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RESEARCH ARTICLE

INFLUENCE OF ISO 9001:2008 QUALITY MANAGEMENT SYSTEM ON ACADEMIC STAFF'S SERVICE DELIVERY IN CURRICULUM REVIEW IN KENYA: A CASE STUDY OF PUBLIC UNIVERSITIES

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ABSTRACT

The implementation of International Organization for Standardization (ISO) 9001:2008 Quality Management System (QMS) in education is a matter highly debated trend on whether or not the certification is appropriate for the Education sector. Some scholars consider its adoption as a strategic decision by educational institutions to ensure delivery of quality service therein while others do not. Complaints by some academic staff and students in public universities in Kenya on the impact of ISO 9001:2008 QMS casts doubt on their level of satisfaction with it based on non conformities. For instance between 2012 and 2015 one university recorded 5310 non-conformities and another one recorded 5340 non-conformities which were higher than the other 12 Universities that recorded below 3940 non-conformities in provision of quality service delivery in public universities. In terms of the impact of ISO 9001:2008 QMS on academic staff's service delivery in curriculum review in public universities, the non conformities recorded in one of the universities were 280 and the other 270 being higher than the non conformities recorded in the rest of the other universities for the period 2012 to 2015 in Kenya. The objective of the study was to establish the influence of ISO 9001:2008 QMS on curriculum review in public Universities. The study established that ISO 9001:2008 QMS had significant influence on curriculum review such that for every one unit increase in ISO 9001:2008 QMS conformities in curriculum review, improved academic staff's service delivery by .479 units. In effect ISO 9001:2008 QMS accounted for 7.6% of the improvement in the curriculum review in public universities as was signified by the Adjusted R square coefficient .076. The other 92.4% was due to other factors that were not subject to this study. This means that when non conformities decline there is improvement in academic staff's service delivery in curriculum review in public universities. ISO 9001:2008 QMS was a significant predictor of academic staff's service delivery in curriculum review ($F(1,252) = 6.085, P < .05$). The study concluded that ISO 9001:2008 QMS improved service delivery in curriculum review in public universities. The study recommended that public universities should strive to minimize non conformities for excellent service delivery. This study provides information to lecturers, Kenya Bureau of Standards and university management on the way forward in improving the curriculum review in public universities.

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INTRODUCTION

The ISO 9001:2008 quality management systems were created by the International Organization for Standardization (ISO) which is an international non-governmental organization based in Geneva Switzerland (Goetsch & Davis, 2002). The founding of International Organization for Standardization was part of a global action to rationalize the thousands of conflicting standards of various nations that had been developed after

World War II to promote standards in international trade, communication and manufacturing. The family of ISO 9000 standards is made up of four standards, which are: ISO 9000:2005, ISO 9001:2008, ISO 9004:2009 and ISO 9011:2002. The work of preparing international standards is normally carried out through ISO Technical Committees (Mangula, 2013). International organization for the standardization has authorized a technical committee called TC 176, comprising of 113 members from different countries to be responsible for preparing, establishing, documenting and maintaining the ISO 9001:2008 standard document. The first standard was published in 1987. From 1987 until today the standard has been revised three times.

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The latest one which is being used worldwide is the ISO 9001:2008 standard for the quality management system and the 2008 reflects the publishing year of the standard. An ISO 9000 registration means that an organization's quality management system meets the requirements of the standard as issued by the international organization for standardization. ISO 9000 introduces users to the eight quality management principles as well as the use of the process approach to achieve continual improvement. ISO 9001 is used when you are seeking to establish a quality management system that provides confidence in the organizations ability to provide products that fulfils customer needs and expectations. It is the standard in the ISO 9000 family against whose requirements the quality management system can be certified by an external body. The standard recognizes that the term "product" applies to services, processed material, hardware and software intended for the customer. There are five sections in the standard that specify activities that need to be considered when implementing the system; overall requirements for the quality management system and documentation; management responsibility, focus, policy, planning and objectives; resource management and allocation; product realization and process management and measurement, monitoring, analysis and improvement (ISO, 9000).

