

**ROLE OF QUALITY MANAGEMENT SYSTEM  
IMPLEMENTATION ON STUDENTS' SATISFACTION  
IN ISO 9001: 2008 CERTIFIED UNIVERSITIES IN  
KENYA**

**HILARY KIPCHIRCHIR KANDIE**

**DOCTOR OF PHILOSOPHY  
(Business Administration-Strategic Management)**

**JOMO KENYATTA UNIVERSITY OF  
AGRICULTURE AND TECHNOLOGY**

**2019**

**Role of Quality Management System Implementation on  
Students' Satisfaction in ISO 9001: 2008 Certified  
Universities in Kenya**

**Hilary Kipchirchir Kandie**

**A Thesis Submitted in Partial Fulfillment for the Degree of  
Doctor of Philosophy in Business Administration (Strategic  
Management) in the Jomo Kenyatta University of  
Agriculture and Technology**

**2019**

**DECLARATION**

This Thesis is my original work and has not been presented for a degree in any other University.

Signature.....Date.....

**Hilary K. Kandie**

This Thesis has been submitted for examination with our approval as University supervisors.

Signature.....Date.....

**Dr. Wario Guyo, Ph.D.**  
**JKUAT, KENYA**

Signature.....Date.....

**Prof (Eng.) Thomas A. Senaji, Ph.D.**  
**KEMU, KENYA**

## **DEDICATION**

I dedicate this Thesis to my family members for their love, support, patience, encouragement and understanding.

## **ACKNOWLEDGEMENT**

First, I'm grateful to God the almighty for giving me good health and strength to go through stroll this very demanding study.

I also take this opportunity to thank my Supervisors; Dr. Wario Guyo and Prof (Eng.) Thomas A. Senaji without whose help, guidance and their dedication to support this Thesis would not have been successful.

I also acknowledge the support of the Department of Business Administration, School of Business, College of Human Resource and Development administrative staff and the whole of Jomo Kenyatta University of Agriculture and Technology fraternity who have always been positive and generously available.

My appreciation also goes to all my fellow Doctor of Philosophy students for their assistance and moral support. I am grateful for their company and support as they have helped me towards meeting the challenges and milestones.

Special thanks to go to my Wife Chantal, Sons Andrew, Collins and Davies, friends and colleagues at SGS Group for their moral support.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iv</b>
<b>TABLE OF CONTENTS.....</b>	<b>v</b>
<b>LIST OF TABLES.....</b>	<b>xi</b>
<b>LIST OF FIGURES.....</b>	<b>xiii</b>
<b>LIST OF APPENDICES.....</b>	<b>xiv</b>
<b>LIST OF ACRONYMS.....</b>	<b>xv</b>
<b>DEFINITION OF KEY TERMS.....</b>	<b>xvii</b>
<b>ABSTRACT.....</b>	<b>xix</b>
<b>CHAPTER ONE.....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study.....	1
1.1.1 Quality Management System.....	2
1.1.2 Student satisfaction.....	3
1.1.3 University Education in Kenya.....	4
1.1.4 Commission of University Education.....	5
1.1.5 ISO 9001 standard in the University Education System.....	6

1.2 Statement of the Problem .....	9
1.3 Objectives.....	11
1.3.1 General Objective .....	11
1.3.2 Specific Objectives .....	11
1.4 Research Hypotheses .....	12
1.5 Justification of the Study.....	12
1.6 Scope of the Study .....	13
1.7 Limitations of the Study.....	13
<b>CHAPTER TWO .....</b>	<b>15</b>
<b>LITERATURE REVIEW.....</b>	<b>15</b>
2.1 Introduction.....	15
2.2 Theoretical Review .....	15
2.2.1 Quality Gurus .....	15
2.2.2 Quality Management Principles.....	16
2.2.3 The System model.....	19
2.2.4 Hersey-Blanchard Situational Leadership Model.....	22
2.2.5 Total Quality Management (TQM) Model .....	23
2.2.6 The 5 P's Model.....	26
2.2.7 Resource input model.....	27

2.2.8 The perceived service quality model .....	28
2.3 Conceptual Framework .....	30
2.3.1 Documentation Management .....	32
2.3.2 Leadership Management .....	32
2.3.3 Resource Management .....	33
2.3.4 Product Realisation Management .....	34
2.3.5 Improvement Management .....	36
2.3.6 Students' Satisfaction.....	37
2.4 The Empirical Review.....	38
2.5 Critique of the Existing Literature .....	41
2.6 Summary .....	43
2.7 Research Gaps.....	43
<b>CHAPTER THREE .....</b>	<b>46</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>46</b>
3.1 Introduction.....	46
3.2 Research Design.....	46
3.2.1 Research Philosophy .....	46
3.3 Population of the Study .....	48
3.4 Sample and Sampling Technique.....	50



3.5 Research Instrument.....	52
3.5.1 Structured questionnaire .....	52
3.6 Data Collection Method .....	54
3.7 Pilot study.....	55
3.7.1 Validity of instrument .....	56
3.7.2 Reliability of instrument .....	57
3.7.3 Measurement of Variables .....	66
3.8 Data analysis and Presentation.....	67
3.9 Ethical Considerations .....	70
<b>CHAPTER FOUR.....</b>	<b>71</b>
<b>FINDINGS AND DISCUSSIONS.....</b>	<b>71</b>
4.1 Introduction.....	71
4.2 Response Rate .....	71
4.3 Demographic .....	72
4.3.1 Type of the University .....	73
4.3.2 Nature of the student .....	74
4.3.3 Year of Study .....	75
4.3.4 Level of Satisfaction with the University Education .....	76
4.4 Descriptive results.....	76

4.4.1 System Documentation .....	77
4.4.2 Leadership Management .....	80
4.4.3 Resource Management .....	83
4.4.4 Product Realization .....	86
4.4.5 Improvement management.....	90
4.4.6 Students' Satisfaction.....	93
4.5 Diagnostic tests .....	96
4.5.1 Normality Test .....	97
4.5.2 Test for Heteroskedasticity .....	97
4.5.3 Multicollinearity.....	98
4.6 Inferential results.....	99
4.6.1 Inferential Analysis of Documentation and Students' Satisfaction .....	99
4.6.2 Leadership Management and Students' Satisfaction .....	100
4.6.3 Resource Management and Students' Satisfaction .....	103
4.6.4 Product realization and Students' Satisfaction.....	105
4.6.5 Improvement management and Students' Satisfaction.....	107
4.7 Overall Model .....	109
4.8 Optimal Research Model.....	111
<b>CHAPTER FIVE.....</b>	<b>112</b>

<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS.....</b>	<b>112</b>
5.1 Introduction .....	112
5.2 Summary of Findings .....	112
5.2.1 Effect of QMS Documentation on Students’ Satisfaction .....	112
5.2.2 Effect of QMS leadership on students’ satisfaction.....	113
5.2.3 Influence of Resource management on the students’ satisfaction .....	113
5.2.4 Effect of Product Realization on the Students’ satisfaction.....	114
5.2.5 Influence of Improvement management and Students’ Satisfaction .....	114
5.3 Conclusion.....	115
5.4 Recommendations of the Study .....	116
5.5 Recommendations for further Study .....	117
5.6 Contribution of the Study to the existing Knowledge.....	118
<b>REFERENCES.....</b>	<b>119</b>
<b>APPENDICES .....</b>	<b>146</b>

## LIST OF TABLES

<b>Table 1.1:</b> ISO 9001 numbers of certificates between 2011 and 2015* .....	3
<b>Table 1.2:</b> Customers in University Education System.....	4
<b>Table 1.3:</b> University Enrolments between 2010/11 to 2015/16 for all Programmes.....	5
<b>Table 1.4:</b> Worldwide number of certificates in the education sector* .....	7
<b>Table 3.1:</b> Total Population of students in ISO 9001 Certified Universities .....	49
<b>Table 3.2:</b> Respondents Categories in ISO 9001 certified Universities.....	51
<b>Table 3.3:</b> Distribution of questions according to variables.....	53
<b>Table 3.4:</b> Reliability results-documentation management.....	58
<b>Table 3.5:</b> Cronbach's Alpha on System documentation.....	59
<b>Table 3.6:</b> Reliability results-leadership management .....	60
<b>Table 3.7:</b> Cronbach's Alpha on Leadership Management.....	61
<b>Table 3.8:</b> Reliability results-resource management.....	61
<b>Table 3.9:</b> Cronbach's Alpha on Resource Management.....	62
<b>Table 3.10:</b> Reliability results-product realisation .....	63
<b>Table 3.11:</b> Cronbach's Alpha on Product/service realization.....	64
<b>Table 3.12:</b> Reliability results-improvement management .....	64
<b>Table 3.13:</b> Cronbach's Alpha on improvement management.....	65
<b>Table 3.14:</b> Reliability results - students' satisfaction .....	65
<b>Table 3.15:</b> Cronbach's Alpha on students' satisfaction.....	66

<b>Table 3.16:</b> Measurement of Variables .....	66
<b>Table 4.1:</b> Response Rate .....	72
<b>Table 4.2:</b> Type of the University .....	73
<b>Table 4.3:</b> Type of the students .....	74
<b>Table 4.4:</b> Year of study for respondents .....	75
<b>Table 4.5:</b> Degree of Satisfaction on Statements on System Documentation.....	78
<b>Table 4.6:</b> Leadership Management .....	81
<b>Table 4.7:</b> Level of Satisfaction on statements on Resource Management.....	84
<b>Table 4.8:</b> Level of satisfaction on statement on Product Realization .....	87
<b>Table 4.9:</b> Improvement management in Percentage .....	91
<b>Table 4.10:</b> Students' Satisfaction in Percentage .....	94
<b>Table 4.12:</b> Test for Heteroskedasticity .....	98
<b>Table 4.13:</b> Results for Multicollinearity Test .....	98
<b>Table 4.14:</b> System Documentation and Students' Satisfaction .....	99
<b>Table 4.15:</b> Leadership Management and Students' Satisfaction .....	101
<b>Table 4.16:</b> Resource Management and Student's Satisfaction .....	104
<b>Table 4.17:</b> Ordered Probit model on Product Realization and Students' Satisfaction .....	106
<b>Table 4.18:</b> Continual Improvement and Students' Satisfaction.....	108
<b>Table 4.19:</b> Overall Ordered Probit Model .....	109

## LIST OF FIGURES

<b>Figure 2.1:</b> ISO 9001: 2008 Process- Based Model.....	20
<b>Figure 2.2:</b> Levels of QMS Documentation.....	21
<b>Figure 2.3:</b> Kanji’s Business Excellence Model .....	24
<b>Figure 2.4:</b> 5 P’s Model .....	27
<b>Figure 2.5:</b> The Perceived Service Quality Model.....	29
<b>Figure 2.6:</b> Conceptual Framework .....	31
<b>Figure 4.1:</b> Type of the University.....	73
<b>Figure 4.2:</b> Nature of the Student.....	74
<b>Figure 4.3:</b> Year of Study.....	75
<b>Figure 4.4:</b> Satisfaction with the University Education .....	76
<b>Figure 4.5:</b> Response Rate .....	72
<b>Figure 4.6</b> Normality test .....	97
<b>Figure 4.7:</b> Scatter Diagram on System Documentation.....	100
<b>Figure 4.8:</b> Scatter Plot diagram on Leadership Management.....	103
<b>Figure 4.9:</b> Scatterplot on Resource Management and Students’ Satisfaction .....	105
<b>Figure 4.10:</b> Scatter Plot on Product Realization and Students’ Satisfaction .....	107
<b>Figure 4.11:</b> Improvement management and Students’ Satisfaction .....	109
<b>Figure 4.12:</b> Optimal model.....	112

## LIST OF APPENDICES

<b>Appendix I:</b> Letter of Introduction.....	146
<b>Appendix II:</b> Questionnaire .....	147
<b>Appendix III:</b> Certified Universities as at December 2016.....	153
<b>Appendix IV:</b> Approval of Ph.D. Research Thesis and Supervisors.....	154
<b>Appendix V:</b> Nacosti Research Authorisation.....	155

## LIST OF ACRONYMS

<b>CHE</b>	:	Commission of Higher Education, Kenya
<b>CUE</b>	:	Commission of University Education
<b>EFQM</b>	:	European Foundation for Quality Management
<b>EHEA</b>	:	European Higher Education Area
<b>ENQA</b>	:	European Network for Quality Assurance in Higher Education
<b>EOP</b>	:	Equipment operating Procedure
<b>HE</b>	:	Higher Education
<b>HEA</b>	:	Higher Education Accreditation
<b>HEI</b>	:	Higher Education Institutions
<b>IAF</b>	:	International Accreditation Forum
<b>IWA</b>	:	International Work Agreement
<b>ISO</b>	:	International Organization of Standards
<b>LIA</b>	:	Letters of Interim Authority
<b>MOE</b>	:	Ministry of education
<b>NGO</b>	:	Non-governmental organisation
<b>QMS</b>	:	Quality Management Systems
<b>SGS</b>	:	Society General Surveillance
<b>SWOT</b>	:	Strengthens, Weaknesses, Opportunities and Threats



**SOP** : Standard operating procedure

**TQM** : Total Quality Management

**UK** : United Kingdom

## DEFINITION OF KEY TERMS

- Certified Universities:** These are the higher learning institutions that are accredited to offer undergraduate and post-graduate courses having been assessed to meet the requirements especially in terms of capacity and quality (El Abbadi, Bouayad & Lamrini, 2013).
- Continual Improvement:** This is the process of coming up with better and enhanced methods of service delivery so as to meet the needs and expectations of the customers as far as quality is concerned (Kontic, 2014).
- Documentation Management:** This is the ability of an institution to keep records, policy documents and documented procedures required by the standard; and documents needed by the organization to ensure the effective planning, operation and control of its processes.
- Leadership:** is a process by which a person influences others to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent (Sharma & Jain, 2013)
- Product Realisation:** is the process that converts the customer requirements (student) into an output that is both acceptable to the customer and not jeopardizes the quality of the product or service (Ismail & Gadar, 2008).

**Quality Management Systems:** This is a set of policies, processes and procedures required for planning and execution (production/development/service) in the core business area of an organization

**Resource Allocation:** is the efficient and effective deployment of organization's resources when they are needed (Clegg & Bailey, 2008).

**Students' Satisfaction:** It is the ability of the students as customers to feel contented by the services/product offered by an organization out of the ability of the product/service to meet their needs and expectations (El-Hilali, Al-Jaber, & Hussein, 2015).

## ABSTRACT

In the present competitive business environment, quality of products and/service offered by any organization play an important role in determining the satisfaction of the customer. Customer satisfaction on the other hand contributes to firm growth. Similar to other organizations, universities endeavor to ensure quality of their service is attractive to the customers. To enhance the confidence in the quality of teaching, learning and research, most Universities in Kenya choose to be certified on ISO 9001 quality management system. The Standard requires the organizations to establish a quality management system (QMS) to ensure provision of quality services and products that satisfy the customers. Since quality of university education has been a subject of concern in Kenya, there is need to understand what action is being taken to address the quality concerns. It is against this background that the study sought to establish the role of quality management system based on ISO 9001 standard on the students' satisfaction in ISO 9001:2008 certified universities in Kenya. The study was guided by five specific objectives namely; the effect of QMS documentation management, leadership management, resource management, product realisation management and improvement management on the students' satisfaction in ISO 9001:2008 certified universities in Kenya. The objectives were supported by key theories to help the research conceptualize the variables effectively. The theories included; perceived service quality model, system model, total quality management model and resource input model. A sample of 384 students drawn from all the 24 certified universities participated in the study. Data was collected using questionnaires. Quantitative data analysis methods used to generate frequency distribution, descriptive and inferential statistics. Specifically, ordered probit regression model was used to analyse the data using STATA software whereas chi square test statistics was used to test the hypotheses related to students' satisfaction. The findings further established that documentation, leadership management, resource management, product realization and improvement management enhanced the students' satisfaction among the ISO 9001 certified universities in Kenya. The inferential statistics analysis revealed that leadership management, resource management, product realization management and improvement management were positively and significantly related to students' satisfaction. It is concluded that ISO 9001 certified universities in Kenya had better students' satisfaction as a result of embracing leadership, product realisation, resource management and improvement management. Based on the findings it is recommended that the universities should embrace better strategies to enhance the satisfaction of the students. This could be done through enhancing proper documentation of the school records, allocating adequate resources to the institutional operations, coming up with better products as well as providing better leadership which is people orientated and focused on students as the main stakeholders.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

This study seeks to unveil the role of quality management system implementation on students' satisfaction in ISO 9001: 2008 certified universities in Kenya. This chapter presents the introduction of the study problem by presenting the background to the study which seeks to underpin the underlying issues on the quality management system implementation and the students' satisfaction certified universities in Kenya. The chapter also presents the statement of the problem, objectives of the study and the statistical hypotheses. To justify the study, the chapter covers the significance of the study as well as the scope of the study.

According to the World Bank working paper no. 124 of 2009, Sub-Saharan Africa (SSA) is home to 740 million people. Although the number is increasing, Africa has 635 out of the world's 17,716 universities (3.6%). The gross tertiary enrolment ratio is about 5 %, the lowest in the world (Wanjohi, 2012). In Africa, the university demand-supply scene is even more precarious. A recent World Bank study on university education in Africa notes that even though there are commendable gains in the growth of enrolments in the continent, Africa's Gross Enrolment Ratio (GER) of 4.9 % remains the lowest in the world when compared to South Asia (10 %), East Asia (19 %), and North Africa and the Middle East at (23 %), partly due to the high rates of population growth. In Sub Saharan Africa, the enrolments are well below the levels necessary to accelerate growth (World Bank, 2009; Waweru, 2013). As the World Bank observes, the fiscal constraints experienced in the recent past have limited the capacity to expand the public university education system while assuring quality and satisfaction of the students and the stakeholders (Waweru, 2013).

The global growth of enrolments in university education can be explained by the emergence of a private tertiary education sector. While public universities have continued to grow, the number of private universities has exploded (Wanzala, 2013). The World Bank notes that private university education has become the fastest

growing segment of university education worldwide (World Bank, 2009; Clothey, 2011; McCowan, 2008; Waweru, 2013).

University education plays an important role in the development of the knowledge based economy in a highly competitive and rapidly changing global environment (Ojiambo, 2009) consequently Kenya's university education system must be focused, efficient and able to create knowledge and deliver relevant and quality learning to sustain a knowledge economy that is internationally competitive (MOE, 2012) and satisfactory to the students/learners and stakeholders in the society.

### **1.1.1 Quality Management System**

Saizarbitoria (2006) stated that there are many quality management systems approaches used by organizations to achieve quality products/services and customer satisfaction. These include lean management, Six Sigma and total quality management (TQM) and the most common approach is ISO 9001 standard. According to Manders (2014) ISO 9001 sets out the requirements for a quality management system (QMS) where an organization can demonstrate its capability to deliver quality products and services that fulfil customer, regulatory and stakeholders requirements. It is designed to help organisations ensure that they meet the needs of customers and other stakeholders (Lushi, Mane, Kapaj & Keco, 2016). According to Kumar and Balakrishnan (2011) ISO 9001 certified organizations are supposed to have effective QMS and quality products/services. This study sought to explore the role of adopting ISO 9001 certification as quality management strategy by Universities in Kenya to enhance students' satisfaction.

ISO 9001 is the leading standard on quality management system, A total of 1,033,936 certificates were issued to ISO 9001 in 2015 (including 4,190 issued to the 2015 version published in September 2015) which is a slight decrease of 0.2% on 2014 (ISO, 2016). ISO 9001 standard stipulates the requirements for quality management system (Kaziliunas, 2010). ISO 9001 certification to the standard is used in global supply chains to provide assurance about suppliers' ability to satisfy quality requirements and to enhance customer satisfaction in supplier-customer relationships (Abdullah, Omar, & Khan, 2012; Lazibat, Sutic & Jurcevic, 2009).

Table 1.1 presents the worldwide, Africa and Kenya totals of ISO 9001: 2008 certificates for the period 2011-2015 (ISO, 2016).

