, 2014). As such Kalpana (2014) observed that for education as for the industry, implementation of TQM is no longer an option but it is a necessity. However, when some educators look at TQM principles, they assume that the model applies only to profit making organizations (Tahidu, Bawa, and Abubakari, 2014; Zabadi, 2013).

Education enterprise being part of the service industry where the students are the primary customers raises the need for a solid base to be developed to reach high quality service in education industry to promote academic achievement of students (Syed, 2013). Adaptation of TQM has proved to provide the needed organizational performance that will enhance the success of customers (students) measured through academic performance (Mensa, Copuneglue, and Fenning, 2012; Shahid, Faisal, and Aftabs, 2014). Adoption of TQM in HEIs is a common practice in United Kingdom (UK) .The results of incorporating TQM in HEIs have been striking such that UK remains a high quality provider of education in all its modern forms (Kalpana, 2014). Similarly, Japan has benefited from a TQM process similar to their counter parts in USA and UK resulting in improved student performance, better services, reduced cost and customer satisfaction. This has made Japan to be such a strong force in the world economy (Gopal, Abdul, and Bin, 2010; Shahid, Faisal, and Aftab, 2014).

In developing countries, the national examination results are used as a good indicator for the quality of education. International test of students' academic achievement at basic education level consistently show that most of developing countries score at the bottom of performance scale (Bhalla, 2013; Zabadi, 2013). Olaleye and Bebatope (2013) noted that it was highly saddening that for the last three decades Nigerian education system had continued to witness a quantitative growth at the expense of qualitative development.The deteriorating academic performance in public primary schools which had continued unabated impinged heavy traumatic effects on Nigerian citizens and the nation as a whole. There had been a complaint about the low performance of children in national exams, poor reading and writing skills (Yusuf and Alabi, 2012). In search of quality, many basic educational institutions had embarked on the implementation of TQM to enhance academic achievement of learners in national exams (Nwogu and Nath, 2013). Samanhyia, Arhin-larbi, Adusei and Donbesur (2014) tell a parallel story in Ghana where Basic Education is at cross-roads. There has been a significant progress in terms of enrolment but the improvement of test scores had stagnated. While a number of policy reforms and interventions have improved access to Ghana's school aged population, improving quality education in terms of student achievement in national exams remained a challenge (Kajui, Thomas, Emma, and Hari, 2009, Samanhyia, Arhin-larbi, Adusei, and Donbesuur, 2014). For instance, according to Ghana's Education Service (GES) annual report on Basic Education Certificate Examination (BECE) results for 2010, out of 400 candidates registered for BECE in Chereponi district only 9.5% of the students passed the examination (GES, 2011). Similarly, only 6.6% of 286 candidateswho sat for the BECE in the district recorded a pass during the 2011 academic year. This therefore presents a worrying trend that calls for intervention (GES, 2012). Such a situation calls for adoption of TQM. Research shows that by adapting aspects of the TQM to fit their own needs, both secondary (Petrus, 2011) and primary (Ngwenya and Pretorius, 2014) educational organizations experienced a better quality education in terms of academic achievement by learners (Ngwenya and Pretorius, 2014; Petrus, 2011). As far as Kenya is concerned, the issue of low achievement of pupils in KCPE is widely debated and remains to be addressed (Njuguna, 2013; Uwezo, 2014). This scenario of low academic achievement by pupils in KCPE has provoked discontent of parents in particular and the public in general.

It has also ignited passionate discussions in both print and electronic media as to what the future holds for the numerous young Kenyans who leave the primary schools semi-literate (Ruinge and Kimani, 2015; Uwezo, 2011, 2014). Teso North sub-county has been particularly challenged in recent years with low achievement scores in KCPE since the year 2011.

RESEARCH METHODOLOGY

The study adopted a descriptive survey design. The researcher adopted this design because a large population could be studied with only a portion of that population being used to provide the required data (Kothari, 2004). The study was conducted in Teso North Sub-county and at the time of this study, the sub-county had two educational zones namely Angurai zone with a total of 30 public schools and 6 private schools and Amagorozone with a total of 17 public primary schools and 5 private schools. Teso North sub-county was purposively sampled for this study because the report of Uwezo (2011) shows that the educational achievement outcomes in the sub-county was a challenge due to low levels of learning outcomes of the pupils compared to other sub-counties countrywide.The study population was composed of 58 deputy head teachers (47 from public and 11 from private) and 436 (353 from public and 83 from private) teachers drawn from 47 public primary schools and 11 private primary schoolsgiving a total of 494 respondents.