The objectives of ISO 9000:2000 standards are the systematic pursuit of errors and other adverse outcomes, the reduction of variation and organization waste such as non-value added activities (Adolfas, 2008), provision of a quality framework without changing how the organization operates (ISO, 2009), improve competitive advantage, promote brand image and a useful tool of marketing (Singels, Ruel & Water, 2001), effective quality management that is focused on customer satisfaction and continual improvement of the system through objective evaluation (Hoyle, 2003). If properly implemented certification may be used as a practical step towards introduction of total quality management which is strongly emphasized by the new ISO 9000:2000 edition of the series (Kanji, 1998). One of the emerging philosophies in quality management concepts is that Quality Management System (QMS) is applied to organizations, experimented and implemented in institutions of higher learning so as to provide high quality standards for both industry and education (Ruzevicius, 2005).

There is a prevailing belief that higher education has entered a new environment in which quality plays an increasingly important role (Bergman, 1995). Felgenbaum (1994) believed that quality of education is the key factor in invisible competition between countries since the quality of products and services is determined by the way that managers, teachers, workers, engineers and economists think, act and make decisions about quality. The increasing International recognition of economic, environmental and social importance of International standards are being reflected by the inclusion of standardization as a subject in higher education programmes. The late 1980's saw the introduction of industrial quality concepts such as total quality management in a few education and training institutes. In the early 1990s, some pioneers embraced ISO 9000 and since then there has been increasing evidence that the adoption of total quality management principles and methods including those embedded in the ISO 9000 requirements could be relevant and useful for education and training organizations (Berg, 1996). Education and training organizations seek ISO 9000 certification to

improve or maintain the quality of their education or training provision, promotion of a high quality image with high visibility and credibility, a way of responding to external factors such as customers, governments or funding bodies, a method for developing a full quality assurance system which covers the whole organization and the need to improve a number of specific activities of the organization. Freeman (1993) and Chesterton (1944) believed that the ISO 9000 series of quality standards is one way to upgrade the quality of the schools. Healy (1994) believed that the ISO 9000 series of quality standards clearly defines the scope, goal, responsibility, process system, implementation, supervision and evaluation to effectively establish the quality of the school systems. Sallis and Hingley (1991) as cited in Chan, Lee and Chang (2007) pointed out that the implementation of ISO can improve tedious administration procedures at Universities. In universities in Kenya, the Directorate of Quality Assurance is charged with the responsibility of ensuring that quality and standards in universities are improved and maintained as per the ISO certification. Thus Directorate of Quality Assurance is the secretariat of ISO 9001:2008 QMS. All public universities that are ISO 9001:2008 QMS certified have "Quality Manuals" in which universities have pledged to comply with the ISO 9001:2008 QMS requirements.

For instance in the manual of university "F," the Vice Chancellor in his forward remarks: "The university is committed to providing quality higher education through quality teaching and learning, research, consultancy and community outreaches services, good governance and management. To achieve these, the university management has endeavored to streamline its Quality Management System in order to deliver services that can be benchmarked against international standards. Mechanisms for effective systems have been put in place, including documented procedures for various activities in the university. The staffs have been trained on QMS and are expected to learn to become responsive and plan for continual improvement. ISO 9001:2008 is our guiding QMS standard. The university will put more emphasis on implementation of plans, review changes and focus on quality service provision to our customers and stakeholders. Quality starts with every one of us and it is our collective responsibility to achieve it. Let us together strive for excellence by creating an environment where processes are effective and efficient in achieving our goals." And the Vice Chancellor of university "E" remarks "The university is committed to quality through teaching, research and development; providing on time services to foster and develop academic excellence in basic and applied research at all levels of study by training practice oriented manpower, who can contribute effectively to social, intellectual and academic development in the community, the nation and the community of nations. The university is committed to communicating exhaustively with its customers, and internally with its employees, to continually improve its services, products, processes, methods, and the work environment to ensure each customer is receiving the highest quality service in compliance with statutory and other regulatory requirements at the committed cost and on time. In order to realize this commitment the university management will monitor and review established quality objectives and the quality policy once every two years. It shall ensure provision of resources for implementation of an effective Quality Management System based on ISO 9001:2008. " The Quality Manuals are evidently guided by ISO 9001:2008 Quality

Management System requirements / principles. These requirements/principles are

- Customer focus: Organizations depend on their customers, and therefore need to shape activities around the fulfillment of market need.
- Leadership: Is needed to provide unity of purpose and direction.
- Involvement of people: Creates an environment where people become fully involved in achieving the organization's objectives.
- Process approach: To achieve organizational objectives, resources and activities need to be managed as processes with an understanding of how the outputs of one process affects the inputs of another.
- System approach to management: The effectiveness and efficiency of the organization depends on a systematized approach to work activities.
- Continuous improvement: Adopting this as a part of everyday culture is a key objective for an organization.
- Fact based decision- making: Effective decisions are based on the logical and intuitive analysis of data and factual information.
- Mutually beneficial supplier relationships: Such relationship enhance the ability to create value.