**Table 1.1: ISO 9001 numbers of certificates between 2011 and 2015\***

<b>Year</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Worldwide</b>	1,009,845	1,017,279	1,022,877	1,036,321	1,033,936
<b>Africa</b>	8,164	9,674	9,816	10,143	12,154
<b>Kenya</b>	278	460	590	565	656

**Source:** The International Organization for Standardization (ISO, 2016)

\* The survey is compiled from certificates issued by accredited certification bodies. Accredited certification bodies are those that have been independently evaluated by accreditation body members of the International Accreditation Forum (IAF), the world association of conformity assessment accreditation bodies.

The ISO 9000 family of standards is related to quality management system and designed to help organizations ensure that they meet the needs of customers and other stakeholders (Heizer & Render, 2009) while meeting statutory and regulatory requirements related to the product and the mechanisms it employs to make continual improvement of the processes (Magutu, Mbeche, Nyaoga, Nyamwange, Onger & Ombati, 2010).

### **1.1.2 Student satisfaction**

Product and Service quality is one of the factors that lead to customer satisfaction. In order to make the customers satisfied, every organisation strives to enhance the quality of products and services (Sandhu, Mahasan, Rehman, & Muzaffar, 2013). Habanik and Jambor (2014) stated that learning process can be understood as providing customer service in a university education system.

There are three kinds of external customer in the university education system: primary customers are students which use courseware as a product, secondary customers are employers, who are interested in the graduates as qualitative

professionals (output) and the tertiary customers is society who uses services and products prepared by educated professionals (outcomes). According to Venkatraman (2007), customers may be of two types: external and internal as shown in the Table 1.2.

**Table 1.2: Customers in University Education System**

<b>Customer</b>		<b>Products / Services</b>
External	Students – primary customers	Courses, programmes
	Employers (parents) – secondary	Graduates (alumni) /
	Customers	information professionals
	Labour market/government/Information user/society–tertiary customers	Information services and products prepared by
Internal	Teaching staff	information professionals
		Education and teaching
		Process

Source: Holma and Pakalna (2007)

In the university establishment, the internal customers are teaching staff who evaluates the education and teaching process which agrees with ‘outside-in’ approach and ‘inside-out’ approach (Kwek, Lau, & Tan, 2010) and mission of the university is to create satisfied customers such as students, employees, partners and the public.

Venkatraman (2007) concluded that if it is possible to identify the customers of university education, then it is possible to state the main objective of quality management system to achieve the return on investments of customer satisfaction using continuous improvement strategy. The customers are also the main estimators of the quality of product or service (Education) and the level of satisfaction can be measured.

### 1.1.3 University Education in Kenya



Kenya's future as a prosperous and internationally competitive nation is based on realisation of vision 2030 strategy will depend on university education system (Wafula, 2013; Wanzala, 2013). Growth has been witnessed in the university sub-sector with the raise on enrolment for the period 2010/11-2015/16 as illustrated in table 1.3.

**Table 1.3: University Enrolments between 2010/11 to 2015/16 for all Programmes**

<b>Type of University</b>	<b>Year</b>					
	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>	<b>2013/14</b>	<b>2014/15</b>	<b>2015/16</b>
<b>Public</b>	150,926	163,821	201,690	329,759	400,218	478,152
<b>Private</b>	31,327	21,443	37,672	41,606	45,965	59,626
<b>Total</b>	<b>182,253</b>	<b>185,264</b>	<b>239,362</b>	<b>371,365</b>	<b>446,183</b>	<b>537,778</b>

Source: KNBS (2016)

The Commission of University Education (CUE) is established under Universities Education Act, 2012 (CUE, 2016) and charged with the responsibilities to accredit universities; regulate university education; promote and oversee the development of quality and relevant university education through accreditation, regular inspections, monitoring and evaluations; collection, dissemination and maintenance of data and promotion of quality education, research and innovations (MOE, 2012; CUE, 2016). There are 70 universities in Kenya, 33 of which are public including constituent colleges and 37 private including constituent colleges with a total of 168 campus spread across the 47 counties in Kenya (CUE, 2016). The three categories of status of University campuses/constituent colleges are: Accredited campuses/constituent colleges, Adopted campuses/constituent Colleges and campuses/constituent colleges under Review.

#### **1.1.4 Commission of University Education**

In 1985, a Commission for Higher Education (CHE) was established through the Higher Education Act with a mandate to co-ordinate the development of higher

education including long-term planning, programming, budgeting, financing, student enrolment, scholarships, staff and physical development; and accreditation of private universities and post-secondary institutions( MOE, 2012,Waweru, 2013) However, under Universities Education Act, 2012, which commenced on 12<sup>th</sup> December 2012.This brought the establishment, governance and administration of universities under same legal framework (CUE, 2013; Waweru, 2013; Wanzala, 2013).

Commission of University Education is a state corporation and its mandate was expanded to include both private and public universities (CUE, 2013; Wanzala, 2013). CUE is charged with responsibilities among others to accredit universities in Kenya; regulate university education; to promote and oversee the development of quality and relevant university education through accreditation, regular inspections, monitoring and evaluations; collection, dissemination and maintenance of data and promotion of quality education, research and innovations (MOE, 2012; CUE, 2013; Waweru, 2013; Wanzala, 2013).

There are 67 universities in Kenya, 31 of which are public including constituent colleges and 36 private including constituent colleges. There are 4 categories of private universities: chartered universities - fully accredited universities, by the Commission University Education; universities, which had been offering degrees long before the establishment of the Commission University Education, Registered Private universities; and universities authorised to operate with Letters of Interim Authority (LIA) ( CUE, 2015; Waweru, 2013).

### **1.1.5 ISO 9001 standard in the University Education System**

The ISO 9001 is a generic standard that is applied and implemented to any QMS in any business: for profit, not for profit, government agencies or academic institutions (El Abbadi, Bouayad & Lamrini, 2013). Organizations, including universities require management systems to control and utilize its resources towards fulfilling its mission and goals (Ismail & Gadar, 2008). According to Ismail and Gadar (2008), a quality management system is required to direct and control an organization with regard to quality of product and services to enhance customer satisfaction. It requires that all the activities and processes necessary to produce the product or service be

documented if the quality management system is to conform to the standard (Lazibat, Sutic & Jurcevic, 2009). ISO 9000 standards have also become a popular choice for universities worldwide (Thonhauser, 2005; Singh & Sareen, 2006; El Abbadi, Bouayad, & Lamrini, 2013).

Table 1.4 presents the number of certificates in the education sector around the world, Africa and Kenya which demonstrate steady growth of certificates between 2010 and 2014 (ISO, 2016).

**Table 1.4: Worldwide number of certificates in the education sector\***

Year	2011	2012	2013	2014	2015
World	14,141	19,379	19,713	20,079	16,657
Africa	-	144	153	173	207
Kenya	-	4	9	12	19

Source: The International Organization for Standardization (ISO, 2016)

\*The survey is compiled from certificates issued by accredited certification bodies.

Many public and private universities in Kenya are ISO 9001 certified by various certification bodies present in Kenya (Kimani & Okibo, 2013). Upon award of ISO 9001 it is a requirement that the organisation maintains the quality management system through internal audits, management review, quality policy, quality objective, preventative and corrective action for continual improvement (Lazibat, Sutic & Jurcevic, 2009) while the certification body regularly performs surveillance audits to check the maintenance of the quality management system by the organisation (Guchu & Mwanaongoro, 2012).

Quality of university education and the need for effective quality assurance mechanisms beyond those of institutions themselves are becoming priority themes in national strategies for universities (MOE, 2012). Given its strategic importance, ISO 9001 quality management system has gained increasing attention from many academic scholars (Ehigie & McAndrew, 2005). Maintaining high quality standards

is important for University sub-sector in order to compete at local and global levels. Universities have increasingly shown an interest in adopting ISO 9001 certification as a quality management strategy (El-Morsy, Shafeek, Alshehri, & Gutub, 2014). Universities cannot survive unless they offer quality education which can only be achieved by adoption of quality management strategies (Mekic & Goksu, 2014)

### **Quality of University Education on Global Perspective**

In the year 2005, European Network for Quality Assurance in Higher Education (ENQA) made first step in establishment of widely shared values, expectations, good practices related to quality and its assurance by institutions and agencies across the European Higher Education Area (EHEA) (Goksu & Mekic, 2014). ENQA developed standards and guidelines regarding internal and external quality assurance for the use in higher education institutions (HEIs) and quality assurance agencies working in the EHEA, covering key areas relating to quality and standards.

According to Dobrzanski and Roszak (2007), the Bolonian Declaration was the first which emphasised the problems of assurance of high level of education and necessity of adaptation of the system of the education to the needs of the work market and increase quality of the university education.

According to El Abbadi, Bouayad, and Lamrini, (2013), throughout the world some HEIs choose to implement generic quality standards which have an undeniable success, especially in the industrial field. These standards are more known than the specific quality standards which can differ from a country to another. Moreover, they may induce renewed confidence of customers in the effectiveness of the HEIs' processes and management. Among these generic quality standards is ISO 9001 which is increasingly used by HEIs as a viable option in implementing quality assurance and customer satisfaction practices.

### **Quality of University Education in Kenya**

Quality in universities refers to a set of attributes, dimensions and characteristics that relate to university services. If quality is embedded in the system, then the university

will be able to fulfil stakeholders needs (Majeed et al., 2008). Quality standards in educational institutions emphasize providing services, resources and infrastructure to help achieve the organization's mission and goals (Usman, 2010). Quality of education is the skill of building the abilities of assimilating the knowledge in the area of educational needs and the implementation of this knowledge to create mechanisms that allow the fulfilment of stakeholders needs (MOE, 2012). The locus of quality in education must be found in the students admitted, the learning environment created, the curriculum or programmes adopted and the academic staff in the institution (MOE, 2012). Quality of education in Kenya universities consists of conformity, adaptability and continuous improvement and is often defined as fitness for the purpose and standard-based, CUE applies both conceptualisations in the quality assurance processes (Wanjohi, 2012). Close supervision of universities by the CUE is also a quality assurance measure. In order to meet the strict charter requirements, universities have been forced to continue up-dating their programmes to ensure compliance with the high standards required by the CUE. On the other hand, they have had to sell themselves as high quality universities in order to attract students (Obagi, Nzomo & Otieno, 2005).

## **1.2 Statement of the Problem**

Universities just like any other business need to understand the perception of the students (customers) regarding the services offered (Naidoo, 2011). According to Helgesen and Nasset (2007), Purgailis and Zaksa (2012), Sultan (2013), Yusoff and Woodruffe-Burton (2015) students' satisfaction is an outcome of quality service which is driven by quality management system established by the university. To enhance the quality of services offered in universities and heighten students' satisfaction, it is essential to adopt QMS based on ISO 9001 standard (Sarbu, Ilie, Enache & Dumitriu, 2009). However, despite the merit that surrounds QMS and ISO 9001 standard; there has been growing concern on its influence on the customer satisfaction (Lazibat, Sutic, & Jurcevic, 2009; and Mabururu, 2011).

Empirical studies on implementation of quality management systems have brought a conflicting debate between QMS based on ISO 9001 and customer satisfaction. For

instance, Papadimitriou and Westerheijden (2010) and Lushi et al. (2016) established that implementation of the QMS such as the ISO 9001 played a key role in enhancing quality of services and/or products offered by the organizations thus promoting satisfaction among the customers. On the other hand, Mehralizadeh and Safaeemoghaddam, (2010); and Vusa (2016) contended that customer satisfaction was mainly determined by the customer service and ability of the organizations to meet their needs but not through implementation of some QMS based on ISO 9001. This explicitly shows the need for a study to clear the doubt on the roles of QMS based on ISO 9001 on customer satisfaction. Specifically, this leads to the question: Does QMS implementation influence students' satisfaction in universities in Kenya? Similarly, the studies on influence of QMS on students' satisfaction were conducted in more than a decade ago where much has changed since then in relation to service and/or product quality and the strategies of quality management as well (Faganel & Macur, 2005; Poksinska, Kahlgaard & Antoni, 2002; and Sakthivel, Rajendran & Raju, 2005). Majority of the previous studies were carried out in developed countries such as Canada and UK where the systems and organizational management strategies are more diverse unlike the current study which was carried out in Kenya which is a developing country. Locally, the studies on QMS and satisfaction focused on other industries such as state corporations and NGOs unlike the current study that focused on educational sector which is a major sector as far as country's development and growth is concerned.

In their studies on influence of QMS implementation and customer satisfaction (Mekic & Goksu, 2014) and (Lushi, Mane, Kapaj & Keco, 2016) used regression model to carry out the analysis. Consequently, a further question to be answered is: Does QMS implementation have a similar effect on students' satisfaction in the universities in Kenya as that in other organisations? The current study adopted a different model, the ordered Probit model which according to O'Connell (2006) fulfills the requirements for both discrete and ordinal outcomes.

Based on the theoretical review, the current study was therefore deemed appropriate to examine the relationship between ISO 9001 Quality Management System implementation and students' satisfaction. Specifically, the influence of system

documentation, leadership management, resource management, product realization and continual improvement on students, satisfaction in ISO 9001 certified universities in Kenya.

### **1.3 Objectives**

The general and specific objectives of the study are as follows.

#### **1.3.1 General Objective**

The general objective of this study was to determine the role of quality management system implementation on Students' satisfaction in ISO 9001:2008 certified universities in Kenya

#### **1.3.2 Specific Objectives**

The specific objectives of the study are as follows;

- i. To determine the effect of QMS documentation on students' satisfaction in ISO 9001 certified universities in Kenya.
- ii. To establish the influence of QMS leadership on the students' satisfaction in ISO 9001 certified universities in Kenya.
- iii. To determine the effect of QMS resource allocation on Students' satisfaction in ISO 9001 certified universities in Kenya.
- iv. To establish the effect of product realisation process on students' satisfaction in ISO 9001 certified universities in Kenya.
- v. To establish the influence of QMS continual improvement program on students' satisfaction in ISO 9001 certified universities in Kenya.

## **1.4 Research Hypotheses**

Based on the research objectives and the literature review, to establish the effect of each of the independent variables on dependent variable five research hypotheses were stated as follows;

**H<sub>A1</sub>:** QMS documentation has positive significant effect on students' satisfaction in ISO 9001 certified universities in Kenya.

**H<sub>A2</sub>:** QMS leadership management has significant positive influence on students' satisfaction in ISO 9001 certified universities in Kenya.

**H<sub>A3</sub>:** QMS resource management has positive significant effect on students' satisfaction in ISO 9001 certified universities in Kenya.

**H<sub>A4</sub>:** QMS product realisation has a positive significant effect on students' satisfaction in ISO 9001 certified universities in Kenya.

**H<sub>A5</sub>:** QMS improvement management has a positive significant influence on students' satisfaction positively in ISO 9001 certified universities in Kenya.

## **1.5 Justification of the Study**

The intention of this study was to contribute to the knowledge by filling the gap that existed in the current literature on the relationship between ISO 9001 QMS certification and students' satisfaction in the university education sub-sector in Kenya. This study was therefore significant in several ways: Firstly , it would contribute to knowledge by filling the gap that exist in the current literature on the role/effect of QMS implementation on students' satisfaction in ISO 9001 certified universities in Kenya. Secondly, the outcome of the study would help ISO 9001 certified universities to understand the implications of obtaining a QMS based on ISO 9001 standard. Thirdly, the findings of the study would provide a blueprint for successful QMS system implementation on the university education sub-sector to address challenges on the quality of university education and students' satisfaction. Fourthly, the findings of the study would inform the Kenya Government, Ministry of



Education and Commission of University Education strategy of bolstering quality education service in order to enhance students' satisfaction.

Further, the results of the study will enable potential students to make informed decision while choosing the universities whether to choose ISO 9001 certified or Non ISO 9001 certified universities. Lastly, universities would find the results of study useful since they may make informed decision on the choice of the quality model to use to improve the students' satisfaction.

The anticipated research results included but were not limited to coming up with an empirical quality management model for Universities based ISO 9001 Standard as means to improve students' satisfaction; identification of gaps and opportunities for improvement and strengthening the quality management system in Kenya based on ISO 9001 standards; and pointing out to further research opportunities in the area. It will guide policy on what aspects of QMS to be emphasised in future.

### **1.6 Scope of the Study**

The study focused on universities that have been ISO 9001 certified by three leading certification bodies namely Kenya Bureau of Standards, Societe Generale de Surveillance and Bureau Veritas Certification as at December 2016. It covered public and private universities approved by Commission of University Education (CUE) as at October 2016 countrywide within main campuses. The QMS specific constructs/concepts that were covered in this study are documentation, leadership, resource allocation, product realisation and continual improvement, and how each influence students' satisfaction. The study was carried out over a period of three years.

### **1.7 Limitations of the Study**

One of the limitations of the study was that the respondents targeted were reluctant to provide the necessary information because they felt that the information requested is confidential. Others were unwilling to co-operate or be busy with their work. To overcome this challenge the researcher first explained the purposes of the study to

the management of the universities and requested for co-operation. The study also assured the respondents that the information collected would be kept very confidential and it would be used for the academic purposes only. The study was limited to the main campuses which therefore mean that the findings did not incorporate the views of the universities in the other campuses of the ISO certified universities.

Some respondents also feared providing information since it touches on management aspects; others were not sure on whether they were allowed to provide such information and opted not to be associated with such mistakes because they would be victimised by management. While, others provided very shallow content since they feared touching on matters they were not very sure of concerning the institution. In order to ensure that such occurrences were not experienced, the study first sought permission from the management to collect data in the university. Secondly, all identities of each respondent were concealed. This entailed using questionnaires that would not prompt the disclosure of one's identity.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents theoretical and the application of this QMS in universities and the effects on the students' satisfaction empirical of review of the Quality Management System, ISO 9001: 2008; and university students' satisfaction in literature related to the problem being investigated. The chapter comprises seven subsections namely, Introduction; Theoretical framework, Empirical framework, Conceptual framework, Critique of the literature relevant to the study, Summary of the literature review and Research gaps.

#### **2.2 Theoretical Review**

Theoretical framework is a collection of interrelated ideas based on set of concepts, models and theories. It is a reasoned set of propositions which are derived from and supported by data or evidence for the purpose of explaining or predicting or an event (Imelda, 2014).

##### **2.2.1 Quality Gurus**

Historically, QM was first emerged by the contributions of quality gurus, such as Deming and Juran in Japan after Second World War. Then Crosby, Feigenbaum, Ishikawa, and others had developed this powerful management technique for improving business quality within the organizations. During the period 1980s to 1990s, many national and international quality awards (QAs) have been established to provide guidelines for implementing TQM based on the suggestions and theories of QM gurus (Neyestani and Juanzon, 2016). The gurus extensively made substantial contribution to quality management by their theories in improving quality. QM techniques and tools could be innovated by these theories (Alamri, Alharthi, Alharthi, Alhabashi, & Hasan, 2014). Deming (1986) worked with statistical sampling to improve quality and also introduced the concept of "Variance" to the Japanese and a systematic approach to problem solving which eventually was called

the Plan, Do, Check, Act or PDCA Cycle. Joseph Juran expanded the tool set available for producing quality products and managing organization-wide quality by introducing the Pareto Principle as an application of statistics to prioritizing process improvements (Juran & Godfrey, 1998). Philip Crosby popularized the Cost of Quality concept (Crosby, 1979). Feigenbaum was the first guru, who defined “Total Quality Control” as an effective system for integrating the quality-development, quality-maintenance, and quality-improvement efforts of the various groups in an organization to enable marketing, engineering, production and service at the most economical levels which allows for full customer satisfaction (Feigenbaum, 1991). Kaoru Ishikawa is considered by many researchers to be the founder and first promoter of the ‘Fishbone’ diagram (or Cause-and-Effect Diagram) for root cause analysis and the concept of Quality Control (QC) circles (Ishikawa, 1985). These theorists are regarded as the key founders of TQM philosophy, and the origin of QM concept evolves mostly from their work.