Multi-stage sampling technique was used for thestudy. The first stage involved the listing of all approved private primary and public primary schools and the stratification of these schools into private and public schools in Teso North sub-county. The next stage of the sampling procedure involved selection of respondents from each stratum of private and public schools for data collection. In this regard, saturated sampling techniquewas applied to select all the deputy head teachers and the teachers in private primary schools. Stratified sampling technique was used to select deputy head teachers and teachers from public primary schools. Questionnaire and document analysis were used as instruments of data collection. To enhance content validity and face validity, the research instruments were validated by researcher's supervisors and a panel of experts in the University who reviewed, critiqued and provided feedback on the research instruments concerning any need for improvements in wording or addition of items. Descriptive statistics in terms of means and standard deviations were used to determine the respondents'perception on extent of implementation of TQM. Spearman's rho was used to measure the strength of relationship and linear regression analysis was used to measure the extent to which TQM principle of reward and motivation predicted the academic achievement of pupils.

RESULTS

The main objective of this study was to assess the extent of implementation of Total Quality Management and examine its effect on academic achievement of pupils. Therefore, seven items in the scale were used to assess the implementation of reward and motivation, extent of its implementation and the influence of its implementation on academic achievement of pupils in KCPE in primary schools in Teso North sub-county. The scale was measured on a five point Likert scale where 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5=strongly agree. Responses from the teachers and deputy head teachers were analyzed separately to identify the extent of implementation of reward and motivation as a principle of

Table 1. Reward and Motivation

Code	Item
R&M1	In this schoolthere is an atmosphere of respect, cooperation and trust that motivates the teachers to perform their duties well
R&M2	This school periodically implements academic performance activities such as rewarding of the best pupil and teachers
R&M3	Promotion and career development programmes emphasizes academic achievement in the school and this motivates the teachers to work hard
R&M4	There is a formal system of recognition for work well done in the school which enhances healthy competition among teachers towards improvement of learning achievement of pupils
R&M5	This school has a transparent and effective appraisal system for recognizing and rewarding the staff for their efforts
R&M6	The leadership in this school motivates the teachers by using intangible incentives more than tangible rewards like honour and respect
R&M7	Promotion of teachers is fair and merit based and this motivates teachers to work hard towards improvement of academic achievement of pupils

Key: R & M= Reward and Motivation

Table 2. Mean Ratings and Standard Deviations of Responses of Teachers' and Deputy Head Teachers' on Extent of Implementation of Reward and Motivation

Item	Respondent	n	Mean	Std Dev	Min	Max
R&M1	Teacher	223	2.67	1.35	1	5
	Deputy Head Teacher	49	2.61	1.26	1	5
R&M2	Teacher	223	2.57	1.33	1	5
	Deputy Head Teacher	49	2.55	1.39	1	5
R&M3	Teacher	223	2.44	1.35	1	5
	Deputy Head Teacher	49	2.41	1.47	1	5
R&M4	Teacher	223	2.39	1.43	1	5
	Deputy Head Teacher	49	2.45	1.24	1	5
R&M5	Teacher	223	2.61	1.13	1	5
	Deputy Head Teacher	49	2.57	1.14	1	5
R&M6	Teacher	223	2.52	1.53	1	5
	Deputy Head Teacher	49	2.59	1.15	1	5
R&M7	Teacher	223	2.54	1.08	1	5
	Deputy Head Teacher	49	2.59	1.57	1	5
Cluster Mean	Teacher	223	2.53	1.31	1	5
	Deputy Head Teacher	49	2.53	1.49	1	5

Key: n = Number of respondent; Std Dev = Standard Deviation;Min =Minimum;
Max= Maximum; R & M = Reward & Motivation

Table 3. T-test Result for Reward and Motivation

Reward and Motivation				Levene's test for equality of variance		T- Test for Equality of Means				
Resp	n	Mean	Std	F	Sig.	t	df	Sig. (2-tailed)	Mean Differ	Std Error Differ
EA	223	2.54	1.33	.017	.896	.036	270	.971	.00750	.20984
DHT	49	2.53	1.34							

Key:Resp = Respondent, n = Number of respondent, Std = Standard deviation, Differ = Difference, TEA = Teachers, DHT = Deputy Head Teachers.

Table 4. Spearman's rho for Reward and Motivation and Academic Achievement According to Teachers' and Deputy Head Teachers' Responses

			Reward and Motivation	Academic Achievement
Spearman's rho	Reward and motivation	Correlation Coefficient	1.000	.859**
		Sig. (2-failed)		.000
		N	14	14
	Academic Achievement	Correlation Coefficient	.859**	1.000
		Sig. (2-failed)	.000	.
		N	14	14

**Correlation significant at the 0.01 level (2-tailed).

Table 5. Summary of Regression of Reward and Motivation andAcademic Achievement

Model	R	R^2	Adjusted R^2	SEE	Change Statistics				
					RSC	F Change	df1	df2	Sig.F. Change
1	.880	.775	.774	.59401	.775	930.282	1	270	.000

Predictors: (Constant), Reward and Motivation. SC-Square Change, df-degree of freedom, SEE- Standard Error of Estimate

TQM. The items were coded as per Table 1 to reduce the bulk in analysis and presentation of the data. Therefore, the Table 2 reports the means and standard derivations of teachers' and deputy head teachers' responses regarding the extent implementation of TQM principle of reward and motivation.