In a nutshell, in the quality manuals, objectives, quality policy, normative reference, Quality Management System, management responsibilities, resource management, realization of education service /product realization; and measurements, analysis and improvement constitute the Quality Management System of the university. All of which are tailored to ISO 9001:2008 QMS and The Management Representative who is one of the top officers in the university management, normally a Deputy Vice Chancellor or Registrar is the accounting officer of ISO 9001:2008 QMS and also the implementers of the same through the Directorate of Quality Assurance. This means that he/she oversees the implementation of quality service /product in the university. It is also important to note that all the requirements of ISO 9001:2008 QMS are generic and are intended to be applicable to all organizations regardless of the size and products produced. It is also worth noting the benefits of ISO 9001:2008 Quality Management System. First it involves Top Management in the improvement of quality management system; facilitates the organization to become a customer-focused organization; ensures sustained customer satisfaction by producing, delivering and providing support functions that meet the customer's needs and expectations; and increases the effectiveness and efficiency of the organization through continued improvements in systems and product /service quality. The site of the study was universities "E" and "F" (Table 1). From Table 1, it can be noted that universities "E" and "F" for the period 2012 to 2015 experienced more non conformities than other universities. Thus university "E" reported 5,340 non conformities and university "F" 5,310 compared with the other 12 universities that reported 3,940 and less individually for the same period. The non conformities, deviations or non fulfillment of ISO 9001:2008 QMS requirements in the area of examination management, teaching process, teaching /learning facilities and curriculum review. The non conformities noted raised the issues of influence of ISO 9001:2008 quality management system on the specified variables that were focused on when certification was done.

Thus, it was necessary to investigate the variance accounted for by ISO 9001:2008 quality management systems so that improvement would be earmarked. This is because some studies posit that ISO 9001:2008 quality management system is not a real valuable tool for improvement on quality education while others assert that ISO 9001:2008 quality management system model is the driver of quality in educational organizations (Fuchaka & Swaleh, 2012; Vusa, 2016 & Ruevicius, 2016).

Research Objective: The research objective was to determine the influence of ISO 9001:2008 quality management system on academic staff's service delivery on curriculum review.

Synthesis of literature on influence of iso 9001:2008 quality management system on academic staff's service delivery in curriculum review: Universities endeavor to maintain standards of academic programmes through various mechanisms. They include (a) programme assessment normally done by a committee of senate. Professional accreditation bodies examine the general structure and content of curriculum, academic standards and course length, entry level to courses, practical experiences, minimum standards of courses to be studied and mode of study. This process enables universities to compare quality of their academic activities with other universities and to ensure that their graduates are well equipped to operate at the cutting edge of their profession (b) merit based admission criteria. (c) Quality of academic staff ensured by stipulating minimum qualifications for appointment to various academic posts and enhanced staff development programmes (d) different arrangements for the assessment improvement of staff teaching and research (Okwakol, 2008).

There are a variety of models of quality assurances on the continent. The Kenya model for instance, entails assisting the universities to meet standards set by the commission for Higher Education (Irina, 2005). It involves: (a) establishment of institutional standards with respect to physical facilities, staffing levels, teaching loads and curriculum standards (b) peer-review, making use of visitation and inspection of the institution and internal self-assessment by the institutions concerned, (c) instituting quality control and quality assurance measures, and monitoring how these are being applied, (d) ensuring adequate finance resources to run the academic programmes, (e) ensuring viability of financial resources on long term basis, (f) instituting a planning culture based on three year financial plans, six year development plans and ten year projections and (g) development of a master plan. In the Koech Report, submissions were made to the effect that one of the greatest challenges facing the academic faculties in each of the Universities is the need to review the curricula and content for each teaching subject in order to keep abreast with the rapidly growing body of knowledge, hence the need for faculties, teaching departments and individual teaching staff to familiarize themselves with that latest information in their specific areas of specialization. According to the Inter-university Council of East Africa and the Commission for Higher Education (2008) all academic departments need to be headed by a qualified, academically trained individual with relevant and appropriate experience in university teaching preferably a professor or associate professor holding a PhD in the relevant field of study. Universities in Kenya have the freedom to develop their programs and adapt them to the market needs (Commission for University Education, 2013).