### **2.2.2 Quality Management Principles**

Levitt (2005) stated that ISO 9001 requirements are based quality management principles which are: Customer Focus, Leadership, Involvement of people, Process Approach, System Approach to Management, Continuous Improvement, Factual Approach to Decision Making, and Mutually Beneficial Supplier Relationships which are embedded in ISO 9001:2008 standards (Pryor, Toobs, Anderson & White, 2007; Cianfrani & West, 2009; Sheps, 2011). Quality management principles establish the direction for the people in charge of establishing and documenting the ISO 9001 standard for all interested stakeholders (Nyuke & Gasva, 2015).

Customer Focus Principle; This is the notion common to all quality processes that quality consists of meeting and exceeding the expectations of customers (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). In the educational context the customers could be the students, their parents, their future employers or other educational establishments. According to Warokka and Hilman (2012), it is conceptualized by commitment to satisfy customers, integration of customer satisfaction, knowledge of

customer needs and expectations, usage of customer feedback, monitoring customer satisfaction, responsiveness to customer complaints, and the interaction with customers ( Balague and Saarti, 2008; Tripathi, 2009).

Leadership principle; a leader's ability to establish a vision and purpose is the key to a successful organization. Leaders inspire others, provide them with the resources to do their job, and ensure that the needs of all parties, staff, customers, the local communities and others are identified and met (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). Leadership has been shown to be the key variable in successful Universities. According to Warokka and Hilman (2012), it is conceptualized by understanding the needs, clear vision, target setting, convincing and eliminating curiousness (Balague and Saarti, 2008; Tripathi, 2009).

Involvement of People Principle; Organizations need their people to use their abilities for the benefit of the organization (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). Ensuring that this happens is important for innovation and creativity. Without staff both academic and support staff universities cannot function. Planning the needs of staff and ensuring that their talents are used to the full are key indicators of success. According to Warokka and Hilman (2012), it is conceptualized by staff involvement, continuous training empowerment, sharing and conducive environment (Balague and Saarti, 2008; Tripathi, 2009).

Process Approach Principle; this is about the efficiency and effectiveness of the organization's core activities and the importance of developing a systematic approach to their management (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). The establishment of clear roles and responsibilities and identifying key activities are some of the issues that are important in a process approach, the systematic management of the teaching and learning process is what is required to conform to the requirements of the process principle. According to Warokka and Hilman (2012), the organization output that is made up of a series of interacting

processes; it involves a set of activities that use resources to transform inputs into outputs (Balague and Saarti, 2008; Tripathi, 2009).

System Approach to Management Principle; this is about recognizing the interrelatedness of processes and aligning them to achieve the best results (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). It is about ensuring that there are clear systems in place and establishing clear targets and goals. Having clear indicators of performance and ensuring that there are management processes to meet those targets are key aspects of educational management. According to Warokka and Hilman (2012), the activities of identifying, understanding and managing inter-related processes is systematic approach. This approach will lead the organization to be more effective and efficient in achieving its objectives (Balague and Saarti, 2008; Tripathi, 2009).

Continual Improvement Principle; Continuous improvement is the objective of all quality systems. It is about ensuring that people have the training and skills required to make improvements and ensures that there is an organization-wide approach to the improvement of performance (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). University establishments need to be as concerned with continuous improvement as any other organization. One of the key factors in this is the importance of staff training and development and the need to ensure that there is systematic approach to the development of staff and an adequate investment in their training. According to Warokka, & Hilman, 2012), it is the ongoing improvement that involves everyone (top management, managers, and workers) and everything process, method, tools, data and system. Thus the organization's overall performance will be a permanent objective; (Balague and Saarti, 2008; Tripathi, 2009).

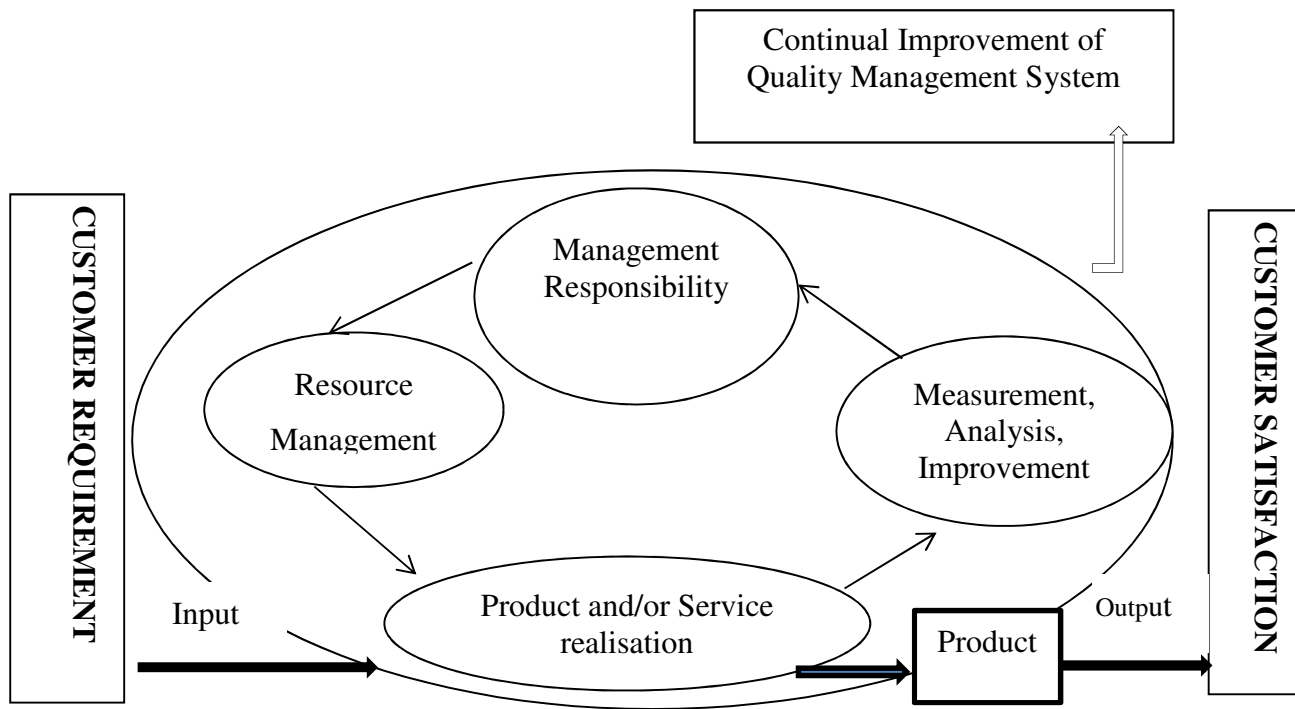
Factual Approach to Decision Principle; this requires that decisions be made on the basis of information and data (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). It ensures that data is available and decisions are informed by available

information. Data on students and their performance and on such things as the value added being given to them through the educational process is clearly important to good decision making in education. According to Warokka, & Hilman (2012), the information and analysis constructs are conceptualized by the availability of data, the timeliness of data and the usage of data (Balague and Saarti, 2008; Tripathi, 2009).

Mutual Beneficial Supplier Relationship Principle; any organization is in a mutually beneficial partnership with its suppliers that can create value for both parties (Cianfrani & West, 2009; Dissanayake, 2011; Kumar & Balakrishnan, 2011; Karani & Bichanga, 2012; and Taib, Warokka, & Hilman, 2012). It is about clear and open communication, undertaking joint projects and pooling expertise. The importance of supplier relationships for University is clear. Universities should have relationships with their feeder schools and universities have similar relationships in the other stakeholders. Relationships with community groups also need to be considered under this. According to Warokka, & Hilman (2012), is conceptualized by the good supplier-organization relationship, supplier selection criteria, exchange of information, and supplier development (Taylor and Wilson, 1990; Balague and Saarti, 2008; Tripathi, 2009)

### **2.2.3 The System model**

A system is defined in ISO 9000:2005 as a set of interrelated or interacting elements (Hoyle, 2009). In ISO 9001, there is a diagram that portrays a system model of a process based quality management system as shown in Figure 2.4.



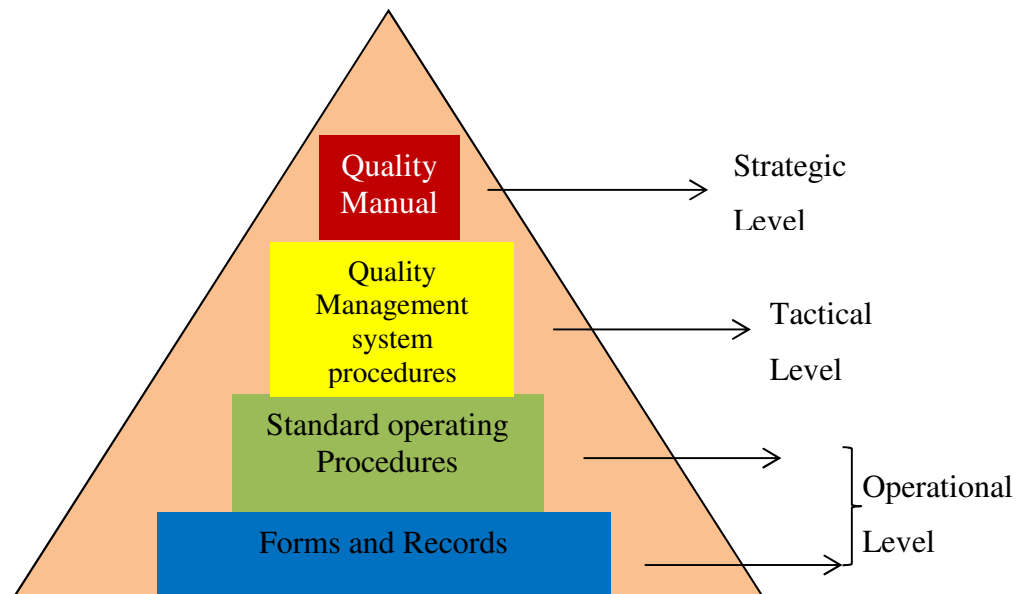
**Figure 2.1: ISO 9001: 2008 Process- Based Model**

Source: Hoyle (2009)



ISO 9001 standard sets the requirement for the implementation and certification of the quality management system. The implementation of this system model is equivalent with the introduction of the processes management which is the foundation of the rational and effective management in each organization (Michalska-Ćwiek, 2009).

The system documentation can be viewed as hierarchy containing four tiers, as shown in the Figure 2.5. All documentation moves from one level to the next in a descending order. If the system is properly structured, changes at one level will seldom affect the level above it.



Source: Michalska-Ćwiek (2009).

### **Figure 2.2: Levels of QMS Documentation**

The documentation is maintained, updated, and continually improved as the university seeks better business practices (Michalska-Ćwiek, 2009). The implementation of this system model is equivalent with the introduction of the processes management which is the foundation of the rational, effective management in each organization (Michalska-Ćwiek, 2009). The System Documentation is supervised by Quality Representative (Michalska-Ćwiek, 2009).

#### **2.2.4 Hersey-Blanchard Situational Leadership Model**

According to Safari and Sabouri (2014), the situational leadership model is a leadership theory developed by Paul Hersey and Kenneth Blanchard. The Hersey-Blanchard Situational Leadership Model rests on two fundamental concepts; leadership style and the individual or group's maturity.

The situational leadership model views leaders as varying their emphasis on task and relationship behaviours to best deal with different levels of follower maturity (Boyce, 2006). Managers using the situational leadership model must be able to implement the alternative leadership styles as needed. A manager's style is determined by the situation, the needs and personalities of his or her employees (Nadeem, 2012).

There are different management styles available which are utilized by educational managers both in office as well as in the field work to achieve the set targets aimed at enhancing personal and collective efficiency of the employees on one hand and the students on the other in the organisation. In the prevailing educational scenario appropriate management style could determine the possible improvement of the concerned personnel and the organisation (Nadeem, 2012), hence students satisfaction.

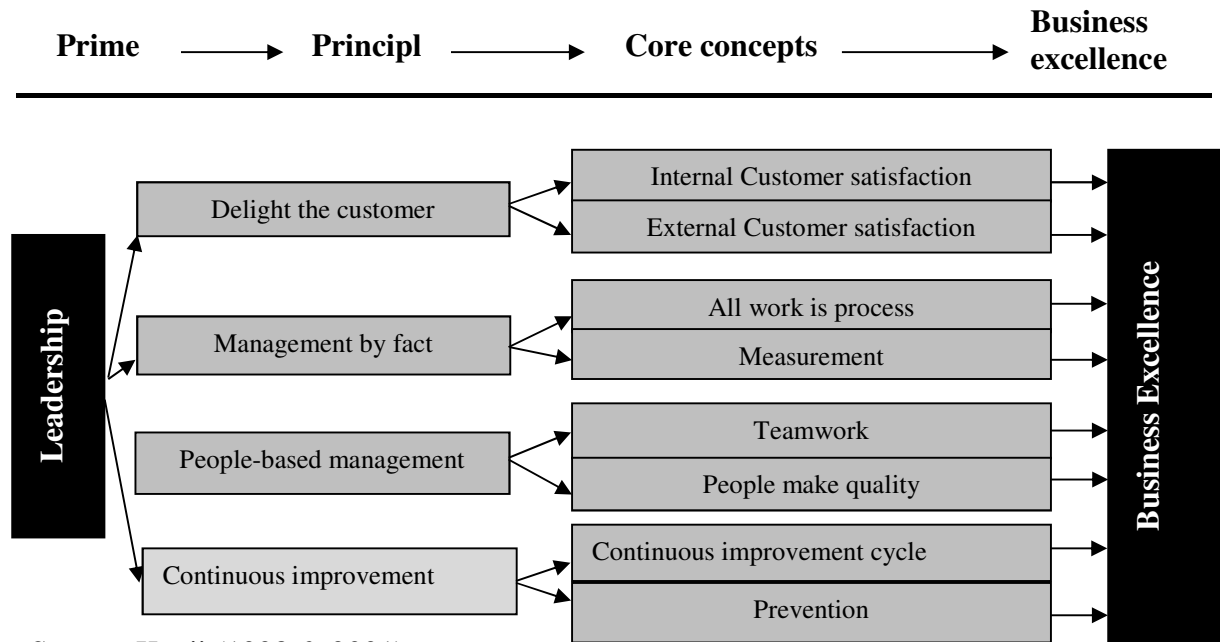
An academic leader is one who has broader vision of his field and has power to bring the change (Mehmood, Khan, Raziq, & Tahirkheli, 2012) and drive QMS to enhance the quality of education and students' satisfaction which is a priority for the success of any business. In the university, the big name in terms of quality education and students' satisfaction depends on the academic leaders. Academic leaders' work style, level of acceptability and the will to change are most important factors which set the quality of education and students' satisfaction of the universities. In the current era of knowledge based economy there is pressure on universities to ensure that the graduates meet with the demands of industry and society. For all of this to be achieved the most important thing is leadership. The success of the organization in achieving quality depends on the ability and attitude of the top management (Serafimovska & Ristova, 2011).

The Situational Leadership Model (Hersey, Blanchard, and Johnson 2002) has as its primary focus the readiness of followers as the determinant for what a leader should do to be effective. The Situational Leadership Model, when combined with an understanding of what followers need as they cycle through the various stages of change, provides leaders with an effective strategy for identifying those leader actions that can best support their followers in their march toward quality management and customer satisfaction thus there is a relationship between leadership style and quality management therefore the model is relevant to this study.

### **2.2.5 Total Quality Management (TQM) Model**

Fundamentally, TQM Model embraces the principle that organisations should listen to those whom they serve, continually evaluate how well they are responding to the needs of their constituencies, and initiate change in order to meet or exceed the expectations of these groups (Lazibat, Sutic & Jurcevic, 2009).TQM Model focuses on processes and tools that extract quality definitions from costumers and translate their desires into corporate actions (Safakli & San, 2007).

Kanji's (1998) model, which purports to be applicable generally and which contrasts with some other TQM approaches, clearly states its principles and assumptions, and these allow one to derive the critical success factors for its development in universities illustrated in figure 2.7



Source: Kanji (1998 & 2001)

**Figure 2.3: Kanji's Business Excellence Model**

It has been applied in 183 higher education institutions in three different countries: the USA, the UK and Malaysia (Kanji, 2001). According to this model, organisations have to be guided through the TQM principles and core concepts by leaders in order to achieve business excellence (Kanji *et al.*, 1999). Leadership serves as a prime in this model and must be transmitted through all the principles and core concepts in order to achieve business excellence. Core concepts represent those managerial areas that must be given special and continual attention to ensure high performance. These factors are critical because only if they are executed properly then the organisation will achieve business excellence. These factors are useful because they can be used by managers and leaders for missions, policies and decision making (Kanji *et al.*, 1999).

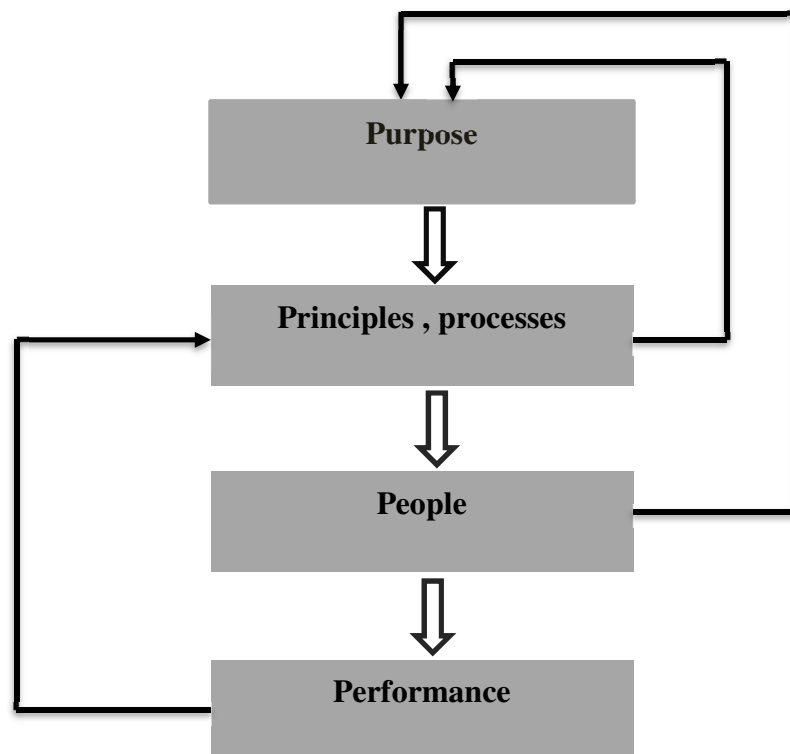
TQM Model was initially used for the measurement of quality in the University sector in 1993 (Clayton, 1993). Total Quality Management (TQM) Model, aiming at customers' satisfaction to the higher education area was also quite widespread. TQM Model can be considered as the first quality-management model in higher education that caused a lot of discussions about potential relevance for the sector, as well as its educational and social implications (Stensaker, 2007). Quality cannot be enforced from outside the university and can only be achieved through the joint commitment and effort of all those inside it (Lazibat, Sutic & Jurcevic 2009). According to Elton (1993) TQM Model in Universities should be established at all levels of each university to increasing recognition and resourcing of teaching and rewards for excellence.

Brower (1994) described TQM Model as follows: working with and through teams, understanding the role of university managers, university leaders and university academic and support staff, creating a learning organization, being clear on purpose and on product/service definition, understanding customers( students) and meeting or exceeding their needs, knowing quality is designed and built in, not inspected in at the end, building partnerships with customers( students) and suppliers, focusing on understanding and improving processes, performing continuous improvement and benchmarking(Lazibat, Sutic & Jurcevic, 2009).

Safakli and San (2007) spoke about required constructs of TQM in University, which were: sound of top management leadership, strong customer focus, congenial relations with suppliers, harmonious employee interrelationships, effective information and communication systems, benchmarking against competitors and good management of processes and products (Lazibat, Sutic & Jurcevic, 2009).