In order to assess the extent of implementation of TQM principle of reward and motivation, an interval class was developed as follows: (1) Very Low; 1.00 to 1.80 (2) Low; 1.81 to 2.60 (3) Moderate; 2.61to 3.40 (4) High; 3.41 to 4.20 (5) Very High; 4.21 to 5.00.

Table 6. ANOVA Table for Regression on TQM Principle and Academic Achievement

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	328.246	1	328.246	930.282	.000
Residual	95.268	270	.353		
Total	423.514	271			

a. Predictors: (Constant) and Reward and Motivation
b. Dependent Variable: Academic Achievement

Table 7. Relative Influence of Top Management Support on Academic Achievement

TQM Principle	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std Error	Beta (β)			Tolerance	VIF
Constant	.801	.078		10.303	.000		
R & M	.829	.027	.880	30.501	.000	1.000	1.000

Significance is at p < .05
Dependent Variable: Academic Achievement

As presented in the Table 2, the data reveal that the mean score values of items 2, 3, 4, 6 and 7 ranged from 2.39 to 2.59 with standard deviations ranging from 1.08 to 1.57respectively according to teachers' and deputy head teachers' opinions. The mean scores values fell within the range of 1.81 to 2.60. This implies that to a low extent, the schools periodically implemented activities such rewarding of the best pupils and teachers, promotion and career development programmes emphasized academic achievement in the schools and that motivated the teachers to work hard, there was a formal system of recognition for work well done in the schools which enhanced healthy competition among teachers towards improvement of the academic achievement of pupils, the leadership in the schools motivated the teachers by using economic incentives more than intangible rewards like honour and respect and that the promotion of teachers was fair and merit based which motivated the teachers to work hard towards improvement of academic achievement of pupils in primary schools in Teso North sun-county.

Moreover, the item 1 had mean score values of 2.67 and 2.61 with standard deviations range of 1.35 and 1.26 respectively according to the teachers' and deputy head teachers' perception. This finding indicates that to a moderate extent, there was an atmosphere of respect, cooperation and trust that motivated the teachers to perform their duties well. However, item 5 registered mean score values of 2.61 and 2.57 with standard deviations of 1.13 and 1.14 respectively according the perceptions of teachers and deputy head teachers. This indicates that according to the perception of teachers, to a low extent, theschools had a transparent and effective appraisal system for recognizing and rewarding the staff for their efforts while according to the perception of deputy head teachers, to a moderate extent, schools had transparent and effective appraisal system for recognizing and rewarding the staff for their efforts. Further analysis of Table 2 reveals that the cluster mean scores of teachers (Mean = 2.53; Std Dev = 1.31) and deputy head teachers (Mean = 2.54; Std Dev = 1.49) are nearly the same. This shows that the teachers and deputy head teachers were in agreement that reward and motivation as a principle of TQM was implemented to a low extent in primary schools in Teso North sub-county. Therefore, it can be inferred from these results that TQM principle of reward and motivation was being implemented but to a low extent in primary schools in Teso North sub-county. However, the cluster standard deviations of 1.31 and 1.49 according to teachers' and deputy head teachers' responses respectively indicated that variations in the extent of implementation of the

TQM principle of reward and motivation were high across individual schools in the sub-county. Nevertheless, in order to test if there was any significance difference of perception of extent of implementation of reward and motivation as a principle of TQM between the teachers and deputy head teachers, an independent sample t-test statistic was conducted. As such, the Table 3 summarizes the t-test results of reward and motivation. From the Table 3, there was no significant difference of the perception of extent of implementation of reward and motivation as a principle of TQM between the teachers (Mean = 2.54; Std = 1.33) and deputy head teachers (Mean = 2.53; Std = 1.34); t (270) = .036, p = .971. These results suggest that teachers and deputy head teachers were in agreement that the extent of implementation of TQM principle of reward and motivation was low in primary schools in Teso North sub-county. In order to determine the degree of association between the extent of implementation of TQM principle of reward and motivation and academic achievement of pupils in KCPE, Spearman's rho was performed using SPPSS version 17 and results presented in Table 4.