This kind of education system tends to borrow from the American education system which is much renowned for its flexibility and academic freedom (Mautusi, 2013). One of the characteristic features according to Commission for University Education guidelines University curriculum is often designed by the individual departments with the more experienced lecturers giving their input regarding the curriculum. The content is often internally peer reviewed at the department and school /faculty before it is presented to the senate for adoption. After the senate has adopted the programme, it is then presented to the commission for University education for external review (Commission for University Education, 2013). Once it has been accepted by the commission for university education, the university can go ahead and implement the curriculum after incorporating the recommendations suggested by the Commission for University Education. The portfolio of course units and programmes that are offered by the University are compiled in the university course catalogue. The catalogue among others contains detailed descriptions of the course content to be covered at a particular time, the programme offering and the respective lecture hours for that particular course. The course description, however, does not specify the depth and breadth of content coverage in respect of the particular course. This in essence means that the course lecturer has the freedom to design a course outline skewed to his or her competencies in the subject. The other major weakness of this approach is that in the event two lecturers are assigned to teach the same course there are bound to be variations in content coverage (Mautusi, 2013).

At university level, the statutes vest the development and delivery of curriculum in academic departments led by Heads of Departments. However, the Deputy Vice Chancellor (Academic Affairs) is responsible for ensuring that curriculum development and review is carried out in accordance with university regulations. Quality management in curriculum development at the departmental level requires qualified staff to develop curricula relevant to current community needs and problems, keep in mind requirement of Kenya government and observe standards requisite to an internationally respected education. Curriculum development is initiated by teaching staff in departments that identify areas in need of developing a new curriculum and point out curriculum that require review. They then call for department meetings to brainstorm on their needs chaired by the Heads of department. The Heads of Department identifies and tasks specialized staff (Sub-committee) to initiate the process of curriculum development and review with a time frame of two months. The specialized staff collect relevant information from their colleagues, related departments, the market for and consumers of the program, relevant government ministries, industry and key experts. The sub -committee prepares a memorandum of suggested new curriculum or revision to existing curriculum. The memorandum is submitted to the Heads of Department who tables it in a special department academic board meeting for discussions. The department's academic board (all teaching staff) considers the proposals submitted by the subcommittee and possibly makes some revisions. The subcommittee then integrates these suggestions of the department academic board and drafts a new or revised curriculum within one month. On receipt of the draft curriculum and its amendments the Heads of Department distributes it to academic staff in the school for further input within two weeks. On receipt of the input from academic staff, the Heads of Department organizes a workshop to deliberate the draft courses and revisions.

The workshop is facilitated by resource persons (who are subject specialists) from outside the department. The participants of the curriculum workshops are departmental academic staff, stakeholders' representations (students, parents, industry, private sector, Ministry of Education and Tertiary institutions). The aim of the workshop is to improve the quality of the proposed curriculum to suit the market demand, community expectation, maintain an international standard and create awareness among consumers. The findings of the workshop are compiled by the subcommittee and submitted to the Heads of Department who circulates it to department academic staff for further input. The Heads of Department then holds a departmental academic board meeting to discuss the advanced draft curriculum and potentially recommend for onward transmission to the school board. The Heads of Department compiles an advanced curriculum draft and submits it to the dean for consideration by the school curriculum committee. The committee recommends amendments to the source department for consideration. When the school curriculum committee is satisfied the draft is submitted for further discussion in the school board. The school board may propose amendment for the source department to consider. When the school board is satisfied with the draft curriculum and course revision, it authorizes the dean to submit the draft curriculum and review recommendations to the chair committee of deans. The Deans committee may propose amendments for the source department to consider the amendments and resubmits the draft to the committee of deans through the dean. If the committee of deans is satisfied it authorizes their chairpersons to submit the proposed curriculum and course revision to the Deputy Vice Chancellor (Academic Affairs) for onward presentation to university senate for discussion.

The Deputy Vice –Chancellor (Academic affairs) in the receipt of the proposed curriculum and revision, tables it in the University senate for discussion. Within two weeks, the senate discusses the proposed curriculum and course revision and may suggest amendments for the source department to consider. The department considers the senate amendments and resubmits the proposed curriculum and revisions to the senate through Deputy Vice Chancellor (Academic affairs). If the senate is satisfied with the draft curriculum and course revisions the curriculum is approved and becomes a bona fide university curriculum to be run in the source department. Since curriculum review is driven by directorate of quality assurance principles, this study sought to establish the influence of ISO 9001:2008 quality management system on academic staff's service delivery in curriculum review.