### 2.2.6 The 5 P's Model

The 5 P's Model, developed by Pryor, White and Toombs (1998) considers the establishment of strategic direction and the strategic management model to comprise only one of five elements necessary for an organization to be successful. For pneumatic reasons, the authors call this element Purpose. The other four elements are Principles, Processes, People, and Performance. The 5 P's Model and the alignment of the 5 P's are depicted in figure 2.11 as follows:



Source: Pryor, White and Humphreys (1998).

### **Figure 2.4: 5 P's Model**

Pryor et al. (2007) in the model depict the connection between strategy (Purpose) and structure (Principles as internal structures and Processes as external structures) and the influence of structures on employee behavior (People) and corresponding results (Performance) (Bichanga & Ogwe, 2013). Strategy drives structure; structure drives behavior; and behavior drives results. The arrow from Performance to Purpose represents the feedback mechanism for guiding an organization toward its objectives Pryor et al. (2007). This feedback connection is essential to successful Strategic Quality Management. There is a common saying that if something is not measured, it cannot be improved. The primary motivation of the 5 P's Model is to guide an organization toward performance excellence, world-class status, and long-term survival. Metrics and measurements are vital to track status and gauge success in this endeavor (Pryor *et al.*, 2007).

Beyond strategic management, 5 P's model can also be used in quality management, organizational evaluation and change management (Pryor, White & Toombs, 1998). 5P's Model integrates quality concepts and strategic management concepts into a powerful systemic structure (Pryor *et al.*, 2007).

University leaders must establish the strategic direction and goals of their business as well as the strategies and tactics for achieving them. Meanwhile, strategies drive structure (Chandler, 1962), Processes and Principles should be aligned with Purpose.

#### **2.2.7 Resource input model**

The resource - input model proposed by Cheng and Tam (1997) to evaluate the concept of education quality and students' satisfaction. It illustrates the different conceptions that can be used to deepen the understanding of and development of quality management strategies (Ling, Piew & Chai, 2010). The model stresses the importance of obtaining scarce and quality resource inputs to the education institutions to fulfill various objectives and to provide quality services in a short period of time. It assumes that the quality of education and students' satisfaction

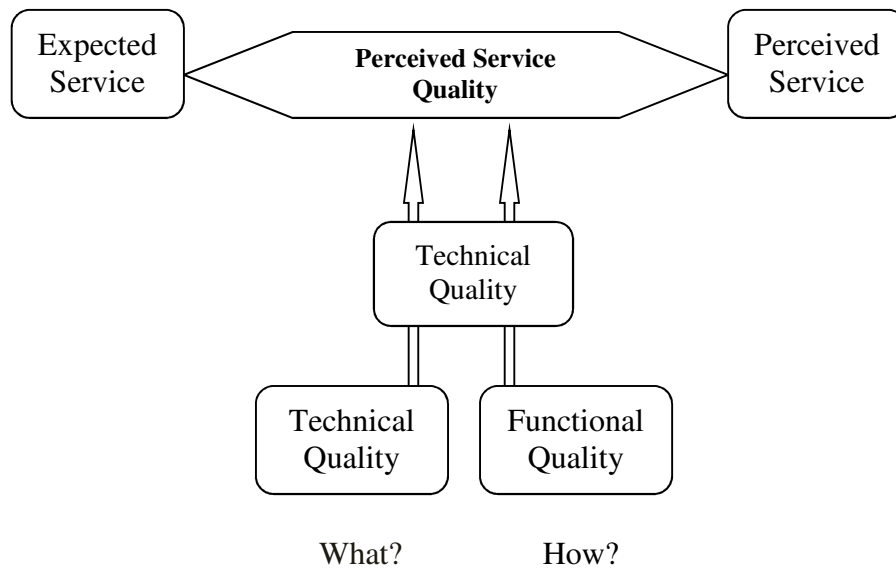
depends on the quality of resource input (Tam & Cheng, 1996). According to Cheng (2003), the education quality and students' satisfaction indicators for the resource-input model may include high quality student intake, more qualified staff recruited, better facilities and equipment, better staff-students ratio, and more financial support.

Education, awareness and training are some of the key elements of QMS in which many people are involved, so the success of the implementation depends directly on how well they have been done (Alharbi & Yusoff, 2012). To effectively support their quality effort, organizations need to implement an employee compensation system that strongly links quality and customer satisfaction with pay (Brown *et al.*, 1994). An organization's quality management system initiative must be supported with a recognition and reward system that encourages and motivates employees to achieve the desired performance. Organizations that are serious about achieving quality and customer satisfaction must integrate these aspects of QMS into their recognition and reward system.

### **2.2.8 The perceived service quality model**

The perceived service quality service model was developed by Christian Gronroos in 1982 which is also known as the Gronroos service quality model or the Nordic model (Chaipooirutana, 2008) which comprises of two main dimensions. The first dimension is technical quality and relates to what customers receive as a result of their interaction with the firm. The second dimension is functional quality and it is concerned with how the service is delivered (Akhtar, 2011). Gronroos (1984) suggested that, in the context of services, functional quality is generally perceived to be more important than technical quality, assuming that the service is provided at a technically satisfactory level. Gronroos also pointed out that the functional quality dimension can be perceived in a very subjective manner as illustrated in Figure 2.12.





Source: Chaipoopirutana (2008)

**Figure 2.5: The Perceived Service Quality Model**

Satisfaction is the customer fulfillment response therefore it is a judgment that a product or service feature, or the product or service itself, provides a pleasurable level of consumption-related fulfillment (Ameer, 2014). In other words, this definition means that satisfaction is the customer's evaluation of a product or service in terms of whether that product or service has met their needs and expectations. Failure to meet needs and expectations is assumed to result in dissatisfaction with the product or service.

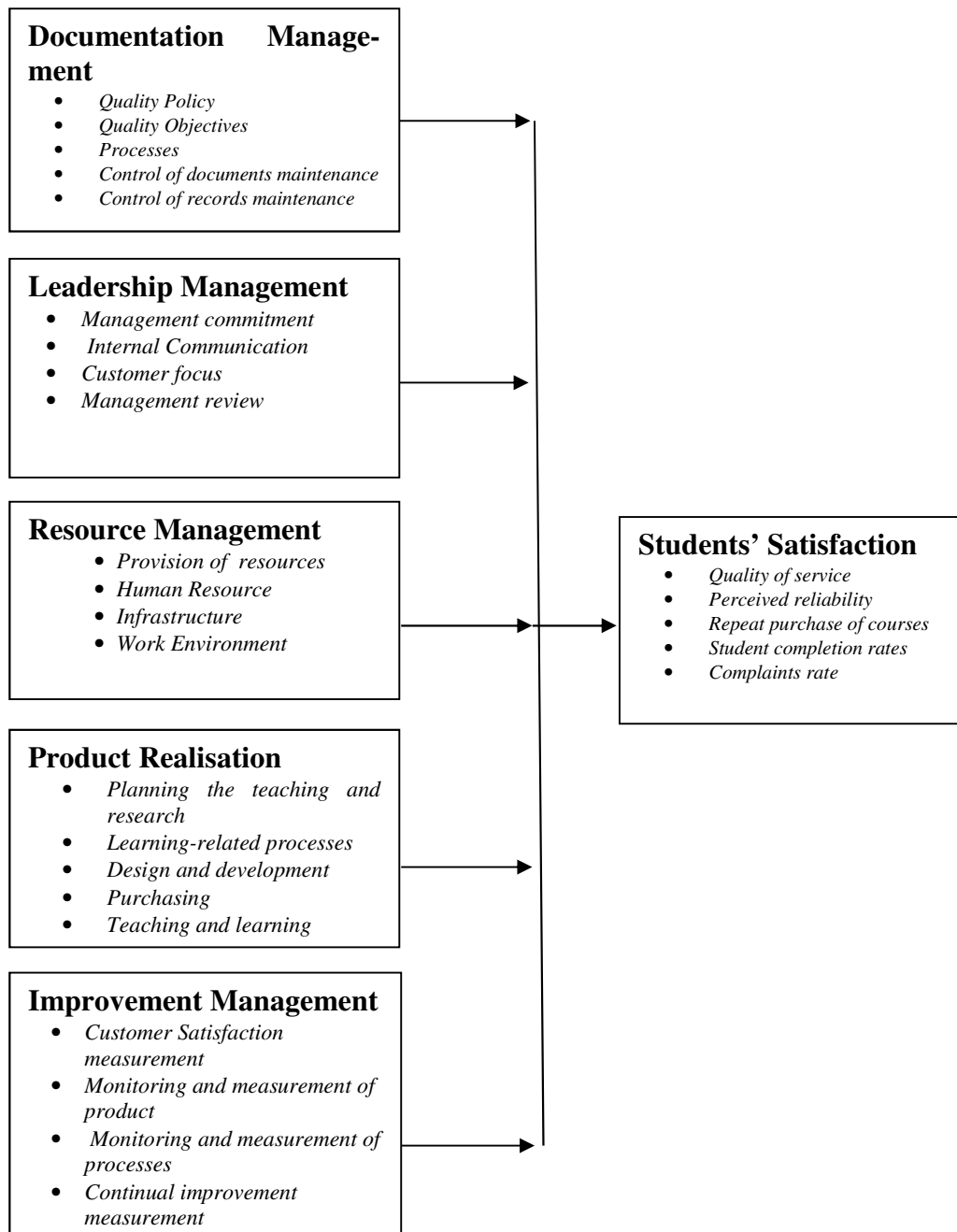
The quality of the university education is perceived through the prism of many components, which together decide on the success in the product (services) realization of the educational aims (Michalska-Ćwiek, 2009). It should take into account: the quality of the material potential, the quality of the immaterial potential, the processes quality and the quality of the results (Roszak, 2009). ISO 9001 advocates that universities should determine important features and attributes for their services. They should then measure expectations (expected service) and perceptions (perceived service) of their customers (students) on those attributes as well as a rating of their overall service satisfaction.

Delivering quality service has become an important goal for most universities (Alves, 2006). Universities strive to provide high quality services because they need to compete for students (Faganel & Macur, 2005) and have become increasingly interested in establishing quality management systems in response to the demands. Measuring the quality of services and student's satisfaction is therefore an important task; especially for those institutions that give feedback on the dimensions of quality (Zafiropoulos & Vrana, 2008). The perceived service quality model is an important customer-satisfaction framework.

### **2.3 Conceptual Framework**

Based on the review of previous studies and literature review, a conceptual framework model has been proposed to model the role of Quality Management System implementation on Students' satisfaction in ISO 9001:2008 certified in universities in Kenya. The purpose of the study was to establish how QMS based on ISO 9001 certification influences the university students' satisfaction in universities in Kenya.

It is hypothesised that implementation of QMS will influence the university students' satisfaction. The five dimensions of QMS implementation that were tested against university students' satisfaction were: (1) documentation management, (2) leadership management, (3) Resource allocation management; (4) Product/Service realization management; and (5) improvement management. The research framework is conceptualized as presented in Figure 2.17.



Source: Author (2018)

**Figure 2.6: Conceptual Framework**

Further, the university students' satisfaction is operationalised using quality of service, perceived reliability, repeat purchase of courses, student completion rates and complaints rate.

### **2.3.1 Documentation Management**

Clause 4 of ISO 9001: 2008 contains the basic requirements for establishment and documentation of a management system (Dissanayake, 2011). According to Kulcu (2009) there are two types of documentation required in the QMS, the Policy documents, documented procedures and records required by the standard; and documents needed by the organization to ensure the effective planning, operation and control of its processes. This variable is anchored on Process Model (Hoyle, 2009), System Model and Pyramid Model and Therefore, the relationship is formally stated in its alternative form as follows:

*H<sub>1</sub>: Documentation management has a positive significant effect on students' satisfaction in ISO 9001: 2008 certified Universities in Kenya.*

### **2.3.2 Leadership Management**

Leadership and management are often considered practically overlapping concepts. Leadership is a process by which a person influences others to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent (Sharma & Jain, 2013). This definition is similar to Northouse's (2007) who defined leadership as a process whereby an individual influences a group of individuals to achieve a common goal. Leaders carry out this process by applying their leadership knowledge and skills. On the other hand, management is defined as a process that is used to accomplish organizational goals, that is, a process that is used to achieve what an organization wants to achieve (Bohoris & Vorria, 2007). A well balanced organization should have a mix of leaders and managers to succeed, and in fact what they really need is a few great leaders and many first-class managers (Kotterman, 2006).

The entire clause five of ISO 9001:2008 is management's responsibility and dedicated to leadership, top management and strategic planning processes of the organisation rather than to specific products (Hoyle, 2009). In management responsibility, leaders are the main players in the way to culture organization quality management (ISO, 2015). QMS is a process that begins with a vision which is

actively promoted by the leaders by considering the needs of all interested parties including customers, owners, employees, suppliers, financiers, local communities and society as a whole (Misztal, 2013). Its achievement requires effective leadership that is in a position to build a healthy organizational culture that will transform into QMS (Serafimovska & Ristova, 2011). According to Miller (2007) leadership evaluation are measured through their order and support towards organization mission, vision, strategic planning and organizational structure which includes quality initiatives to improve quality of products and service, and customer satisfaction.

Top management commitment plays a vital role in the implementation of the quality management system (Tari, 2005). Most quality gurus put much focus on top management commitment in their respective theories (Yousaf, 2006). QMS process should be aligned with management strategic business so that it can assure top management commitment. The current approach to quality management system is based on principles that are specified on the basis of experience and good practices and approaches of major leaders in the field of quality management (Paulová & Míkva, 2011). Eight QMS principles creates the backbone of the implementation of QMS by the leadership and are incorporated in the standard of ISO 9000:2005 (Paulová & Míkva, 2011) and the first principle is leadership. This variable is anchored on Hersey-Blanchard Situational Leadership Model, Total Quality Management (TQM) Model, EFQM Model, Strategic Management Model and 5P's Model and Therefore, the relationship is formally stated in its alternative form as follows:

*H<sub>2</sub>: Leadership Management has positive significant influences on the students' satisfaction in ISO 9001: 2008 certified Universities in Kenya.*

### **2.3.3 Resource Management**

Resource management is the efficient and effective deployment of organization's resources when they are needed (Clegg & Bailey 2008; Miller, 2007). Clause 6 of ISO 9001 draws together the entire resources-related requirements (Hoyle, 2009). Resource management is a key business processes in all organisations. In practice,

resource management is a collection of related processes that are often departmentally oriented. This variable is anchored on Resource input Model and Organizational learning Model and therefore, the relationship is formally stated in its alternative form as follows:

*H<sub>3</sub>: Resource management has positive significant effect on students' satisfaction in ISO 9001:2008 certified Universities in Kenya.*

### **2.3.4 Product Realisation Management**

According to Enayati, Modanloo, Behnamfar, and Rezaei (2013), quality is a set of features of the product or service which is capable of complying with the explicit or implicit needs. Throughout the text of the ISO 9001:2008 international standard, wherever the term or word “product” occurs, it can also mean “service” (ISO, 2008)

According to Ismail and Gadar (2008), product and/or service realisation is the process that converts the customer requirements (student) into an output that is both acceptable to the customer and not jeopardizes the quality of the product or service. Sanongpong (2009) stated that product realization is the process by which a product or service is conceived, investigated, taken through the design process, manufactured, marketed and serviced and if not managed properly it may lead to poor process performance, quality of product or service and low customer satisfaction. The whole organization: the people, the process and the product are synergistically mobilized and coordinated towards product realization or service delivery.

Planning of product realization, customer related process, design and development, purchasing, production and service provision, and control of monitoring and measuring devices come under clause 7 of ISO 9001:2008 requirements (Kumar & Balakrishnan, 2011). Product realisation is a demand fulfillment process and also a series of processes that have interfaces with resource management processes and which embody measurement, analysis and improvement processes (Hoyle, 2009).

Products and services that meet or exceed customer expectations result in customer satisfaction while quality is the expected product/service being realized (Lovelock & Wirtz, 2011; Yarimoglu, 2014). Products/services are produced and manufactured to specifications that are appropriate to the value of the product/service which is an operational or manufacturing view of quality (Meirovich & Bahnan, 2008) and specific to customer requirement.

The whole organization, the people, the process and the product are synergistically mobilized and coordinated towards product realization or service delivery (Ismail & Gadar, 2008). In an educational setting, this clause specifically covers all processes in teaching and learning, administration and academic services (Ismail & Gadar, 2008).

The quality of university education and its evaluation is a complex issue (Hutyra, 2011). The principal matter is identification of products of university and their customers followed by selection of proper method for measurement and analysis (Hutyra, 2011)

Hutyra (2011) stated that the main products of university are expressed by requirements and expectations of the customer and are delivered to the customers (Ismail & Gadar, 2008). Beside of the customers there are the other stakeholders that receive other university products (Hutyra, 2011). University staff (people), representatives of society, environment, etc. They have various needs and expectations and university should fulfil all stakeholders' requirements by effective and efficient manner (Hutyra, 2011). It is supported by university management system, which defines university strategy and policies and uses people and other resources to transform requirements to products and services via set of internal processes (Hutyra, 2011).

Product design is an important dimension of quality management. Sound product design meets or exceeds the needs and desires of customers better than that of the competitors, leading to an increased market share (Flynn, 1994). In fact, product design may be related to all of (Garvin's, 1987) critical dimensions of quality

performance: performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality.

In an educational setting, this clause specifically covers all processes in teaching and learning, research, administration and academic services. Hutyra (2011) stated that the main products of a university are expressed by requirements and expectations of the customer who are mainly students and are delivered to the customers. The perceived service quality model, and Goal and Specification Model anchors this variable (product realisation) and therefore, the relationship between product realization and university students' satisfaction is formally stated in its alternative form as follows:

*H<sub>4</sub>: Product realization has a positive significant effect on students' satisfaction in ISO 9001: 2008 certified Universities in Kenya.*

### **2.3.5 Improvement Management**

According to ISO (2008) the organization must plan and implement measurement, monitoring, analysis and improvement processes needed to monitor the customer satisfaction level, plan and conduct internal audits, control of non-conforming products, manage the corrective and preventive action and estimate their effectiveness (Kumar & Balakrishnan, 2011).

At each step of quality management system, some form of measurement has to be conducted at every stage of the process and of each product/output (Ismael & Gadar, 2008). Monitoring and measurement, control of non-conforming product/service, analysis of data and improvement are the requirements of clause 8(ISO, 2008). Monitoring and measurement of customer satisfaction, conduct of regular internal audits, and monitoring and measurement of processes comes under monitoring and measurement (Dissanayake, 2011). The customer needs to tell the organisation whether the services or product supplied is at the desired level or not. Once feedback is obtained, an analysis needs to be done to determine whether corrective action is needed. If there is no need for correction, the emphasis will be on efforts for



continual improvement to ensure that the high standard is already achieved and maintained (Ismail & Gadar, 2008).

Measuring quality and students' satisfaction in higher education is a complex issue. In order to measure students' perception of service quality and satisfaction, universities are faced with a lot of measurement techniques. The major challenge is to identify and implement the most appropriate method for measuring service quality (Kontic, 2014) and students' satisfaction. An analysis of relevant studies revealed that the most frequently used scale to measure service quality and students' satisfaction in university education is Service Performance model (SERVQUAL Model) and SERVPERF Model which are used to anchor the continual improvement management variable. Consistent with the reviewed literature, the relationship between continual improvement management and university students' satisfaction is hypothesised as follows:

*H<sub>5</sub>: Improvement management positively and significantly influences students' satisfaction in ISO 9001: 2008 Certified Universities in Kenya.*

### **2.3.6 Students' Satisfaction**

In a University, students are the main customer of the organization (Hill, 1995; Sakthivel *et al.*, 2005; Zairi, 1995; IWA, 2007) therefore students' satisfaction should always be considered by the university when measuring the quality of education. Assessing students' satisfaction, achievement and absorption capacity are critical not only for the students and their institutions but also for the business industry who are potential recruiters of these students (El-Hilali, Al-Jaber, & Hussein, 2015).

According to Pitman (2014), quality of university education is therefore defined hierarchically as one that: (i) supplied students and the market with in-demand skills (fitness for purpose), (ii) retained and graduated a high proportion of students (efficiency); and (iii) generated positive student feedback (customer satisfaction).