The Table 4 shows that there was a veryhigh statistically significant positive corrections between the extent of implementation TQM principle of reward and motivation and academic achievement of pupils (r = .859; p < .01). The correlation finding is similar to the findings of Hatice (2012) who tested whether there was a significant difference between the reward practices of organizational performance via one way ANOVA and the results indicated positive ($F_{(1-215)}$ = 4.524; p = .02) existence of a relationship. Moreover, this finding echoes a research study conducted by Waruni (2014) who investigated the impact of rewards on employee performance in Sri Lanka. Spearman rank order correlation coefficient showed a strong relationship between rewards and employee performance in the Electrical Companies in Sri Lanka (r = .637; p < .05). It is also important to note that this study supports the findings of Ugwu and Coker (2012) who investigated reward schemes and employee motivation in organizations in Nigeria. This study specifically found out the existence of a strong relationship between reward and motivation and organizational performance. The findings further asserted that when employees were rewarded, the organizational output in terms of profit margin and share capital increased. The finding of the current study therefore implies that reward and motivation could positively influence the academic achievement of pupils in primary schools in the sub-county. This finding is similar to studies done by Yamoah (2013) who found a statistically significant relationship (p

=.002) between reward and motivation and organizational performance and that done by Kwenin (2013) who found that rewards significantly (p = .007) affected organizational performance. However, a case study done Nyanja, Maina, Kibet, and Njagi (2013) on the effects of reward and motivation on employee performance contradicts this current study. The research found out that rewards and motivation positively but insignificantly (p = .8) affected employee performance. However, previous studies largely support the findings of the current study. Since relationship was found in the correlation analysis of Spearman's rho to assess the degree of association between the extent of implementation of TQMand academic achievement of pupils, linear regression analysis was conducted to establish whether there was any predictive relationship between the independent variable (reward and motivation) and dependent variable (academic achievement of pupils). Multicollinearity statistics were first assessed to ascertain that the independent variables were not highly connected.

The Variable Inflation Factor (VIF) value was 1 which falls within the 1.0 to 4.0 range prescribed by Pan and Jackson's (2008) rule of thumb. Tolerance value was 1 which was higher than the recommended minimum value of 0.5 (O'Brien, 2007). Therefore, the multicollinearity problems associated with regression analysis were negligible as shown in the Table 7.Nevertheless, Table 5 provides a model summary of the regression result of extent of implementation of TQM principleas independent variables and academic achievement of pupils as the dependent variable. The Table 6 shows that the R value of .880 is significant (F = 930.282: P <.05). Hence the observed effect of the TQM principle of reward and motivation on academic achievement of pupils did not occur by mere chance. However, to determine the relative contribution of reward and motivation to academic achievement, the Table 7 was presented.

The Table 7 reveals that reward and motivation made positive and significant contribution to academic achievement of pupils (β =.829; P < .05). The results of this study have confirmed the view of prior researchers. For instance Masood, Sadia and Saad (2014) in their study on an empirical assessment of implementation of TQM principles and their relationship with firm performance in textile sector of Pakistan revealed that TQM constructs (principles) had positive and significant impact on firm performance. In the same vein, Khan's (2011) study found that implementation of some principles of TQM predicted organizational performance to achieve the quality performance. Khan study also concluded that implementation of TQM led towards improvement in financial and non-financial performance of organizations in Pakistan in particular and globally in general. Moreover, the findings of the current study are further affirmed by Mashagba (2014) who conducted a study on the impact of implementation of TQM on the efficiency of academic performance and the results indicated that there was a positive impact of implementation of TQM principles on academic performance in Jordan University, although the subjects of analysis were executives in the institution and students. Lastly, the findings of this study corroborate with the study findings of Sanjar, Rostam and Atejeh (2013) which focused on examining the relationship between implementation of TQM and organizational performance. The findings of the study revealed that there was a positive and significant relationship between implementation of TQM and organizational performance in Kerman Steel and

Rolling Plant in Iran. All these previous study findings corroborate the findings of the current study and point to the importance of implementation of TQM in order to enhance academic achievement of pupils in primary schools in Teso North in particular and Kenya in general.

Conclusions and Recommendations

Based on the stated objectives, the following conclusion was reached:

- Total Quality Management (TQM) was being implemented in primary schools in Teso North sub-county. However, the extent of implementation of TQM principle of reward and motivation waslow.
- The extent of implementation of TQM principle of reward and motivation predicted the academic achievement of pupils in KCPE in primary schools in Teso North sub-county.
- Based on these conclusions, the following recommendations are made for the improvement of the current practice:
- Reward and motivation of teachers was found to impact significantly on academic achievement of pupils in primary schools in Teso North sub-county. Therefore, it is recommended that the head teachers should strive to promote both intrinsic and extrinsic rewards so as to boost the motivation of teachers in the sub-county.
- The implementation of TQM of reward and motivation should be enhanced in primary educational institutions by head teachers, deputy head teachers and teachers in Teso North sub-county in particular and Kenya in general.

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