

# Relationship Between ISO 9001:2008 QMS and the Tangibles of Services Offered in Public Universities in Kenya

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## Abstract

The purpose of this study was to determine the relationship between ISO 9001:2008 management systems and the tangibility of services offered in Kenyan Universities. The study employed correlational research design and the target population for the study comprised of academic staff, administrators and students in the public universities. The population of the study was 305 214 respondents and therefore a normal sample of 384 respondents was adequate for the study. A sample of 222 students, 72 members of academic staff and 90 members of administrators were proportionately sampled. Linear regression analysis statistics at  $\alpha = 0.05$  level of significance was used to empirically test the hypothesis. The study established that ISO 9001:2008 had significant relationship between the tangibility of service offered in public universities with variations of 9% and 37% of quality from teaching staff respondents and student's respondents respectively but contradicted by administrative staff who showed zero variations.

**Keywords:** ISO 9001:2008 QMS, Tangibility of services, public universities

## Introduction

The quality management standard, ISO 9000 contains ISO 9001:2008 that sets out the requirements of a quality management system, ISO 9000:2008 that covers the basic concepts and language, ISO 9004:2009 that focuses on how to make a quality management system more efficient and effective and ISO 19011:2011 that sets out guidance on internal and external audits of quality management systems. The benefits of ISO 9001:2008 QMS as explained by the standard include quality improvement, efficiency, and customer satisfaction (Quazi & Jacobs, 2004). However concerns have been raised by scholars like Goran (2014) on the analysis of the service quality perception in higher education in the University of Sarajevo in Bosnia, where it was established that the highest overall gap between the expected service and service delivered to students is on tangibles. The highest gap appeared in the dimension of tangibles, while the lowest gap appeared in the field of reliability which means that, the school of economics and business of Sarajevo has to do improvements in the field of tangibles: up-to-date equipment, facilities visual appealing, well dressed and neat employees and appearance should correspond to the services provided. The current study sought to establish the relationship between ISO 9001:2008 QMS and the tangibility of services offered in public universities in Kenya.

## Hypothesis

The researcher empirically tested the following null hypothesis at  $\alpha = 0.05$  level of significance:

H<sub>0</sub>1. ISO 9001:2008 Quality Management System has no statistical significant relationship with the tangibility of service offered in public universities in Kenya.

The decision for Keeping or rejecting null-hypothesis was based on reference to a p-value computed from the regression analysis. Null hypothesis was to be rejected if p-value was less than  $\alpha = 0.05$  level of significance; and accept null hypothesis if p-value equals or greater than  $\alpha = 0.05$ .

## Literature Review

Tangibility refers to the physical aspects that facilitate service delivery in an organization. Physical aspects of service include appearance of equipment and furnitures, physical facilities, materials associated with the service, appearance of personnel and communication materials, convenience of physical facilities and layouts. Angur, Madhukar, Natarajan, Rajan and Jahera (1999) found that business premises should have a high standard of decoration and a nice environment to positively influence service quality which consequently lead to customer loyalty. The physical service setting is a very important tangible factor that influences service quality perceptions. Bonn and Mathews (2007) also found substantial evidence that the design of the physical setting and its associated sensory attributes can have a significant effect on customer satisfaction and on a customer's re-patronage decisions. The professional appearance of staff is an important means of tangibilizing the intangible service products. Furthermore, the tangibles of a service or service provider can be represented by the physical appearance of employees and other physical infrastructures.

The other tangibility aspect is the interior design of premises and facilities. The interior design of the premises and facilities influences customers' perception of service quality, customer satisfaction and loyalty. Studies on the influence of the physical interior design of the facility on service quality, customer satisfaction and patronage decisions are in support of this finding. Sherman, Mathur and Smith (1997) confirmed that the interior

environments were important determinants of purchase behavior. Kalcheva and Weitz (2006) found that the interior environment of business settings had an impact on consumer purchasing behavior, particularly on re-patronage intentions or decisions. Berry, Wall & Carbone, (2006) explored the relation between emotion and perception of service quality with specific reference to the service facility and concluded that the interior environment can create mood or trigger feelings, which in turn affect behavior, customer satisfaction, and perceptions of service quality.

### Research Design

The study adopted correlational research design. The design was suitable since the researcher wanted to explore the extent to which the independent variable co-varies with the dependent variable and not to explain cause and effect.