According Kwek, Lau and Tan (2010), there are two approaches adopted by researchers in establishing the level of students' satisfaction in universities. Students' satisfaction can be evaluated based on the perspective of the students ('outside-in' approach) or the perspective of the academicians and administrators ('inside-out' approach) (Hoffman & Bateson, 2006). This variable is anchored on the Kano Model and Satisfaction Model discussed

## **2.4 The Empirical Review**

According to the study by Kwek, Lau and Tan (2010) which is based on the process model of education quality where a total of 458 undergraduate business students from a private university in Malaysia participated, the researchers found that antecedent relationship between the process model of education quality and the students' perceived service quality existed. They concluded that university management should adopt an integrated process approach to develop determinants in the process of evaluating the students' perceived service quality. In addition, a university should not isolate the models of education quality and the students' perceived service quality from management decision-making since the process model of education quality is positively related to the students' perceived service quality that leads to student's satisfaction and later good performance among the students.

Michalska-Ćwiek (2009) carried out a study on critical factors influencing the effectiveness of quality management systems. The study found that all elements related to the quality and have crucial impact on the quality management system in education. It can be stated that quality in educational process is understood as the agreement with agreed requirements or the degree of the fulfillment of customers' requirements or other interested parties, or also the degree of the fulfillment of the assessment criteria like didactic tools, lecturers, the results of teaching, needs and satisfaction.

In the study of 15 universities in the Albanian higher education system (Brucaj, 2014) where 127 participants were surveyed to establish factors that contribute to institutional quality of education and effective leadership strategies that have been used to promote a high quality education. The findings point out the importance of

proper planning as well as issuing of strategic directives by the university management to the staff in order to realize the mission and promoting academic excellence. Similarly, the findings show that to increase the quality standards in universities it is essential for leadership management to adopt certain leadership strategies to implement quality management philosophy and practices in the educational system.

Brucaj (2014) concluded that in order to be competitive, successful and achieve quality education in the market the management and leadership need to rethink their strategies and open to new leadership management strategies. Those strategies will contribute to enhance quality of education in the university. Therefore the role of leadership management is very important in designing and implementing the most appropriate strategies for their institutions to enhance quality of education and students' satisfaction.

The study carried out by Garwe (2015) in Zimbabwe revealed the need for university leaders to embrace changes and work with their staff to achieve institutional goals. Institutional leaders who promote intellectual growth of both staff and students and who create a culture of learning make it easy for their institutions to uphold high quality standards. The study also highlighted the need for an effective national quality assurance agency in making sure institutions are supported in the global quest for quality.

According to study carried out by Ladhari (2009) SERVPERF model is recommended that there is a good scale to use when measuring service quality in various specific industries but it is appropriate to choose the most important dimensions of this model that fit to that particular service being measured in order to assure reliable and valid results.

A study by Sarbu, Ilie, Enache and Dumitriu (2009) reached the conclusion that, in order to have real quality in higher education, it is important to introduce a quality management system and to constantly improve it, using the feedback from the satisfaction of the student and other interested parties, with the intention of attaining quality of education.

Magutu, Mbeche, Nyaoga, Nyamwange, Onger and Ombati (2010) studied quality management practices and academic services at the University of Nairobi and concluded that the University of Nairobi has applied quality management and public universities should abandon the status quo and be supportive of new ideas in order to respond to the ever-changing environment in higher education and enhancing quality of education and customer satisfaction (Kagumba & Gongera, 2013).

Athiyaman (1997) conducted a survey of 1432 students from various levels of higher education in Australia. The research aimed to find out the relationship between quality of education and customer satisfaction. The result showed that there is a high correlation between student satisfaction and quality measures.

The study conducted in the Taiwan's higher education systems concluded that the top management of a school can adopt ISO 9001 as the stepping stone toward education quality excellence (Cheng, Lyu, & Lin, 2004). Quality certification is therefore a powerful tool to improve quality of education which requires management responsibility and commitment.

Wahid and Corner (2009) selected 12 representatives of ISO 9001 certified companies to be interviewed to explore current practices in maintaining ISO 9001. From the interviews conducted with the quality directors and quality assurance managers of the companies, it was found that many reported failure cases in ISO 9001 maintenance are attributable to lack of constancy in management responsibility. Further, Wahid and Corner (2009) established that poor management of organization resources facilitate greatly in the organization failure since several set projects of the organization are not implemented.

In their study on successful ISO 9001 implementation in Taiwan, Lin and Jang (2008) developed a conceptual framework that aimed at determining, among other hypotheses, whether management responsibility was positively related to operational performance. They found that management responsibility was not significantly related to operational performance. However, most findings from other studies have consistently emphasized the significant role of management responsibility in ISO 9001 implementation (Rayner & Porter, 1991; Lamprecht, 1991; Vloeberghs &

Bellens, 1996). A study by Mekic and Goksu (2014) on implementation of ISO 9001:2008 at a private university in Bosnia and Herzegovina concluded that implementation of ISO 9001:2008 leads to increase of quality at institution level. According to the study by Lazibat, Sutic and Jurcevic (2009), measurement and analysis of teaching and learning has to be conducted to measure the teaching process capability, conformance of process output to standard or specified requirements, relevance of programs to beneficiaries' needs, students' performance and quality of graduates in term of achieving beneficiaries and recipients' satisfaction.

## **2.5 Critique of the Existing Literature**

There is no consensus on a unique definition of students' satisfaction in the university education, just as there is no unitary system of indicators offering a complete and accurate picture of students' satisfaction in a university (Sarbu, Ilie, Enache & Dumitriu, 2009).

Regardless of the definition ascribed to satisfaction, a consensus has been reached in the international academic communities (Seniwoliba, 2014) on its definition as being attaining and maintaining the highest possible standards, proven by mechanisms of identifying and meeting social needs; a commitment to the systematic identification of opportunities; the efficient use of resources; renewing the education curricula and teaching methods; developing permanent programs of staff specialization and training; the capacity to adjust rapidly to the needs of students and other interested parties; the elaboration of realistic assessment procedures; and supplying adequate financial resources.

It is expected that ISO 9001 certification would improve the management of internal processes and result in customer satisfaction, compliance to statutory and legal requirement and establishment of continual improvement which leads to quality of education (ISO, 2008; Kimani & Okibo, 2013; Brucaj, 2014). However it has been observed that there are instances where ISO 9001 certified Universities have failed to provide service that satisfied the customers (Machumu & Kisanga, 2014). On the downside, ISO 9001 based quality management systems have been criticized for the

amount of money, time and paperwork required for certification and maintenance. Further, ISO 9001 certification does not guarantee product or service quality (Kaziliunas, 2010) and students' satisfaction.

By implementing a quality management system in a university, its capacity to meet objectives in one domain could be assessed; however, the quality services provided in the higher education institution and its capacity to attain the quality level specific to the academic environment and students' satisfaction cannot be assessed (Sarbu, Ilie, Enache & Dumitriu, 2009)

The ISO 9000 family of standards relate to quality management system and are designed to help organizations ensure they meet the needs of customers and other stakeholders (ISO, 2008) however very little information has been available on the effect of ISO 9001 Certification on students satisfaction in Universities. They are several Quality Management Model proposed by many authors, researchers and theorist but few are linked to the students' satisfaction in the university establishment.

According to Lazibat, Sutic and Jurcevic (2009) the basic requirements of all mentioned models are customer satisfaction. All of them require management support, respect for stakeholders needs and requirements, staff training and participation, focus on processes, partnership with suppliers, measuring results and continuous improvement. National Guidelines by the Commission for University Education (CUE) provides basic guidelines for quality service in University Education Sub-sector in Kenya, and that should be accepted as initial point in the development of quality management system. However, in today's environment, where there are increased students and other stakeholders' requirements, Universities have to go one step further to enhance the quality, standard of education and students' satisfaction. According to the study (Lazibat, Sutic & Jurcevic, 2009) the result of the certification of ISO 9001:2008 is increased students satisfaction and quality of education.

## **2.6 Summary**

This chapter presents the literature review which covers the theoretical framework and the empirical literature. Under the theoretical framework, the study was informed by Process model, Hersey-Blanchard Situational Leadership Model, Resource input model, the perceived service quality model, SERVPERF Model and Kano's Model.

The existing literature in the context of Universities showed that adopting best practices in teaching and learning would ensure the production of quality graduates that would meet the needs of the industry and the respective external customers; the practice of efficient teaching and learning processes through feedback on customer satisfaction and for the organization as a whole, it is a trademark or recognition for ensuring standard.

Adopting best practices in teaching and learning in Universities using ISO 9001 ensures that all academic standards are fulfilled; efficient teaching and learning activities through measurement as practiced, analysis and improvement activities at each step of the quality management system are undertaken; customers' satisfaction by continuously meeting their requirements are enhanced; and institutional effectiveness and improvement effort through internal and external audits are determined.

In the context of Kenya, the intention to introduce quality assurance standards and procedures for Universities by the Commission of University Education, similar to the Quality Assurance Agency in the United Kingdom and the Unified Higher Education System in Australia, would certainly enhance the institutions ISO 9001 quality management system adherence to a common and high education standards in delivering academic courses.

## **2.7 Research Gaps**

In summary, the leadership management responsibility literature review suggest three things: first, that even though there are many alternative bases for exercising leadership and people-oriented management are more likely to lead to significant

improvement in organisational performance results, quality of education and customer satisfaction. Second, that there is a research gap existing between leadership effectiveness and management responsibility in deciding the right academic quality improvement objectives and management efficiency in the way resources are utilised to achieve predetermined quality improvement objectives. Third, that further research is needed to provide in-depth explanation of the strategic role of “managerial leadership” and management in the successful implementation of QMS in universities education in order to enhance students’ satisfaction.

Although Tam and Cheng (1996) argue that resource-input model of education service quality can be adopted by the administrators of universities to evaluate perceived service quality and students’ satisfaction, there is a lack of empirical testing in the existing literature to support this contention which is a gap in the literature and will be further explored in the current research.

The study agrees with Pratasavitskaya and Stensaker (2010) that the analysis of models and approaches of quality management at the University level has been rare address in the literature, which is considered by (Rosa, Sarrico & Amaral, 2012) as an unfortunate situation.

The SERVPERF model is frequently used and adopted in the extant literature to evaluate the overall students’ perceived service quality and students’ satisfaction in the education industry (Russell, 2005). However, there is no consensus in the existing literature pertaining to the development and definition of the determinants of the overall students’ perceived service quality and students’ satisfaction in higher education (Ling, Piew & Chai, 2010).

A number of authors and researchers have written papers regarding the models, theories and Quality Management in different industries such as manufacturing and services, while very little information is available regarding the Quality management in an academic organisation (Universities).

The existing literature has showed that research has been done on TQM practices in Kenya higher education, Factors affecting TQM Processes in State Corporation on



Customer Satisfaction, and TQM practices in Kenyan secondary schools. Little or no empirical research has been conducted dealing with ISO 9001 Model and their effects on overall business performance and Quality of Services or Education in Kenya. In order to bridge this gap, an investigation into the effects of ISO 9001 Certification on students' satisfaction in Kenya in Universities is needed.

Finally, the study may contribute to this knowledge field by examining the relationship between ISO 9001 and students' satisfaction in universities, which is rarely done previously in developing countries. Most of the studies in the field are focused on analyzing this relationship for American or European universities. Thus, a relevant contribution of this study would reveal new insights of a sample of Kenya universities for the empirical research.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses research design and methodology adopted for conducting the research study. It also explains development of research instrument, its pilot testing and details regarding the validity and reliability of the instrument. The chapter also gives details regarding population, sample selection and procedures adopted for data collection. Finally, it explains how the analysis and discussion of results is handled. The research methodology is the systematic, theoretical analysis of the procedures applied to a field of study. This study investigated the role of Quality Management System implementation on students' satisfaction in the ISO 9001 Universities in Kenya by cross section survey research design.

#### **3.2 Research Design**

This study adopted a cross-sectional survey research design to examine the effect of QMS implementation based on ISO 9001 on students' satisfaction in the universities. Cross-sectional survey entails the collection of data on more than one case and at a single point in time in order to collect a large amount of quantifiable data in connection with two or more variables which are then examined to detect patterns of association (Azarian, 2011). This design also allows examination of relationship between variables and no causal inference can be established because data is collected simultaneously and the study cannot manipulate any variables (Lewis & Thornhill, 2009). This notwithstanding, explanation possible using this design.

##### **3.2.1 Research Philosophy**

This Research has its own unique attributes that informs its approach. This research adopts the positivist research philosophy since it allows the study to search for truths of the observation by empirical evidence via the hypothetico-deductive method; since many research and observations on students' satisfaction has been conducted and the extant literature is well developed (Jankowicz, 2005) which should be

subjected to rigorous test of hypotheses based on large amount of data. This assertion presents a quality criterion for the philosophical revolution which argues that there are two different paradigms of the ontological philosophy by now, one is the materialism and the other is the idealism. If the information philosophy revolutionized philosophy of the new. It is unescapable to replace the two philosophical paradigm fundamentally. That is to say only by adhere the paradigm of information philosophy can bring “new philosophical revolution”. Whether it is a materialist doctrine or an idealist doctrine, there should be a prerequisite theory, which is what kind of phenomenon constitutes the world, and the relationship between these phenomena, which is the originality, who has the Derivative (Smith, 2005).

According to Bryman and Bell (2011) positivism entails a number of principles. The principle of deductivism (reasoning that moves from models to empirical observations) which states that the purpose of theory is to generate hypotheses that can be tested and thereby allow explanations of models to be assessed and; The principle of inductivism (reasoning that moves from empirical observations to model) which states, knowledge is arrived at through the gathering of facts that provide the basis for models or theories. In this view, implicit epistemic statement is about knowledge of concepts, acts (such as representation), entities, and systems. Epistemology is an important part of the research armature because it reflects our assumptions about language, way of things and other important aspects in the field of research (Feinberg, 2006). The still prevailing stance, what we might call the common-sense approach to language and representation, obscures the complexity and variety present in representing and ordering knowledge through language use. Epistemology is a tool used to present criticism to this common-sense approach. It addresses the concrete question of how we know what to present in classification, indexing (Mai, 2010).

The study assessed students’ satisfaction in Universities in Kenya which are ISO 9001 certified using the QMS models based on previous studies from where the research obtained more knowledge. The study was dealing with social phenomena, which are ISO 9001 QMS and students’ satisfaction from the customers’ point of

view. The knowledge was developed through an objective measurement using the measurable dimensions of students' satisfaction as proposed by other scholars/researchers.

There are connections between models and research in the study implying that the study collected data in a manner that is influenced by pre-existing models. However, the study took an epistemological stand because some pre-existing models were not genuinely scientific and was a must to apply them in the study. The study was interested in finding out if the QMS model based on ISO 9001 standard affected the students' satisfaction in the University context. Taking a positivist view enabled the study to attain the objectives mentioned in chapter one and which the research needed to achieve.

From the positivist view, the study and the objects of investigation (respondents) were independent from each other and were investigated without being influenced by the study. The study limit the interaction with the respondents to mere handing of the questionnaires to respondents in order to make the findings fully dependent on the respondents.

### **3.3 Population of the Study**

The study target all the universities in Kenya. According to CUE (2016) there are 70 universities in Kenya, 33 of which are public and 37 private that have been authorized by the Commission for University Education to offer university degrees either by being awarded charters, letters of interim authority, or letters of registration as at October, 2016. The study specifically targeted the ISO 9001: 2008 certified universities in Kenya. There are 24 ISO 9001 certified universities in Kenya. The study was interested in finding out how the students are satisfied with the education service provided by the universities which were ISO 9001 certified based on the established Quality Management system referred in table 3.1.

**Table 3.1: Total Population of students in ISO 9001 Certified Universities**

<b>University</b>	<b>Students population</b>
University of Nairobi	98,713
Moi University	43,127
Kenyatta University	71,734
Egerton University	19,018
Jomo Kenyatta University of Agriculture and Technology	29,579
Maseno University	8,011
Masinde Muliro University of Science and Technology	18,579
Dedan Kimathi University of Technology	8,379
Chuka University	9,349
Technical University of Kenya	17,964
Technical University of Mombasa	13,327
Kisii University	9,792
University of Eldoret	14,511
Maasai Mara University	9,792
Jaramogi Oginga Odinga University of Science	10,549
Laikipia University	9,725
South Eastern Kenya University	6,638
Meru University of Science and Technology	13,869
Multimedia University of Kenya	10,054
University of Kabianga	9,852
Catholic University of Eastern Africa	2,739
Mount Kenya University	52,457
Zetech University	2,563
Kibabii	8,627
<b>Total Population</b>	<b>498,948</b>

Source: KNBS (2016)

According to Kwek, Lau and Tan (2010), there are two approaches adopted by researchers in establishing the level of students' satisfaction in Universities. Students' satisfaction can be evaluated based on the perspective of the students ('outside-in' approach) or the perspective of the academicians and administrators ('inside-out' approach) (Hoffman & Bateson, 2006). In this context, the study adopted 'outside-in' approach (students) to establish the effects of QMS implementation on students' satisfaction. In this study, unit of observation is the ISO 9001 Certified universities as shown in Appendix III and thus the unit of analysis is the students studying at the universities as illustrated in Table 3.3. The main entities

to be analysed in the study are the units of analysis. They possess the main focus of the study when it comes to analysing the data for conclusions and recommendations.

### **3.4 Sample and Sampling Technique**

The study obtained the list of accredited universities from the Commission of University Education website as the sampling frame then compiled a list of ISO 9001 Certified and Non-ISO 9001 Certified Universities by getting the status from each university through the Quality Management representatives or University Administration.

Target population of the ISO 9001 certified universities was 24 as at December 2016, hence no point to sample the population since this was relatively small population.

The study conducted a census survey to collect data. According to Kothari and Garg, (2014) and Ilker, Sulaiman, and Rukayya (2016), if the population under investigation is not so large or relatively small, a census survey provide better results than any sample survey, provided efficient and trained staff is employed in the research study. In this study sample size was equal to the size of the target population.

Krejcie and Morgan (1970) state that, using this table as the population increases the sample size increases at a diminishing rate and remains eventually constant at slightly more than 380 cases. The sample size of the respondents was tabulated in Table 3.2 using Krejcie and Morgan table using a significance level of 0.05 as a generally acceptable level of confidence in most social sciences studies (Hill, 1995).

**Table 3.2: Respondents Categories in ISO 9001 certified Universities**

<b>University</b>	<b>Population of the students</b>	<b>Relative Frequency</b>	<b>Sample size</b>
University of Nairobi	98,713	0.198	76
Moi University	43,127	0.087	33
Kenyatta University	71,734	0.144	55
Egerton University	19,018	0.038	15
Jomo Kenyatta University of Agriculture and Technology	29,579	0.059	23
Maseno University	8,011	0.016	6
Masinde Muliro University of Science and Technology	18,579	0.037	14
Dedan Kimathi University of Technology	8,379	0.017	6
Chuka University	9,349	0.019	7
Technical University of Kenya	17,964	0.036	14
Technical University of Mombasa	13,327	0.027	10
Kisii University	9,792	0.020	8
University of Eldoret	14,511	0.029	11
Maasai Mara University	9,297	0.019	7
Jaramogi Oginga Odinga University of Science	10,549	0.021	8
Laikipia University	9,725	0.020	7
South Eastern Kenya University	6,638	0.013	5
Meru University of Science and Technology	13,869	0.028	11
Multimedia University of Kenya	10,054	0.020	8
University of Kabianga	9,852	0.020	8
Catholic University of Eastern Africa	2,739	0.005	2
Mount Kenya University	52,457	0.105	40
Zetech University	2,563	0.005	2
Kibabii	8,627	0.017	7
<b>Total Population</b>	<b>498,453</b>	<b>1.000</b>	<b>384</b>

Source: Author (2017)

The research used non-probability sampling technique to select the respondents for the study. Ilker, Sulaiman, and Rukayya (2016) stated that non-probability sampling technique is useful when choosing sample when randomisation is impossible like when the population is very large and the resources, time and workforce is limited. The study used non-probability convenience sampling technique to select the potential students' respondents because of the proximity and accessibility of the respondents. Non-probability convenience sampling to select members of the target

population is appropriate when geographical proximity and accessibility is practical to the study (Battaglia, 2008). Furthermore, Dornyei (2007) explains that “captive participants such as students in the researcher’s own institution are main examples of convenience sampling”.