Conceptual Framework

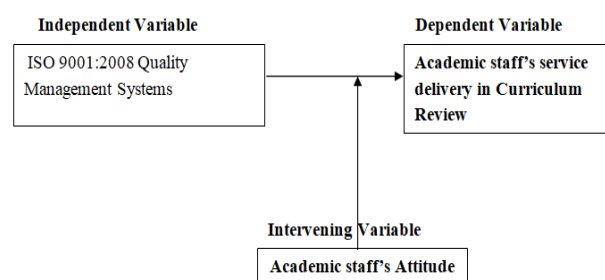


Figure 1: Conceptual framework showing the influence of ISO 9001:2008 Quality Management Systems on Academic Staff's Service Delivery in Curriculum Review in Public Universities

The conceptual framework (Figure 1) was based on Vusa's (2016) and Ruevicius (2016) assumptions that ISO 9001:2008 QMS influences service delivery in universities. As perceived in the review of the literature, the independent variable for the study is the influence of ISO 9001:2008. The dependent variable is academic staff's service delivery in relation to curriculum review. The intervening variable is the academic staff's attitude. These factors directly or indirectly intervene on the dependent variable and the independent variables as illustrated in Figure 1.

RESEARCH METHODOLOGY

Descriptive and correlational research designs were adopted. Study population was 759 academic staff consisting of 420 from one university and 333 from the other. Fisher's formula was used to determine sample size of 254 teaching staff. Proportionate and purposive sampling was used to select 254 teaching staff, that is, 142 from one university and 112 from another; and saturated sampling was used to select 4 students' leader and 2 management representatives. Questionnaire, interview schedule and document analysis guide were used to collect data. Face and content validity of the instruments was determined by experts in education administration. The content validity indices for the four instruments were academic staff questionnaire .89, interview schedule for academic staff .78, observation guide .89 and document analysis guide .89. This means that all the instruments were valid. Cronbach's alpha was used to determine reliability of the instruments using 75(10%) of study population whereby a coefficient of .7 and above at a p-value of 0.05 was considered reliable. The instruments were reliable as their coefficients exceeded .7 at p-value of .05. Quantitative data was analyzed using frequency counts, means, percentages and regression analysis. Qualitative data was transcribed and analyzed in emergent themes and sub-themes.

RESULTS

Return Rate of Questionnaires: From Table 2, it can be noted that the return rate of questionnaire was 100%. This means that they were adequate for analysis of data. Thus according to Mugenda and Mugenda (2003) a response rate of 50% is adequate for analysis and reporting. A response rate of 60% is good and a response rate of 70% and over is very good. In essence these figures serve as guidelines, otherwise a response rate of 100% is the best because it is a representative sample for meaningful generalizations. Since the response rate was 100%, it means the results of this study are generalizable.

Institution Data: The institution data for the universities that were used as the site of the study were as shown in Table 3. From Table 3, it can be noted that universities had schools and departments. It is important to note that an "institution" is defined as an organization founded for purpose of university education and research. "Public university" means a university established and maintained or assisted out of public funds. "Academic staff" means any person who has been appointed to teach, train or to do research at a university. "Department" means an academic division into which a faculty or school is divided for purposes of teaching, examinations and administration. "Curriculum" means any documented

programme of study. "Faculty /school" means an academic division so designed or established under the instruments constituting a university (Ministry of Education, Science and Technology, 2014). Examination on the other hand means an official test that reveals a student knowledge or ability in a particular subject. There are two types of examinations formative and summative evaluations. Formative evaluation are examinations or tests administered in the course of study while summative evaluation are examinations administered at the end of the course /semester. The purpose of examination is fourfold; one, examinations are used to diagnose the strengths and weaknesses of students; two, to inform students of progress in the curriculum; three, help in grading or classifying students, and four, to help in selecting students into correct career and programmes for further studies. Thus without good examinations, an education system can collapse and put the country's development scorecard into disarray.

ISO 9001:2008 QMS Status of curriculum review Based on Departmental Audit Reports in sampled Public Universities in Kenya (n=91) 2014/2015: In order to establish the influence of ISO 9001:2008 quality management system on academic staff's service delivery in public universities in Kenya data on ISO 9001:2008 QMS status was first established from the departmental audit report using document analysis guide. The results were as shown in Table 4.