### Population and Sample

The population of the study was 305 214 subjects and therefore a normal sample of 384 respondents was adequate for the study. A sample of 222 students, 72 members of academic staff and 90 members of administrators were proportionately sampled.

### Data Analysis

After data collection the researcher systematically cleaned the data, arranged, grouped, coded and entered in the computer for analysis using the statistical package for social sciences (SPSS). linear regression analysis was used hypothesis testing.

### Results and Discussion

The researcher was empirically testing whether there is significant relationship between ISO 9001:2008 QMS and the tangibility of services in public universities, the researcher computed linear regression analysis at significance level of  $\alpha = 0.05$ , for the three categories of respondents in Kenyan public universities namely the teaching staff, the administrative staff and the students. The results for the teaching staff respondents are presented in Table 1.

Table 1.

*Regression Model for Teaching Staff on Tangibility of Services*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.300 <sup>a</sup>	.090	.077	12.33634

a. Predictors: (Constant), ISO 9001:2008 QMS

The findings of the linear regression model on Table 1 shows that the computed R squared = 0.090. This implies that the ISO 9001:2008 QMS is significant in explaining the tangibility of service in public universities with 9 % variations.

The findings on the regression coefficients model for teaching staff on tangibility of services are presented in Table 2.

Table 2.

*Regression Coefficients for Teaching Staff on Tangibility of Services*

	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	60.183	5.781		10.411	.000
ISO 9001:2008 QMS	.230	.087	.300	2.630	.010

Dependent Variable: Tangibility of Service

The findings in Table 2 show that there is significant relationship between ISO 9001:2008 QMS and the tangibility of services offered in public universities with  $P = 0.10$ ,  $P < 0.05$ . The implication is that teaching staff respondents postulated that one unit increase in ISO 9001:2008 QMS would lead to 0.230 units increase in the tangibility of service.

The researcher further computed the linear regression analysis to predict the relationship between ISO 9001:2008 QMS and the tangibility of services on the administrative staff responses and the findings are presented in Table 3.

Table 3.

*Regression Model for Administrative Staff on Tangibility of Services*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.016 <sup>a</sup>	.000	-.011	12.41653

a. Predictors: (Constant), ISO 9001:2008 QMS

The findings in Table 3 shows that the computed R- squared = 0.000. This implies that there is no statistical significance relationship between ISO 9001:2008 QMS and the tangibility of services offered in public universities.

The findings on the regression coefficients model for administrative staff on tangibility of services are presented in Table 4.

Table 4.

Regression Coefficients for Admin Staff on Tangibility of Services

	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	75.879	5.688		13.340	.000
ISO 9001:2008 QMS	.012	.079	.016	.152	.879

Dependent Variable: Tangibility of Service

The regression analysis findings on the tangibility of services from the administrative staff revealed that ISO 9001:2008 QMS had no significant relationship with the tangibility of services offered with  $P = 0.789$ ,  $P > 0.05$ .

The researcher further computed the linear regression analysis to predict the relationship between ISO 9001:2008 and the Tangibility of service from the students responses at significance level of  $\alpha = 0.05$ . The findings are presented in Table 5.

Table 5.

Regression Model Summary for Students on Tangibility of Services

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.607 <sup>a</sup>	.368	.365	14.74985

a. Predictors: (Constant), ISO 9001:2008 QMS

The findings of the linear regression model on Table 5 shows that the computed R squared = 0.368. This implies that the ISO 9001:2008 QMS is significant in explaining the tangibility of service in public universities with 36.8% variations.

The findings on the regression coefficients model for students on tangibility of services are presented in Table 6.

Table 6.

Regression Coefficients Model for Students on Tangibility of Services

	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	38.675	2.464		15.698	.000
ISO 9001:2008 QMS	.481	.042	.607	11.319	.000

Dependent Variable: Tangibility of Service

The finding of linear regression matrix in Table 6 reveal that there is significant relationship between ISO 9001:2008 and the tangibility of services offered in public universities with  $P = 0.00$ ,  $P < 0.05$ . This implies that ISO 9001:2008 QMS has a positive relation to tangibility of services offered in public universities. Also if the ISO 9001:2008 QMS increases by one unit then the tangibility of services would increase by 0.481 units.