### **3.5 Research Instrument**

The questionnaire method was used to elicit data from the respondents as a research instrument. Keeping in view the nature of the problem and population, questionnaire which contain structured questions with Likert-type scale was used to collect data. According to Sekaran and Bougie (2010) questionnaires can be administered personally, mailed to the respondents, or electronically distributed. Moreover, they have the advantages of covering a wide geographical area in the survey and the ease with which the respondents can complete the questionnaires in their homes at their own pace.

#### **3.5.1 Structured questionnaire**

New research instrument was developed for the study to obtain empirical data from university education institutions (universities) to test the hypotheses. The questionnaire consisted of three sections. The first section contained questions about the University and respondents, second section contained statements related to the five independent variables under investigation and the third section consisted of statements for measuring the dependent variable which was the students’ satisfaction. Keeping in mind the requirements of ISO 9001, the items for second section of the research instrument were selected as a result of the literature review conducted. The variables were broadly grouped under the headings of five sections of ISO 9001 namely System documentation, leadership responsibility, resource management, product realisation and continual improvement management. Nominal measurement was used in the study where categorical variable levels were assigned. The measurements were given the values of 1 to 5 which is based on the Likert’s scale where 1 represents the very unsatisfied and 5 represents the very satisfied. Table 3.3 illustrates the distribution of questions according to five independent (QMS implementation dimensions) and dependent (students’ satisfaction) variables.



**Table 3.3: Distribution of questions according to five independent and Dependent variables**

Variable	Number of questions
<b>Independent Variables</b>	
<b>1. Documentation Management</b>	
1.1. System documentation	9
<b>2. Leadership Management</b>	
2.1. Management commitment	3
2.2. Customer focus	2
2.3. Internal communication	2
<b>3. Resource management</b>	
3.1. Human resources	1
3.2. Infrastructure	2
3.3. Work environment	2
<b>4. Product realisation management</b>	
4.1. Learner –related processes	1
4.2. Design and development of programme	4
4.3. Teaching and learning	6
<b>5. Improvement Management</b>	
5.1. Customer satisfaction	5
5.2. Measurement and monitoring of processes	1
5.3. Measurement and monitoring of product	3
<b>Dependent Variable</b>	
<b>6. Student Satisfaction</b>	
6.1. Quality of service	2
6.2. Perceived reliability	2
6.3. Repeat Purchase of courses	2
6.4. Student completion rates	2
6.5. Complaints rate	2
<b>Total Questions</b>	<b>51</b>

Source: Author (2017)

The questions were arranged and divided under the same headings in the questionnaire as shown in APPENDIX II. For each question close-ended matrix questions were posed accompanied by a list of all possible alternatives in which the respondents selected the answer that best describes his or her opinion or perception based on Likert scale (Likert, 1932).

In the third section of the questionnaire, closed- ended matrix questions were used since they were easier to administer, economical, easier to analyse and easy to compare responses from different items (Sekaran & Bougie, 2010). Likert scale

format was used in this study as the scale was suitable for self-administered survey method (Shivany, 2013) and the data being collected by the research was ordinal. A five-point Likert scale anchored by “very dissatisfied” (1), “dissatisfied” (2) , “neither satisfied nor dissatisfied ”(3), “satisfied”(4) and “very satisfied”(5) is adopted as the measurement for the independent and dependent variables. According to McLeod (2008), Ng’ang’a and Otii (2013) and Oommen (2012) Likert scale is suitable to measure perception by asking respondents (Students) to respond to a series of statements about a topic (students’ satisfaction) in context of the study, in terms of the extent to which they agree with them, and so tapping into the cognitive and affective components of perceptions. Likert scale is at the ordinal level of measurement which measure levels of agreement/disagreement (McLeod, 2008).

### **3.6 Data Collection Method**

The study collected primary data from the respondents identified in the research. For this study to collect primary data, questionnaire was used. Each questionnaire was accompanied by a cover letter providing explanations and assurances that all individual responses were treated with confidentiality. The rationale of the questionnaire for study is the collection of the primary data that is assembled and prepared specifically for the study (Zikmund, 2010; Cooper & Schindler, 2011). Questionnaire is preferred because it is efficient, cheap and easy to administer, they are relatively easy to analyse, and they are simple and quick for the respondent to complete and collect data in a standardised way (Kothari, 2008).

The study was situated in front of the main libraries and lecture rooms of the Universities so as to be able to access a large number of students. The study approached any person for the completion of the questionnaire who had knowledge and experience of university education. Also, while sharing the questionnaires the researcher was not biased, the researcher gave it to any student who was willing and ready to answer questionnaire instantly. This was also in a bid to maximize the use of time. Since all the respondents were students in Universities, The study administered the questionnaires at the University Campuses by identifying respondents by asking verbally and politely if they are students of the University. The study assessed the

response rate; according to Saunders, Lewis & Thornhill (2009), Sekaran & Bougie (2010), Cooper & Schindler (2011), Kothari, (2008) and Mugenda & Mugenda (2008) response rate of above 50% is adequate for analysis.

### **3.7 Pilot study**

A pilot study used a small scale version or trial run in preparation for a major study (Hazzi & Maldaon, 2015). Winter and Dodou (2012) noted that a pilot study is often used to pre-test or try out a research instrument to determine the reliability of the research instrument. Winter and Dodou (2012) found that a sample size of 10-20% of the sample size for the actual study is a reasonable number to consider enrolling in a pilot study which almost agrees with Mugenda and Mugenda (2008) suggestions on the pilot study sample size of 1% to 10% on lower limit. According to Connelly (2008), present literature suggests that a pilot study sample should be 10% of the sample projected for the larger parent study. However, Hertzog (2008) cautions that this is not a simple or straight forward issue to resolve because some studies are influenced by many factors. Johanson and Brooks (2010) recommend in their study that pilot study sample size depends on the particular purpose of the pilot study.

In the study, the precision of parameter estimates increased as sample size increases hence larger samples were always better. Based on the literature review on pilot study sample size, the study selected a pilot group of three universities and 31 students from the sample size of the study to test the reliability of the questionnaire. Validity of the research instrument was established by the study by seeking opinions of experts in the field of study especially the study supervisors, quality experts and lecturers. This facilitates the necessary revision and modification of the research instrument thereby enhancing validity.

To ensure reliability, the questionnaires were pre-tested on a pilot scale through selected respondents. One of the most popular reliability statistics in use today is Cronbach's alpha (Cronbach, 1951). Cronbach's alpha determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability (Kothari, 2008; Mugenda & Mugenda, 2008). Cronbach's alpha reliability coefficient normally ranges between 0 and 1. George and Mallery (2003) provides

the rule of thumb that reliability coefficient above 0.7 is acceptable and the questionnaire should be used though at least 0.6 is also acceptable for a new questionnaire which agrees with study by (Al-Refaie, Ghnaimat, & Li, 2012).

### **3.7.1 Validity of instrument**

Generally speaking the first step in validating a questionnaire was to establish face validity. There were two important steps in this process, first was to have experts (QMS Trainers, QMS auditors, Educationist, scholars, researchers and QMS consultants) or Supervisors who understand the topic to read through the questionnaires. They evaluated whether the questions effectively captures the topic under study. Second was to have a psychometrician (expert on questionnaire construction) check the survey instruments for common errors like double-barreled, confusing, and leading questions. The feedback from the QMS Trainers, QMS auditors, Educationist, scholars, researchers, QMS consultants and supervisors were used to make necessary adjustments on the questionnaires. The second step was conducting a pilot test on the questionnaire on a subset of the intended population. The pilot testing is discussed in detailed in this chapter. The study used two strategies to estimate the reliability of the questionnaires; Test-Retest Reliability strategy to assess the consistency of the measure from one time to another and Internal Consistency Reliability strategy to assess the consistency of results across items within the test.

Construct validity was established by relating measuring instruments to a general theoretical framework in order to determine whether the instrument was tied to the concepts and theoretical assumptions they were employing (Nachmias & Nachmias, 2008). Stata version 14 programme was used as the tool of analysis to test the relationship between the dependent variable (students' satisfaction) and the first independent variable (system documentation). As most item total correlations were reasonably high, the construct validity of the instruments was considered reasonable (Brown, 2000).

Validity test was carried out in the study on the variable; leadership management. For content validity to be ensured in this variable, the study applied expert judgement

of the supervisors on the items contained in the questionnaire on the variable; leadership management. The supervisors counter checked and confirmed the accuracy of the concepts being measured.

The Resource management validity was tested which ensures that an instrument is able to measure the intended subject as per the study intentions. The consistency of the questions was checked with reference to experts and the supervisors and the questions were declared valid.

Also, a validity test on product realisation was carried out to certify that an instrument is able to measure the intended purpose as per the study intentions. The consistency of the questions was checked with reference to experts and the supervisors and the questions were declared valid.

Further, a validity test was carried out on the questions under students' satisfaction, which was the dependent variable. This was done by seeking advice from experts and the supervisors who were comfortable with the questions' validity implying that the questions were focusing on the intended purpose

### **3.7.2 Reliability of instrument**

Test-retest reliability strategy involved directly administering the test to a group of individuals, then re-administering the same test to the same group at some later time and correlating the first set of scores with the second. The correlation between scores on the first test and the scores on the retest is used to estimate the reliability of the test using the Pearson correlation coefficient( $r$ ). Test-retest reliability, assumes that there is not significant change in the construct measured between the first and second times measurement.

Internal consistency reliability strategy is calculating a reliability estimate based on a single form of a test administered on a single occasion using. In internal consistency reliability estimation strategy, a single measurement instrument is administered to a group of people on one occasion to estimate reliability. In effect the reliability of the instrument by estimating how well the items that reflect the same construct yield

similar results. Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is most commonly used when multiple Likert questions in a survey/questionnaire that form a scale and to determine if the scale was reliable.

The study adopted the Cronbach's alpha test to measure the reliability (internal consistency) of the questionnaire. An alpha value of 0.7 and above has been employed by authors (such as Nunnally, 1978); Tavakol & Dennick, 2011) as the rule of the thumb to denote an acceptable level of internal consistency (reliability). Table 3.4 shows the reliability results for the variable "documentation management".

**Table 3.4: Reliability results-documentation management**

	Scale	Scale	Corrected	
	Mean	Variance	Item-	Alpha
	if Item	if Item	Total	if Item
	Deleted	Deleted	Correlation	Deleted
Question 1	9.8939	7.4809	-.1148	.6657
Question 2	10.3485	16.2613	.1826	-.0658
Question 3	10.9242	16.1326	.1836	-.0711
Question 4	10.6515	16.8459	.0876	.0071

### Reliability Coefficients

N of Items = 4

Alpha = 0.0666

On the first test, the results indicated that the alpha coefficient for the four items was 0.0666, which is very low. This implies that the items as per the first test had no internal consistency.

**Table 3.5: Cronbach’s Alpha on System documentation**

<b>Variable</b>	<b>Test</b>		<b>Retest</b>	
<b>System documentation</b>	Cronbach’s Alpha	Number of items	Cronbach’s Alpha	Number of items
	0.0666	4	0.6911	9

A retest was done and this time the number of items was increased to nine. The scale was reused and more items used to measure “documentation management”. The test then repeated with nine items (instead of four). The results indicated an alpha coefficient of 0.6911 which implies that the items had internal consistency after the retest and the instrument was therefore suitable since a reliability of 0.6–0.9 is acceptable. The results of the retest on items under system documentation variable are as shown in table 3.7.

A reliability test analysis for the research instrument on the variable leadership management was carried out as presented in the table 3.6. A first test and a retest were carried out.

**Table 3.6: Reliability results-leadership management**

	Scale	Scale	Corrected	
	Mean	Variance	Item-	Alpha
	if Item	if Item	Total	if Item
	Deleted	Deleted	Correlation	Deleted
Question 5	19.8636	23.1965	.5475	.7873
Question 6	20.3030	23.1991	.5831	.7812
Question 7	20.4242	21.7557	.6370	.7704
Question 8	19.6667	24.7179	.4450	.8042
Question 9	19.7576	23.3557	.5363	.7893
Question 10	19.7879	23.3697	.5923	.7800
Question 11	19.6515	24.1075	.4984	.7956

**Reliability Coefficients**

N of Items = 7

Alpha = 0.8119

On ‘Leadership Management’ Likert’s questions, the alpha coefficient for the seven items was 0.8119, suggesting that the items had relatively high internal consistency. A retest of the reliability was carried out. The retest as shown in Table 3.7 revealed that the new Cronbach’s alpha was 0.8971 which implies that the reliability became stronger after the retest of the instrument.



**Table 3.7: Cronbach's Alpha on Leadership Management**

Variable	Test		Retest	
	Cronbach's Alpha	Number of items	Cronbach's Alpha	Number of Items
<b>Leadership Management</b>	0.8119	7	0.8971	7

Also, a reliability test was carried out on the research instrument on the questions regarding resource management variable. The results are as shown in the table 3.8

**Table 3.8: Reliability results-resource management**

	Scale	Scale	Corrected	
	Mean	Variance	Item-	Alpha
	if Item	if Item	Total	if Item
	Deleted	Deleted	Correlation	Deleted
Question 12	13.9559	10.8488	.4944	.7469
Question 13	13.4853	11.5371	.6324	.7088
Question 14	13.7059	11.1361	.4489	.7634
Question 15	13.6912	10.4853	.5965	.7093
Question 16	13.6912	10.7241	.5793	.7157

**Reliability Coefficients**

N of Items = 5

Alpha = 0.7707

The alpha value for the first reliability test was 0.7707 which is high thus indicating that the questions in the variable were strongly reliable. However, a retest was done and the results are as shown in table 3.9 below. The retest results shows an increase

in the Cronbach's alpha value from 0.7707 to 0.8820 implying that the retest had stronger reliable questions and the responses as well

**Table 3.9: Cronbach's Alpha on Resource Management**

Variable	Test		Retest	
	Cronbach's Alpha	Number of items	Cronbach's Alpha	Number of Items
<b>Resource Management</b>	0.7707	5	0.8820	5

Reliability test for the questions on the product/service realization was carried out and the results presented as shown in the table 3.10

**Table 3.10: Reliability results-product realisation**

	Scale	Scale	Corrected	
	Mean	Variance	Item-	Alpha
	if Item	if Item	Total	if Item
	Deleted	Deleted	Correlation	Deleted
Question 17	36.4531	55.7438	.7331	.8816
Question 18	36.5313	56.3482	.6489	.8864
Question 19	36.7188	58.0149	.5895	.8898
Question 20	36.6250	54.9683	.7056	.8829
Question 21	36.3125	55.5516	.7120	.8826
Question 22	36.2969	58.7517	.5620	.8913
Question 23	36.3281	58.0335	.6439	.8871
Question 24	36.5781	55.7398	.6766	.8847
Question 25	36.2188	57.9196	.6733	.8858
Question 26	36.2188	58.4593	.5696	.8909
Question 27	36.9688	56.9196	.4601	.9014

**Reliability Coefficients**

N of Items = 11

Alpha = 0.8969

On ‘Product/Service Realisation’ likert question, the alpha coefficient for the eleven items is 0.8969, which is above alpha value of 0.7 threshold. This implies that the items had high internal consistency. A retest was done and the results presented in the table 3.11. The results indicate that the Cronbach’s alpha increased to 0.9401 implying the reliability became stronger after the retest.

**Table 3.11: Cronbach's Alpha on Product/service realization**

Variable	Test		Retest	
	Cronbach's Alpha	Number of items	Cronbach's Alpha	Number of Items
<b>Product/Service Realisation</b>	0.8969	11	0.9401	11

To test for the reliability of the research instrument on the variable continual improvement, a reliability test was carried out. The results are as presented on the table 3.12.

**Table 3.12: Reliability results-improvement management**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Question 28	27.7727	39.1014	.5996	.8457
Question 29	27.3485	40.4459	.5511	.8502
Question 30	27.1212	38.7235	.7399	.8322
Question 31	26.9091	41.1608	.5916	.8466
Question 32	26.8182	42.8280	.4532	.8584
Question 33	27.4091	39.5993	.6422	.8413
Question 34	27.1818	39.6895	.5787	.8477
Question 35	27.1212	39.7082	.6492	.8408
Question 36	27.4091	40.8301	.5074	.8547

#### Reliability Coefficients

N of Items = 9

Alpha = 0.8612

On 'Improvement management' Likert question, the alpha value for the nine items is 0.8612, which is above alpha value of 0.7 threshold; hence the items have internal consistency retest was done as shown in the table 3.13. The retest results indicated that the Alpha value increased to 0.8924 implying that the reliability became stronger after the retest.

**Table 3.13: Cronbach's Alpha on improvement management**

Variable	Test		Retest	
	Cronbach's Alpha	Number of items	Cronbach's Alpha	Number of Items
<b>Improvement management</b>	0.8612	9	0.8924	9

A reliability test for the dependent variable; students' satisfaction was carried out. The results are as shown in the table 3.14

**Table 3.14: Reliability results - students' satisfaction**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Question 1	29.5303	56.4991	.7777	.8921
Question 2	29.3333	57.8564	.6824	.8976
Question 3	29.6364	58.3580	.6506	.8995
Question 4	29.6061	56.0270	.6881	.8971
Question 5	29.6970	56.2760	.7041	.8961
Question 6	29.3788	54.9774	.6997	.8966
Question 7	29.1667	61.3410	.5278	.9061
Question 8	29.8636	60.9196	.4403	.9118
Question 9	30.0909	54.5147	.7686	.8917
Question 10	30.0152	55.1228	.7484	.8931

**Reliability Coefficients**

N of Items = 10

Alpha = 0.9076

On 'Students Satisfaction' likert question, the alpha value for the ten items was 0.9076, which was above alpha value of 0.7 threshold. This implies that the items had high internal consistency. Further, a retest was carried out on the variable and the results are as shown in the table 3.15. The new Cronbach's alpha value stood at 0.9080 which was slightly higher than the value for the first reliability test results. The alpha value was high thus implying that the questions on this variable were strongly reliable.

**Table 3.15: Cronbach's Alpha on students' satisfaction**

Variable	Test		Retest	
	Cronbach's Alpha	Number of items	Cronbach's Alpha	Number of Items
<b>Students' satisfaction</b>	0.9076	10	0.9080	10

### 3.7.3 Measurement of Variables

The measurement of the variables are summarized in the table 3.16

**Table 3.16: Measurement of Variables**

Variable type	Variable name	Sub-variable/indicator/measurement	Measurement tool
Independent	Documentation Management	Quality Policy	5 point Likert items
		Quality Objectives	
		Processes	
		Control of documents maintenance	
		Control of records maintenance	
Leadership Management	Leadership Management	Management commitment	5 point Likert items
		Responsibility and Authority	
		Internal Communication	
		Customer focus	
Resource Management	Resource Management	Management review	5 point Likert items
		Provision of resources	
		Human Resource	
		Infrastructure	
Product realisation Management	Product realisation Management	Work Environment	5 point Likert items
		Planning the teaching and research	
		Learning-related processes	
		Design and development	
Improvement Management	Improvement Management	Purchasing	5 point Likert items
		Teaching and learning	
		Customer Satisfaction measurement	
		Internal audit	
		Monitoring and measurement of product	
Dependent	Students' satisfaction	Monitoring and measurement of processes	5 point Likert items
		Analysis of data	
		Continual improvement measurement	
		Quality of service	
		Perceived reliability	
		Repeat purchase of courses	
		Student completion rates	
Complaints rate			

Source: Author (2017)

### **3.8 Data analysis and Presentation**

In survey research such as the current study, the first step includes editing and summarizing the responses (coding), data entry, and error checking (cleaning). Some of this data processing occurs during data collection in computer-assisted surveys. Data-inspection and data-modification were also done. The goal of inspection was to get a clear picture of the data in order to determine appropriate statistical analyses and necessary data modifications. Each variable was examined singly (univariate analysis), for insufficient variation in responses, missing information, abnormalities, and other weaknesses that may be mitigated prior to the analysis. To ensure effective processing of the data, four essential steps were conducted. The processes were meant to check the data and make it serviceable for analysis. The processes included: editing, coding, data entry, and cleaning.