From Table 4, it can be observed that the status of ISO 9001:2008 QMS varied from one department to another. From Table 5, it can be observed that the level of non conformities in Curriculum Review were majorly low as indicated by 54 (59.34%) and very low as indicated by 37(40.66%). From Table 6, it can be noted that non conformities in Curriculum Review after ISO 9001:2008 QMS certification was rated high by 69(75.82%) respondents, as moderate by 10(10.98%) and as very high by 12(13.20%) respondents. The areas of focus were; formal procedures and timetable for periodic evaluation of curriculum; implementation of memos on curriculum review; involvement of lecturers in curriculum development; approval, monitoring and evaluation of the curriculum, implementation of Commission for University Education recommendations; submission of new programmes and courses to senate and Commission for University Education for approval; approval of academic programme by senate and Commission for University Education before implementation. Regression analysis was computed to establish the influence of ISO 9001:2008 QMS on Curriculum Review in public universities. The results were as shown in Table 7. From Table 7, it can be noted that ISO 9001:2008 quality management system had significant influence on Academic Staff's Service Delivery in Curriculum Review in Public Universities as the p-value was less than .05. The null hypothesis "ISO 9001:2008 quality management system has no significant influence on academic staff's service delivery in Curriculum Review in public universities was rejected and therefore the alternative hypothesis H_{a1} ISO 9001:2008 Quality Management System has significant influence on academic staff's service delivery in Curriculum Review in public universities was accepted. It can also be observed that ISO 9001:2008 QMS accounted for 7.6% of the variation in Curriculum Review as signified by the Adjusted R Square coefficient .076. This means that ISO 9001:2008 Quality Management System explained 7.6% of the variance while 92.4% was due to other factors that were not subject of this study. To establish whether ISO 9001:2008

Table 1. Public Universities in Kenya: Non –conformities 2012 to 2015

SN	University	Year of ISO certification	Areas of Focus and Non –Conformities					Total
			Examination processing procedures	Curriculum review process	Teaching process	Teaching/learning facilities	Processing of University Continuous assessment Tests	
1	A	20 th June 2012	1650	180	230	870	850	3780
2	B	29 th July 2009	1520	130	210	850	660	3370
3	C	30 th Oct 2014	1630	100	240	820	750	3540
4	C	8 th May 2012	1720	170	270	920	780	3860
5	E	1 st January 2011	2300	280	360	1100	1300	5340
6	F	26 th Sep 2013	2100	270	340	1200	1400	5310
7	G	20 th June 2012	1620	210	180	940	880	3830
8	H	4 th Dec 2009	1670	180	210	830	860	3750
9	I	5 th March 2012	1640	160	240	830	780	3650
10	J	25 th Nov 2014	1540	170	220	860	830	3620
11	K	15 th August 2012	1820	210	240	820	850	3940
12	L	6 th April 2009	1450	140	170	860	740	3360
13	M	16 th June 2010	1550	180	210	840	860	3640
14	N	2 nd Dec 2014	1730	220	230	870	870	3920

Source: Kenya Bureau of Statistics 2015 Standards, Training, Testing and Certification of 14 ISO 9001:2008 Certified Public Universities in Kenya.

Table 2. Return Rate of Questionnaires

Respondents	Number Issued	Number returned	Percentage
University "E" Lecturers	142	142	100
University "F" lecturers	112	112	100

Source: Field Data 2016

Table 3. Institution Data

Institution	Number of Schools	Number of Academic Departments
University E	11	55
University F	11	36

Source: Field Data 2016

Table 4. Data on ISO 9001:2008 Quality Management System Status on Non Conformities in provision of Teaching /Learning facilities in Public Universities Based on Departmental Audit Reports n=91 2014/2015

S/N	Non Conformities- Curriculum Review	S/N	Non Conformities- Curriculum Review	S/N	Non Conformities- Curriculum Review
1	1.8	31	1.4	61	2.3
2	1.2	32	1.7	62	1.7
3	1.6	33	1.2	63	1.6
4	1.6	34	1.1	64	2.1
5	2.2	35	2.2	65	1.3
6	1.6	36	2.3	66	1.6
7	1.4	37	1.4	67	1.3
8	1.6	38	1.3	68	1.4
9	2.2	39	1.6	69	1.2
10	2.4	40	1.6	70	2.1
11	1.2	41	1.3	71	1.7
12	1.6	42	1.2	72	1.3
13	2.2	43	2.4	73	1.6
14	1.2	44	1.5	74	1.7
15	1.4	45	1.2	75	1.6
16	1.4	46	1.2	76	1.8
17	2.1	47	2.3	77	2.2
18	1.6	48	1.6	78	1.6
19	1.2	49	1.4	79	1.2
20	1.6	50	1.6	80	1.3
21	1.6	51	2.2	81	1.8
22	1.2	52	2.3	81	1.4
23	1.2	53	1.8	82	1.2
24	2.1	54	1.6	83	2.1
25	2.0	55	1.4	84	1.6
26	1.6	56	1.2	85	1.4
27	1.6	57	1.3	86	2.1
28	1.8	58	1.2	88	1.2
29	1.6	59	1.5	90	1.4
30	1.6	60	1.2	91	1.3