The findings on regression analysis on Table 1, Table 2, Table 3, Table 4 Table 5, and Table 6 reveal contradicting results of the prediction of quality services by ISO 9001: 2008 QMS where the student's respondents and the teaching staff respondents that showed significant relationship with ( $P = 0.010$  &  $P = 0.000$ ,  $P < 0.05$ ) respectively and administrative staff respondents showed no relationship with  $P = 0.789$ ,  $P > 0.05$ . The administrators were responding to the tangibles of service construct with notion that very little has been done to the existing state of infrastructure with the introduction of ISO 9001:2008 QMS. However the students moderated this outcome by completely differing with the opinion and showed that much has been done towards improving the tangibles with 36.8 % variations explained by the same. The students are more expectant of the improvements in tangibles than the administrative staff in the universities.

To estimate the relative importance of each independent variable that was used to predict the relationship between ISO 9001:2008 QMS and the tangibility of services, a multiple linear regressions was performed on the students responses who had relatively high value of R- squared as compared to the teaching staff and the administrative staff. The findings are presented in Table 7.

Table 7.

Multiple Regression Model for Students' on Tangibility of Services

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.607 <sup>a</sup>	.368	.363	14.78059

a. Predictors: (Constant), The university physical facilities like hostels, lecture halls, recreation facilities etc are satisfactory, The university has up to date physical facilities like high technology library

The findings on the linear regression model on Table 7 show that the coefficient of determination (R Squared =0.368). This reveals a significant statistical relationship between ISO 9001:2008 QMS and the tangibility of services offered in public universities with a variation of 36.8%.

The findings on the multiple regression coefficients model for students on tangibility of services are presented

in Table 8.

Table 8.

*Multiple Regression Coefficients for Students' on Tangibility of Services*

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tol	VIF
(Constant)	38.612	2.478		15.582	.000		
The university has up to date physical facilities like high technology library.	5.062	.965	.360	5.246	.000	.612	1.634
The university physical facilities like hostels, lecture halls, recreation facilities etc are satisfactory.	4.544	.997	.313	4.559	.000	.612	1.634

Dependent Variable: Tangibility of Service

The multiple regressions did not violate the assumptions of normality, linearity, and homoscedasticity. Multicollinearity of the independent variables was diagnosed and found to be minimum with tolerance value (Tol > 0.10) and Variance Inflation Factor (VIF below 10). All predictor variables had statistical significance in predicting Reliability of services offered in public universities with P = 0.000, P < 0.05). Therefore the null hypothesis that Implementation of ISO 9001:2008 Quality Management Systems has no statistical significant relationship with the tangibility of service offered in public universities in Kenya is rejected. This implies that the predictor variables selected for the study; The university has up to date physical facilities like high technology library and the university physical facilities like hostels, lecture halls, recreation facilities etc are satisfactory explained approximately 36.8% of the quality of services offered in public universities. The aspects on the universities having up to date physical facilities like high technology library was a better predictor of quality with unstandardized coefficient B = 5.062 as compared the aspect of the university having physical facilities like hostels, lecture halls, recreation facilities etc that are satisfactory with unstandardized coefficient B = 4.544.

This implies that the ISO 9001: 2008 QMS procedures in public universities are linked with the tangibles of services. The analysis revealed that the issues were raised through corrective action report forms and necessary actions taken to ensure continuous improvement on the services offered in public universities. It was also noted that the tangibles issues were majorly referred to the university management for resolution.

The findings in the study on tangibility of service collaborate with the Angur *et al.* (1999) who found that business premises should have a high standard of decoration and a nice environment to positively influence tangibility of service quality. Also Okibo and Kimani (2013) agreed with the findings of the current study in a study conducted on seven public universities in Kenya on effectiveness ISO 901:2008 QMS on service delivery which found that ISO9001:2008 certification influenced curricular development, teaching facilities improvement, streamlining of processes and adaptability to changing market needs.

**Conclusion**

The researcher concludes that tangibility of service is related to ISO 9001:2008 QMS in public universities. ISO 9001:2008 QMS has enabled tangibles of the service to be development in the public universities. This is entrenched in the clear outline of the standard operating procedures of ISO 9001:2008 QMS which is implied the necessity of certain facilities to expedite some processes.

**Recommendation**

The management of the universities should investigate the possibility of a gap between service quality requirements in standard operating procedures of ISO 9001:2008 QMS on tangibles of work at the various institutions to minimize role uncertainty which requires that the correct facilities be provided to all staff enabling them to handle customers' requests effectively and therefore contributing to quality service.

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