The section details the techniques that was used in the study to process and analyse the data. The processing stage includes the editing, coding, classification and tabulation of collected data for analysis. Nachmias and Nachmias (2009) stated that there are basically two types of statistics which include descriptive and inferential statistics. Descriptive statistics enable the study to summarize and organize data in an effective and meaningful way. It involved the use of tables, charts, graphs, mean, modes, median, standard scores and correlation to treat collected data. Inferential statistics is concerned with making inferences from a unit of a population. Inferential statistics allowed the study to make decisions or inferences by interpreting data patterns. Studies use inferential statistics to determine whether an expected pattern designated by the theory and hypotheses is actually found in the observations.

In this study the response categories are inherently ordered. The dependent variable was discrete as well as ordinal. Under these circumstances, conventional regression analysis is not appropriate (Greene, 2012). Instead, the ordered probit model is used to estimate models where the dependent variable associated with more than two outcomes is discrete and ordered (Long & Freese, 2014) and to address the requirement of ordinality as well as the requirement of discreteness, the study used an ordered probit model in the study. O'Connell (2006) stated that ordered probit

model fulfils both the requirements as it is suitable for producing probability estimates for outcomes that are discrete and ordinal

Analysis of ordinal data, particularly derived from Likert scale is not straightforward and transparent (Jakobsson & Westergren, 2005). According to Sullivan and Artino, (2013) mean and standard deviation are invalid parameters for descriptive statistics study since data are on ordinal scales, as are any parametric analysis is based on the normal distribution. Nonparametric procedures based on the rank, median and range are appropriate for analysing Likert scale data, as are distribution free methods such as tabulations, frequencies and contingency tables (Allen & Seaman, 2007). Summaries using a median and mode are the most suitable for easy interpretation (Sullivan & Artino, 2013). The data was presented as distribution of observations in a bar chart, because the data is not continuous as in the case in the descriptive statistics.

A widely used approach to estimating models of this type is an ordered response model, which almost always employs the probit link function. This model is often referred to as the ‘‘ordered probit’’ model. The central idea is that there is a latent metric underlying the ordinal responses observed by the analyst. The latent variable,  $y_i^*$  is a linear combination of some predictors,  $x_i$ , plus a disturbance  $i$  term  $\varepsilon_i$  that has a standard normal distribution.

Thus, the role of QMS implementation on Student’s Satisfaction in ISO 9001 certified was modelled on ordered probit regression. The ordered probit model was a latent regression where  $y_i^* = x_i \beta_i + \varepsilon_i$  Where  $y_i^*$  is the exact but unobserved dependent variable;  $x_i$  is the vector of independent variables, and  $\beta_i$  is the vector of regression coefficients which the study wish to estimate. In the context of the study the ordered probit model is as follows:

$$y_i^* = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \beta_5 x_{5i} + \varepsilon_i$$

Where;

$$y_i^* = \text{Students' satisfaction}$$



$x_{1i}$  = Documentation Management

$x_{2i}$  = Leadership Management

$x_{3i}$  = Resource management

$x_{4i}$  = Product realisation Management

$x_{5i}$  = Improvement Management

$\varepsilon_i$  = Error of estimation

The study cannot observe  $y_i^*$ , he instead can only observe the categories of response for  $y_i = (1, 2, 3, 4, 5)$  for (1-Very dissatisfied, 2- Dissatisfied, 3-Neither Satisfied nor Dissatisfied, 4-Satisfied and 5-Very Satisfied) with interval rule

$$y_i = 1 \text{ if } y_i^* \leq \mu_1,$$

$$y_i = 2 \text{ if } \mu_1 < y_i^* \leq \mu_2,$$

$$y_i = 3 \text{ if } \mu_2 < y_i^* \leq \mu_3,$$

$$y_i = 4 \text{ if } \mu_3 < y_i^* \leq \mu_4,$$

$$y_i = 5 \text{ if } \mu_4 < y_i^* \leq \mu_5,$$

Where  $y_i$  is observed in 1, 2, 3, 4 and 5 ordered categories and  $i=1, 2, 3, 4, 5$  observed categories. The threshold values  $\mu_1, \mu_2, \mu_3, \mu_4$  and  $\mu_5$  are unknown and are to be determined by the study. The unknown threshold levels ( $\mu_i$ ) are to be estimated with the  $\beta_i$ .

The  $\mu$  and  $\beta$  coefficients in the ordered probit are calculated using the method of (conditional) Maximum Likelihood Estimation (MLE).The technique is used to estimate probit parameters. Maximum Likelihood Estimation focuses on choosing parameter estimates that give the highest probability or likelihood of obtaining the observed sample  $y_i$ . The main principle of MLE is to choose as an estimate of  $\beta$  the

set of  $K$  numbers that would maximize the likelihood of having observed this particular  $y_i$  (Aldrich & Nelson, 1984). Stata statistical software was used for estimating the ordered probit model.

### **3.9 Ethical Considerations**

This study was based on the following ethical considerations. First, the research participants were allowed to make an informed decision on whether to participate in the research process or not. This implies that the study did not force or coerce the sample into participating in the research process. Secondly, the responses from the respondents were considered anonymous responses. This implies that the respondents were not required to give their names on the questionnaires they filled. This prevented victimization of any student due to participating in the research study. Thirdly, the study sought permission from all the research stakeholders including the university before undertaking the process of data collection. Fourthly, the study communicated the findings of the research study to all its research stakeholders.

## **CHAPTER FOUR**

### **FINDINGS AND DISCUSSIONS**

#### **4.1 Introduction**

This chapter focuses on the presentation of data, data analysis and interpretation of results. It discusses the findings from; the background information of the respondents which included the type of the university, level of study as well as year of study. Presented in the chapter also are the responses based on the independent variables of the study; documentation management, leadership management, Resource management, Product/Service realization management, improvement management and dependent variable of the study, students' satisfaction based on Quality Management System in ISO 9001 certified universities. Descriptive statistics used was percentages and inferential statistics used was Ordered Probit analysis. Finally, the chapter presented the relationship between the independent and dependent variables which was done through Ordered Probit analysis.

#### **4.2 Response Rate**

Response rate refers to the number of respondents that were able to participate in the study and fully gave their views in regard to the study problem. In this view, they are the respondents who fully filled the questionnaire and returned the duly filled questionnaires for analysis. The section will therefore cover the response rate as well as the characteristics of respondents.

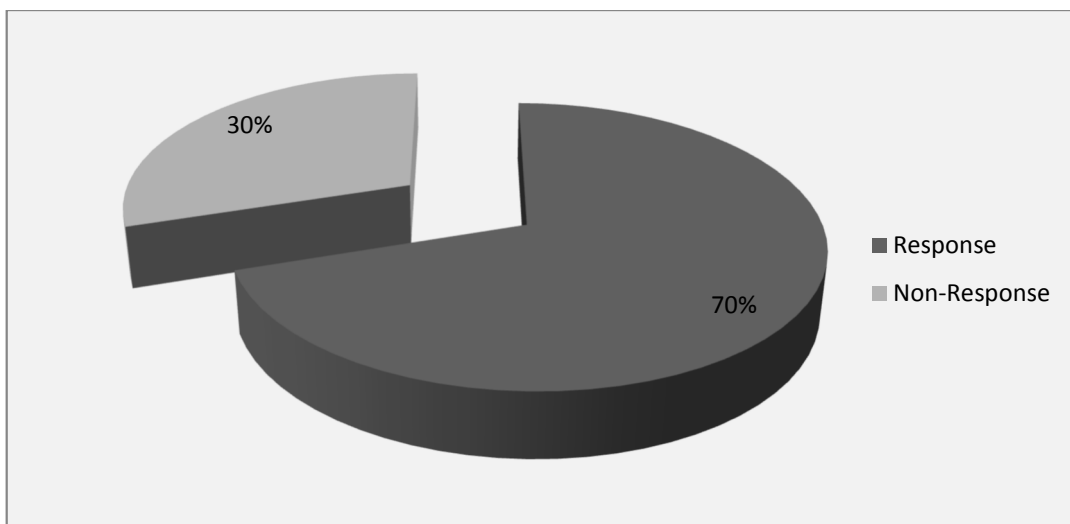
The study sought to find out the rate at which the targeted respondents participated in the study. This would therefore help to determine whether the study attained a reliable number of respondents to make conclusions and recommendations. The study had a sample of 384 respondents who were surveyed using a structured questionnaire from the 24 universities that were ISO 9001 certified as at December 2016 as shown in table 4.1 and Figure 4.1

**Table 4.1: Response Rate**

<b>Response Rate</b>	<b>Frequency</b>	<b>Percentage</b>
Responses	269	70.00 %
Non-Response	115	30.00%
<b>Total Sample size</b>	<b>384</b>	<b>100.00 %</b>

A response rate of 70% (269 respondents) was achieved and the data used for the analysis. These represents a response rate of 70% and therefore considered appropriate to derive the inferences regarding the objectives of the research and analysis. This therefore makes the study worth to make conclusions and recommendations since according to Creswell (2005) and Kingslay (2012) a response rate of 30-60% in a study is adequate for making conclusions and recommendations which agrees with Mugenda (2008) that 50% response rate is adequate, 60% good and above 70 percent rated is very well for any study

**Pie chart presentation**



**Figure 4.1: Response Rate**

**4.3 Demographic**

According to Young (2009) respondents in a study need to be introduced in a study by asking them basic information so as to get them set for the main questions of the

study. The information asked included the type of the university, nature of the student, as well as the year of study. The respondents were to indicate their responses on the questionnaires based on the guidelines given as per the question.

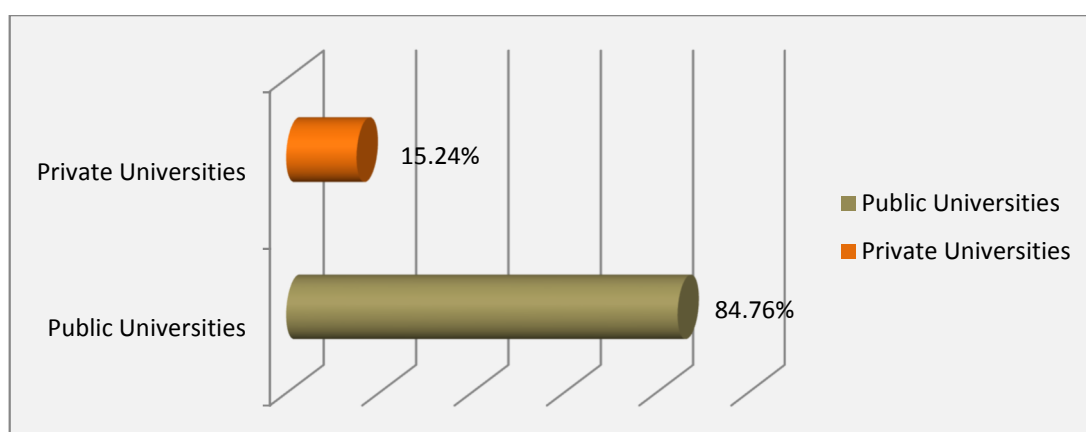
### 4.3.1 Type of the University

The study sought to find out the type of the university in which the respondents studied in. The results as shown in table 4.2 and Figure 4.2 indicate that 84.76% of the respondents were in public universities, whereas 15.24% were in private universities.

**Table 4.2: Type of the University**

University	Frequency	Percentage
Public University	228	84.76%
Private Universities	41	15.24%
<b>Total</b>	<b>269</b>	<b>100.00%</b>

#### Bar graph presentation



**Figure 4.2: Type of the University**

The results imply that both types of the universities are represented thus they can give diverse opinion on their satisfaction in the universities. Kurn (2013) argues that of all the sampled groups in the study, the findings are more effective and composed when they include individuals from all the groups.

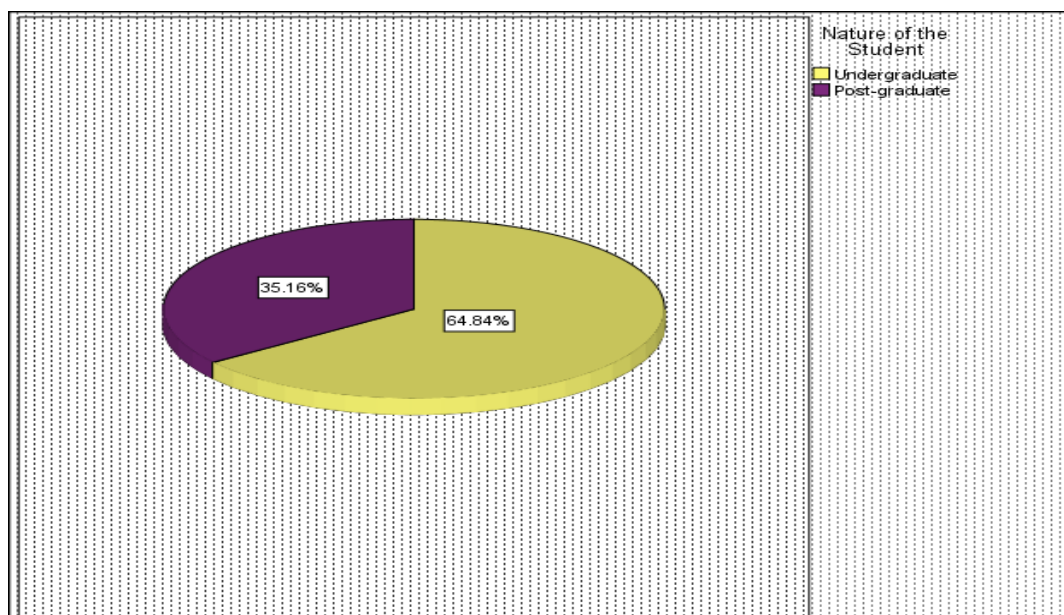
### 4.3.2 Nature of the student

The nature of the students was sought by the study. The respondents were asked to indicate whether they were doing undergraduate studies or postgraduate studies. As the findings in table 4.3 and figure 4.3 shows, a majority of 64.84% were doing undergraduate studies whereas 35.16% were doing post graduate studies.

**Table 4.3: Type of the students**

Student's status	Frequency	Percentage
Undergraduate	175	64.84%
Postgraduate	94	35.16%
<b>Total</b>	<b>269</b>	<b>100.00%</b>

#### Pie-chart diagram



**Figure 4.3: Nature of the Student**

According to the Ministry of Education, most of the students in Kenyan universities are doing undergraduate studies and this compares to the findings of the study.

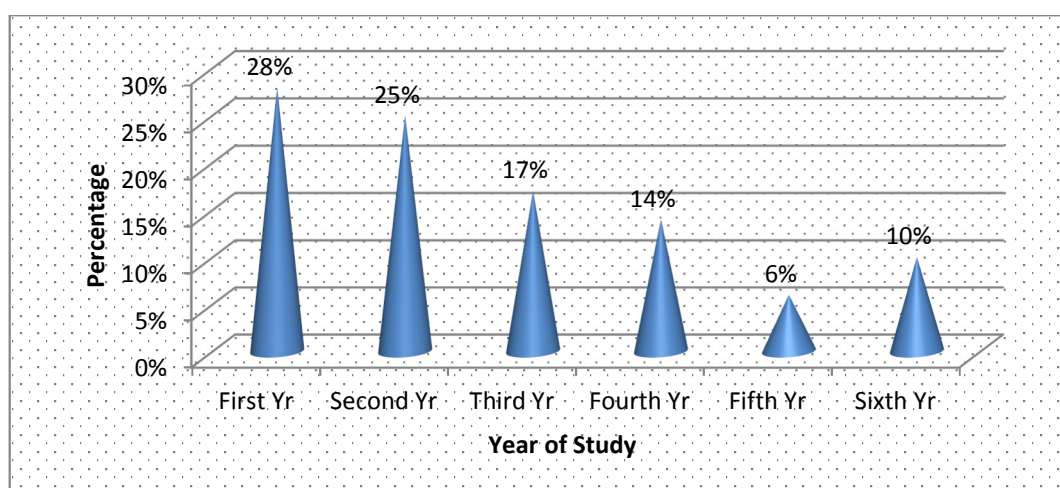
### 4.3.3 Year of Study

The respondents' views on their year of study were sought. The respondents were required to indicate their year of study based on the university requirements for their respective degrees. The findings are shown on figure 4.4 and Table 4.4.

**Table 4.4: Year of study for respondents**

Year of study	Frequency	Percentage
1	75	27.88%
2	67	24.91%
3	46	17.10%
4	38	14.13%
5	16	05.95%
6	27	10.04%
<b>Total</b>	<b>269</b>	<b>100.00%</b>

#### Bar graph presentation



**Figure 4.4: Year of Study**

Majority of the respondents 27.88% were in their first year of study, 24.91% were in second year, 17.10% were in third year, 14.13% were in their fourth year, 5.95% were in their fifth year and 10.04% of the respondents indicated that they were in

their sixth year of study. The findings imply that all the students in all the possible levels of study in universities were presented in the study. This means that their responses would be diverse to give the study some clearer and focus findings (Kareme, 2011).

#### 4.3.4 Level of Satisfaction with the University Education

The study aimed at establishing the respondents' level of satisfaction with the university education. As the results in the figure 4.5 show, 11% of the respondents indicated that that they were very satisfied, 22% said that they were satisfied, 21% were uncertain, 28% were dissatisfied and 18% of the total respondents said that they were very dissatisfied with the university education. The findings imply that students' satisfaction is not fully embraced in the universities thus raising an alarm on what the management has failed to do to enhance satisfaction. According to Usman (2010) satisfaction level of individuals in universities may differ based on their expectations and perception to which they view things.

#### Bar graph presentation

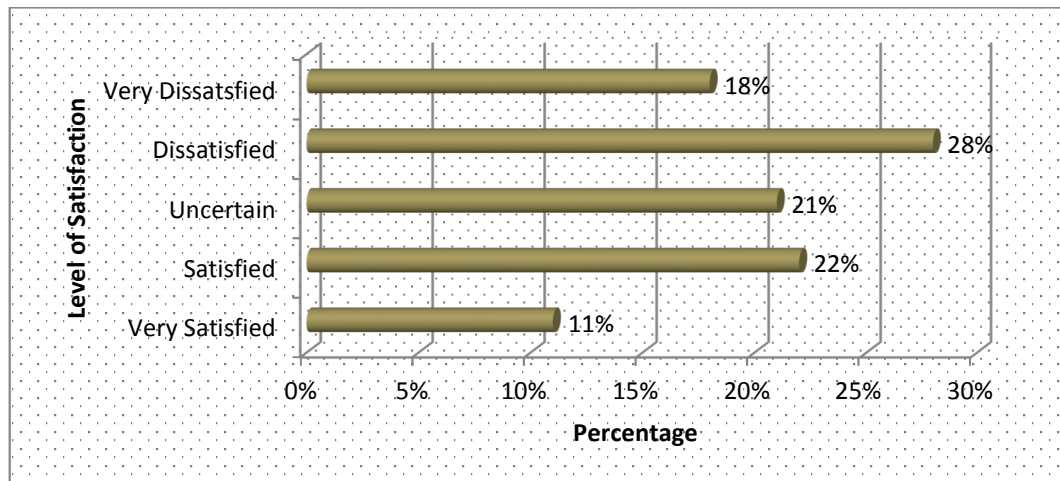


Figure 4.4: Satisfaction with the University Education

#### 4.4 Descriptive results

In this study five dimensions of QMS implementation that were analysed against university students' satisfaction were: documentation management, leadership



management, Resource management, Product/Service realization management and improvement management.