Table 5. Status of ISO 9001:2008 Quality Management Systems in Public Universities 2014 /2015 Academic year

Level of Non conformity in Curriculum Review Ratings	Frequency	Percentage
1.00 -1.44	37	40.66
1.45 -2.44	54	59.34
2.45 -3.44	00	00
3.45 -4.44	00	00
4.45 -5.00	00	00
Total	91	100.00

Source: Field Data, 2016

Interpretation of Mean Rating**Numeric strength Practical strength**

1.00 -1.44	Very Low non conformity
1.45 -2.44	Low non conformity
2.45 – 3.44	Moderate non conformity
3.45 – 4.44	High non conformity
4.45 -5.00	Very High non conformity

Table 6. Status of Curriculum Review after ISO 9001:2008 Quality Management System Certification in Public Universities 2015 /2016 Academic year

Curriculum Review Ratings	Frequency	Percentage
1.00 -1.44	00	00
1.45 -2.44	00	00
2.45 -3.44	10	10.98
3.45 -4.44	69	75.82
4.45 -5.00	12	13.20
Total	91	100.00

Source: Field Data 2016

Interpretation of Mean Rating**Numeric strength Practical strength**

1.00 -1.44	Very Low non conformity
1.45 -2.44	Low non conformity
2.45 – 3.44	Moderate non conformity
3.45 – 4.44	High non conformity
4.45 -5.00	Very High non conformity

Table 7. Regression Analysis of ISO 9001:2008 Quality Management System on Curriculum Review

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.293 ^a	.086	.076	.54048	.086	8.388	1	89	.005

a. Predictors: Constant, ISO 9001:2008 QMS

Table 8. ANOVA of ISO 9001:2008 Quality Management System and Curriculum Review

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.450	1	2.450	8.388	.005 ^b
	Residual	25.998	89	.292		
	Total	28.449	90			

a. Dependent Variable: Curriculum Review

b. Predictors: Constant, ISO 9001:2008 Quality Management System

Table 10. Linear Regression Analysis of ISO 9001:2008 Quality Management System on Curriculum Review

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	Constant	4.617	.269		17.165	.000	4.083	5.152
	ISO 9001:2008 QMS in Curriculum Review	-.479	.165	-.293	-2.896	.005	-.808	-.150

Dependent Variable: Curriculum Review Regression Equation $Y = B_0 + B_1X_1 + \dots + \epsilon$

Quality Management System was a significant predictor of curriculum review ANOVA was computed and the results were as shown in Table 8. From Table 9, it can be noted that ISO 9001:2008 Quality Management System was a significant predictor of the quality of Curriculum Review in public universities ($F(1, 89) = 8.388, P > .05$). This means that ISO 9001:2008 QMS can be relied upon in predicting the quality of Curriculum Review. To establish the actual influence of ISO 9001:2008 Quality Management System on quality of Curriculum Review in public universities, linear regression analysis was computed and the results were as shown in Table 10. From Table 10, it can be noted that for every one unit increase in non conformities in Curriculum Review, the status of Curriculum review declined by .479 units as signified by the coefficient $-.479$. Conversely, for every one unit reduction in non conformities in Curriculum Review, the status of curriculum Review improved by .479 units. The Regression Equation is $Y = 4.617 + -.479X_1$. It is important to note that curriculum review entails

DISCUSSION

The status of ISO 9001:2008 QMS varied from one variable to another. With regard to teaching the audit reports revealed that non conformities were low across the departments. This means that the conformities were high. The implication was that preparation of course outlines, allocation of workload, quality teaching and timetabling were in line with ISO 9001:2008 QMS requirements. This audit reports were expected to have an impact on subsequent teaching activities, hence the need for this study to establish the influence. With regard to curriculum review the non-conformities were high meaning that conformity was low. This means that curriculum review was not being taken seriously. The reviews are supported to be regular, however since curriculum are normally broad, the frequency of review cannot be as high. With regard to Curriculum Review compliance to the requirements of ISO 9001:2008 QMS was high in public universities. It also means that public universities were adhering to the prescribed ISO 9001:2008 QMS. The areas of focus or indicators were memos or circulars on curriculum reviews, minutes of curriculum reviews, old curriculum, new curriculum and approval of programmes and courses by senate and Commission for University Education. Observation analysis guide concurred with questionnaire finding whereby it was clear that curriculum review was periodically undertaken and submitted to senate for approval and Commission for University Education before implementation. In agreement with these findings, during interviews, the management representatives stated "In order to comply with Commission for Education and ISO 9001:2008 quality management system requirements the university has reviewed academic programmes in all areas, be they medicine, engineering or economics. This has enabled the professional bodies, like the Engineers Board of Kenya to approve the programmes offered." It is important to note that curriculum review entails evaluation of academic content taught in specific academic programmes with a view to, enhancing response to the needs and demands of communities for whom universities prepare graduates with skills and knowledge needed to compete globally. It is against this backdrop that universities were ISO 9001:2008 quality management system certified, whereby ISO 9001:2008 quality management system is viewed as a means of achieving quality curriculum. Curriculum review in the context of ISO 9001:2008 quality management system is a response to a

number of drivers or inherent demands on curriculum which are: changing nature of disciplines, avoiding duplication by rationalizing what is offered thereby reducing the assessment burden for staff and students, opportunity offered by new learning technologies, increasing cohort size, shifting students demographics, trends in students retention, progression and achievement, trends in student satisfaction surveys, changing expectations of professional statutory and regulatory bodies, outcomes of programme evaluations and original aims and outcomes of the programme having been lost over time. The findings of this study therefore provide insight into the extent to which ISO 9001:2008 quality management system has influenced the response to the inherent demands on curriculum. In line with ISO 9001:2008 quality management system curriculum reviews are ongoing periodically as need arises. During interviews, interviewees stated "Life is not static, neither are technologies nor challenges. The curriculum, that is, the lessons and academic subject matter taught in universities and other institutions of learning in specific academic programmes and courses are also subject to change hence the need for a responsive mechanism. Many decades back, computer technology was unknown, today with scientific revolution, everything is being computerized and therefore the need for curriculum reviews. Curriculum reviews improve and sustain quality in education, by ensuring that it remains relevant to the ever-changing phenomenon in the world. It is a means of knowing where we are and where we want to move to. In essence the purpose of curriculum review is to improve student learning, engagement, experience and outcomes. To this end it is important to note that curriculum framework entails objectives, content, learning experiences and learning outcomes. ISO9001:2008 quality management system therefore helps us to measure the extent to which the nitty gritty of curriculum framework is being achieved by way of improving on it."

The fact that influence was significant, and a prediction model was established, ISO 9001:2008 quality management system indeed influences curriculum reviews in public universities. This finding concurs with those of Vusa (2016) who conducted a study titled "ISO 9001:2008 quality management system certification and service quality in Kenya and public universities: a case of the University of Nairobi." Vusa established that ISO 9001:2008 QMS highly influenced the quality of service in the university. The service referred to cuts across the entire university curriculum. It is worth noting that all services in the universities are angereed in the curriculum offered. This study however did not provide empirical evidence specifically on the influence of ISO 9001:2008 QMS on curriculum review. The new knowledge generated is the empirical evidence on the influence of ISO 9001:2008 QMS on curriculum review which culminated in a model that can be used to determine the influence of ISO 9001:2008 QMS on the nitty-gritty of the curriculum.

Conclusion

The ISO 9001:2008 quality management system also significantly influenced academic staff's service delivery in curriculum review in terms of formal procedures and timetable for periodic evaluation of curriculum; implementation of memos on curriculum review; involvement of lecturers in curriculum development; approval, monitoring and evaluation of the curriculum, implementation of commission for university education recommendations; submission of new programmes and courses to senate and Commission for

University Education for approval; approval of academic programme by senate and Commission for University Education before implementation. This improved service delivery in curricular activities.

Recommendations

Public universities should strive to eliminate non conformities in curriculum review so that what is offered in academic programs meets the universities, and regulatory bodies, requirements for purposes of national development as universities are expected to provide the best services and expertise in the realm of academia.

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