#### **4.4.1 System Documentation**

In this survey, system documentation was operationalised into; Quality Policy, Quality Objectives, Processes, Control of documents maintenance and Control of records maintenance. A five -point likert type scale was used to measure each of the sub-variable and the results were presented in tables.

The first objective of the study was to determine the effect of QMS documentation on Students' satisfaction in ISO 9001 certified universities in Kenya. The respondents' opinion was sought on their levels of satisfaction based on the statements on system documentation. The results are presented on table 4.5.

**Table 4.5: Degree of Satisfaction on Statements on System Documentation**

<b>Statement</b>	<b>Very dissatisfied</b>	<b>Dissatisfied</b>	<b>Uncertain</b>	<b>Satisfied</b>	<b>Very satisfied</b>	<b>Total</b>
The university define the processes, activities, departments and campus necessary to achieve students' satisfaction	3.9	12.2	15.1	51.6	17.2	100.0
The university has procedures and instructions which are communicated to staff, students and lecturers	4.4	7.3	12.0	49.7	26.6	100.0
Records of all activities in the university are available, accurate, retrievable and regularly maintained	7.8	14.8	20.6	39.3	17.4	100.0
The university provide necessary documents and records to the staff, students and lecturers	4.9	13.0	20.8	36.5	24.7	100.0
Information to support the teaching and learning are well defined by the university	4.7	10.4	18.2	41.4	25.3	100.0
Details of learning activities are available to the staff, students and lecturers	4.7	7.6	14.1	48.4	25.3	100.0
Transfers in and out of programmes or courses are clearly reconsidered and recorded.	8.1	14.1	21.1	33.9	22.9	100.0
Record and statistical data of students' progression are available	6.5	10.7	15.1	43.2	24.5	100.0
The records of students' assessments are up to date and available	10.2	9.4	14.6	38.8	27.1	100.0

On the first statement that the university define the processes, activities, departments and campus necessary to achieve students' satisfaction, a majority of 51.6% were satisfied, 17.2% were very satisfied, 3.9% were very dissatisfied, 12.2% were dissatisfied and 15.1% of the total respondents were uncertain. On the second statement which was that the university has procedures and instructions which are communicated to staff, students and lecturers, 4.4% of the total respondents were very dissatisfied, 7.3% were dissatisfied, 12.0% were uncertain, 49.7% were satisfied, and 26.6% of the total respondents were very satisfied. The respondents' opinion was sought on the records of all activities in the university are available, accurate, retrievable and regularly maintained. On this, 7.8% of the respondents were very dissatisfied, 14.8% were dissatisfied, 20.6% were uncertain, 39.3% were satisfied and 17.4% were very satisfied. On the statement that the university provides necessary documents and records to the staff, students and lecturers, 4.9% of the respondents were very dissatisfied, 13.0% were dissatisfied, 20.8% were uncertain, 36.5% were satisfied and 24.7% were very satisfied.

On the statement that information to support the teaching and learning are well defined by the university, 4.7% of the respondents were very dissatisfied, 10.4% were dissatisfied, 18.2% were uncertain, 41.4% were satisfied and 25.3% were very satisfied. The other statement was that details of learning activities are available to the staff, students and lecturers, where 4.7% of the respondents were very dissatisfied, 7.6% were dissatisfied, 14.1% were uncertain, 48.4% were satisfied and 25.3% were very satisfied. The other statement was that transfers in and out of programs or courses are clearly reconsidered and recorded. In this, 8.1% of the respondents were very dissatisfied, 14.1% were dissatisfied, 21.1% were uncertain, 33.9% were satisfied and 22.9% of the total respondents were very satisfied. On the statement that record and statistical data of students' progression are available, 6.5% of the respondents were very dissatisfied, 10.7% were dissatisfied, 15.1% of the respondents were uncertain, 43.2% of the respondents were satisfied and 24.5% of the total respondents were very satisfied with the statement.

Lastly, on the statement that the records of students' assessments are up to date and available, 10.2% of the respondents were very dissatisfied, 9.4% were dissatisfied,

14.6% were uncertain, 38.8% were satisfied and 27.1% of the total respondents were very satisfied with the statement.

The findings go in line with a study by Shibru and Darshan (2011) who established that quality of service delivery was a matter of documentation and keeping records on the proceedings and processes that are carried out by the management to ensure quality service delivery success. According to Shibru and Darshan (2011), many organizations do not meet the quality needs among their customers due to lack of proper documentation and involvement of the stakeholders in their tabulation of the targets and needs of the stakeholders.

The finding however upset with those by Nyuke and Gasva (2015) who established that many institutions especially in the developing countries do not document the quality assurance and provision details thus making the implementation of the set quality plans difficult. According to Nyuke and Gasva (2015) institutions tend to keep details on the running the institution amongst the management and do not share with the students and the staff. However, the findings from the current study differs from this in that many of the respondents stated that they were satisfied with the availing of details on quality management by the universities.

#### **4.4.2 Leadership Management**

In the study, leadership management was operationalised into; Management commitment; Responsibility and Authority; Internal Communication; Customer focus and Management review. A five -point scale was used to measure each of the sub-variable and the results were presented in the table 4.6.

The second objective of the study was to establish the influence of QMS leadership on the students' satisfaction in ISO 9001 certified universities in Kenya. The study sought to establish the opinion of the respondents regarding specific statement on leadership and satisfaction with the services offered at the institutions.

**Table 4.6: Degree of students' satisfaction with statements on Leadership Management**

<b>Statement</b>	<b>Very dissatisfied</b>	<b>Dissatisfied</b>	<b>Uncertain</b>	<b>Satisfied</b>	<b>Very satisfied</b>	<b>Total</b>
University management is committed to provide the resources for the education service	10.9	15.1	19.8	39.3	14.8	100.0
The students' views are sought in order to enhance the satisfaction	16.4	18.5	18.2	29.7	17.2	100.0
Survey is conducted to identify the needs of the students in order to enhance the satisfaction	20.1	18.0	15.4	31.0	15.6	100.0
The students provide feedback on the teaching and courses provided	7.6	12.8	15.4	39.3	25.0	100.0
The staff and administration are easily available to the students	8.9	14.3	13.3	40.6	22.9	100.0
The students are fully informed of their responsibilities	5.5	9.6	14.6	45.8	24.5	100.0
Details regarding the location and availability of all learning and physical resources are communicated to students.	7.3	8.9	13.8	44.3	25.8	100.0

A small majority (39.3%) of the respondents were satisfied with the first statement that university management is committed to provide the resources for the education service. Specifically, 10.9% of the total respondents were very dissatisfied with the statement, 15.1% were dissatisfied with the statement, 19.9% were uncertain, and 14.8% of the total respondents were very satisfied with the statement. The second statement was that the students' views are sought in order to enhance the satisfaction where 16.4% were very dissatisfied with the statement, 18.5% were dissatisfied, 18.2% were uncertain, 29.7% were satisfied and 17.2% were very satisfied. The other statement was that survey is conducted to identify the needs of the students in order to enhance the satisfaction where 20.1% of the respondents were very dissatisfied with the statement, 18.0% were dissatisfied, 15.4% were uncertain, 31.0% were satisfied and 15.6% of the total respondents were very satisfied.

The respondents' opinion was further sought on the statement that the students provide feedback on the teaching and courses provided whereby 7.6% of the respondents indicated that they were very dissatisfied with the statement, 12.8% indicated that they were dissatisfied, 15.4% were uncertain, 39.3% were satisfied and 25.0% were very satisfied. The other statement was that the staff and administration are easily available to the students. In this, 8.9% of the respondents were very dissatisfied, 14.3% were dissatisfied, 13.3% were uncertain, 40.6% were satisfied and 22.9% of the total respondents indicated that they were very satisfied with the statement. On the statement that the students are fully informed of their responsibilities, 5.5% of the respondents said that they were very dissatisfied, 9.6% were dissatisfied, and 14.6% said they were uncertain, 45.8% were satisfied and 24.5% of the total respondents indicated that they were very satisfied with the statement.

Lastly, the respondents' opinion was sought on the statement that the details regarding the location and availability of all learning and physical resources are communicated to students. In this statement, 7.3% of the respondents indicated that they were very dissatisfied with the statement, 8.9% said that they were dissatisfied with the statement, 13.8% were uncertain, 44.3% were satisfied and 25.8% of the total respondents said that they were very satisfied with the statement.

The findings imply that leadership management was to a reasonable state embraced in enhancing the quality of the services by the universities thus a wide majority were satisfied with the various statement given. The findings agree with the argument by Ehigie and McAndrew (2005) who argued that through leadership management strategies which incorporate involvement of the stakeholders in decision making, service quality is enhanced thus increasing satisfaction of the stakeholders. The findings however disagree with those of Brucaj (2014) who established that leadership in newly established universities was poorly strategized thus causing unplactiness among the students and the staff and decreasing their satisfaction levels.

According to Sumaedi, Bakti and Metasari (2011) students' satisfaction levels is a matter of engaging them and making them feel as part of the institution. In this case, the students say that they are involved and thus their satisfaction levels are enhanced. Through leadership management, the organizations come up with strategies to involve stakeholders and make them satisfied with the environment available at their working places (Sheps, 2011). Similarly, students will require involvement and participation in the university matters for them to feel comfortable with the institutional services thus making them more satisfied and committed to the institution.

#### **4.4.3 Resource Management**

In the study, resource management was operationalised into; Provision of resources, Human Resource, Infrastructure and Work Environment. A five -point scale was used to measure each of the sub-variable and the results were presented in tables.

The third objective of the study was to determine the effect of QMS resource management on Students' satisfaction in ISO 9001 certified universities in Kenya. The study sought to find out the respondents' opinion on the statements on resource management and its effects of satisfaction of the students in universities certified on ISO 9001. The results are presented in table 4.7.

**Table 4.7: Level of Satisfaction on statements on Resource Management**

<b>Statement</b>	<b>Very dissatisfied</b>	<b>Dissatisfied</b>	<b>Uncertain</b>	<b>Satisfied</b>	<b>Very satisfied</b>	<b>Total</b>
There are sufficient human resources to support education services	10.4	14.3	18.8	41.4	15.1	100.0
The students have access to facilities and equipment	9.1	11.5	16.1	39.8	23.4	100.0
Location and availability of buildings, playgrounds, libraries and labs are provided to students	6.8	9.6	14.6	40.4	28.6	100.0
Education environment conditions are conducive for education services	3.9	9.9	15.6	46.4	24.2	100.0
The university assess educational service environment for associated risks, security, safety and hygiene	6.8	9.1	18.0	45.8	20.3	100.0



It indicates that on the first statement that there are sufficient human resources to support education services; 10.4% of the respondents said that they were very dissatisfied with the statement, 14% said that they were dissatisfied, 18.8% were uncertain, 41.4% were satisfied and 15.1% were very satisfied with the statement. On the second statement that the students have access to facilities and equipment, 9.1% of the respondents were very dissatisfied with the statement, 11.5% were dissatisfied, 16.1% were uncertain, 39.8% of the respondents were satisfied and 23.4% of the total respondents were very satisfied with the statement. The third statement was that location and availability of buildings, playgrounds, libraries and labs are provided to students and on this, 6.8% of the total respondents said that they were very dissatisfied with the statement, 9.6% were dissatisfied, 14.6% were uncertain, 40.4% were satisfied and 28.6% were very satisfied.

The study also sought to find out the respondents' opinion on the statement that education environment conditions are conducive for education services. On this, 3.9% of the respondents said that they were very dissatisfied, 9.9% said that they were dissatisfied, 15.6% were uncertain, 46.4% indicated that they were satisfied and 24.2% said that they were very satisfied. The last statement on the questions was that the university assesses educational service environment for associated risks, security, safety and hygiene where 6.8% of the respondents were very dissatisfied with the statement, 9.1% were dissatisfied, 18.0% were uncertain, 45.8% were satisfied and 20.3% were very satisfied.

The findings of the study concur with an argument by Venkatraman (2007) who contended that one of the strategies to ensure effective Quality Management System(QMS) is through effectively managing organizational resources and ensuring that every stakeholder may it be employee or customer are well catered for. According to Hutyra (2011) resources needed in a university such as educational materials and conducive working environment play an important role in making the customers (students) satisfied with the university. When the institution pays attention to the service delivery through provision of better resources as the ISO 9001:2008 states, the students feel more secure and become more satisfied.

#### **4.4.4 Product Realization**

In the study, product realisation was operationalised into; Learning-related processes; Design and development; and, Teaching and learning. A five -point scale was used to measure each of the sub-variable and the results were presented in tables.

The fourth objective of the study was to find out effect of product realisation process on students' satisfaction in ISO 9001 certified universities in Kenya. The study thus sought to establish the level of satisfaction among the students on the statements given regarding the product realisation in the ISO 9001 certified universities. The results are shown in table 4.8.

**Table 4.8: Level of satisfaction on statement on Product Realization**

<b>Statement</b>	<b>Very dissatisfied</b>	<b>Dissatisfied</b>	<b>Uncertain</b>	<b>Satisfied</b>	<b>Very satisfied</b>	<b>Total</b>
University provide the opportunity for students to study existing knowledge and to practice its application	4.4	9.4	24.7	40.6	20.8	100.0
Program have clear aims and objectives	5.2	9.6	15.6	45.1	24.5	100.0
Pre-requisites for each course are investigated and established	5.5	12.0	19.0	43.5	20.1	100.0
The structures of the courses are coherent	3.9	9.6	16.1	47.9	22.4	100.0
The subjects content are related to the program aims and objectives	4.7	5.7	16.4	46.1	27.1	100.0
The academic program aims and objectives are understood by are the students	6.3	5.7	17.7	47.4	22.9	100.0
Learning experiences of the students are relevant to employment	5.2	12.2	14.8	41.9	25.8	100.0
Students are given opportunities to become involved in program operation	6.5	10.9	20.1	40.4	22.1	100.0
Students are involved in teaching and encouraged to take part in discussion	4.9	6.5	15.6	46.1	26.8	100.0
The assessment ensures the students attain the required standards	5.5	8.6	17.2	43.2	25.5	100.0
Students assessed work is returned in time	12.0	15.6	16.9	33.9	21.6	100.0

It indicates that 4.4% of the total respondents were very dissatisfied with the first statement that University provide the opportunity for students to study existing knowledge and to practice its application whereas 9.4% of the respondents said that they were dissatisfied with the statement, 24.7% of the respondents said that they uncertain with the statement, 40.6% said they were satisfied, and 20.8% were very satisfied. On the second statement that programs have clear aims and objectives, 5.2% of the total respondents were very dissatisfied with the statement, 9.6% of the respondents said that they were dissatisfied, 15.6% were uncertain, 45.1% said that they were satisfied with the statement, and 24.5% of the total respondents said that they were very satisfied with the statement that programs have clear aims and objectives. On the third statement that pre-requisites for each course are investigated and established, 5.5% of the respondents said that they were very dissatisfied with the statement, 12.0% said that they were dissatisfied, 19.0% were uncertain, 43.5% were satisfied whereas 20.1% of the respondents said that they were very satisfied with the statement. The other statement was that the structures of the courses are coherent where 3.9% of the respondents said that they were very dissatisfied with the statement, 9.6% said they were dissatisfied, 16.1% were uncertain, 47.9% of the total respondents said that they were satisfied and 22.4% of the respondents said they were very satisfied with the statement.

In the study, the satisfaction of the respondents on the statement that the subjects content are related to the program aims and objectives where 4.7% of the respondents were very dissatisfied with the statement, 5.7% were dissatisfied, 16.4% were uncertain, 46.1% were satisfied and 27.1% of the respondents were very satisfied with the statement. On the statement that the academic program aims and objectives are understood by are the students, the finding have it that 6.3% of the respondents were very dissatisfied with the statement, 5.7% were dissatisfied with the statement, 17.7% were uncertain, 47.4% were satisfied and 25.8% of the respondents were very satisfied with the statement. On the statement that learning experiences of the students are relevant to employment, 5.2% of the respondents were very dissatisfied, 12.2% were dissatisfied, 14.8% were uncertain, 41.9% of the respondents were satisfied with the statement, 25.8% were very satisfied with the statement.

The study sought to establish the respondents level of satisfaction on the statement that students are given opportunities to become involved in program operation where 6.5% of the respondents said that they were very dissatisfied with the statement, 10.9% of the respondents said that they were dissatisfied with the statement, 20.1% of the total respondents said that they were uncertain, that is they were neither dissatisfied nor satisfied with the statement, 40.4% said that they were satisfied with the statement and 22.1% of the total respondents said that they were very satisfied with the statement. On the statement that students are involved in teaching and encouraged to take part in discussion, 4.9% of the respondents indicated that they were very dissatisfied with the statement, 6.5% of the respondents said that they were dissatisfied with the statement, 15.6% were uncertain, 46.1% said that they were satisfied with the statement and 26.8% of the respondents said that they were very satisfied with the statements. On the statement that the assessment ensures the students attain the required standards, 5.5% of the total respondents indicated that they were very dissatisfied with the statement, 8.6% said that they were dissatisfied with the statement, 17.2% said that they were uncertain, 43.2% of the respondents said that they were satisfied with the statement and 25.5% of the respondents said that they were very satisfied with the statement. Lastly on the statement that students assessed work is returned in time, 12.0% of the respondents said that they were very dissatisfied with the statement, 15.6% of the respondents said that they were dissatisfied, 16.9% said that they were uncertain, 33.9% were satisfied and 21.6% of the respondents said that they were very satisfied with the statement.

The findings from the study imply that majority of the universities had embraced product realization strategies. As indicated in the literature by Venkatraman (2007), most of the higher learning institutions have enhanced product management systems which ensure that they offer the required and relevant courses, teaching materials and assessment of the students. This according to Venkatraman (2007) promotes satisfaction of both the staff and the students in that they are offered with what they want. However, the methods of offering these products may be in a disputable quality and this could have been the main cause of the dissatisfaction among some of the respondents. The study however rear-ends that of Sheps (2011) who established that satisfaction of the stakeholders did not relate with the products realization

strategies by the organizations. According to Sheps (2011), stakeholder satisfaction is mainly enhanced by their involvement in the management of the organization which includes the decision making processes and other organizational planning strategies. Sheps (2011) further noted that satisfaction can also be best described by the rewarding, engagement and recognition of the stakeholders such as employees and customers.

#### **4.4.5 Improvement management**

In the study, improvement management was operationalised into: Customer Satisfaction measurement; Monitoring and measurement of product; and Monitoring and measurement of processes .A five -likert scale was used to measure each of the sub-variable and the results were presented in tables.

The fifth objective of the study was to establish the influence of QMS improvement management program on students' satisfaction in ISO 9001 certified universities in Kenya. The study sought to establish the role that improvement management through provision of improved and enhanced management strategies play in enhancing the students' satisfaction. The respondents were given specific statements on the questionnaire regarding the improved management and were required to indicate their satisfaction levels based on a 5-Likert's scale. The results are presented in table 4.9.

**Table 4.9: Level of Satisfaction on statements on improvement management in Percentage**

<b>Statement</b>	<b>Very dissatisfied</b>	<b>Dissatisfied</b>	<b>Uncertain</b>	<b>Satisfied</b>	<b>Very satisfied</b>	<b>Total</b>
There is a system for taking the students' and staff views to improve quality	13.3	17.7	16.7	34.6	17.7	100.0
The students provide feedback on the quality of courses and teaching	8.1	12.0	16.4	44.3	19.3	100.0
Class proceedings and activities are to the point and well directed	5.5	13.8	15.9	45.3	19.5	100.0
Lecturers provide useful feedback to the students	5.2	11.7	18.5	41.9	22.7	100.0
Lecturers provide assistance to the students	4.4	12.8	13.3	43.8	25.8	100.0
The university has the means to correct nonconforming achievement in individual learners to avoid learner's dissatisfaction	14.1	11.7	21.6	35.9	16.7	100.0
There is an assessment schedule for the students' performance	6.5	10.9	19.9	42.2	20.8	100.0
There are clear procedures to ensure grades and certification awarded to students are fair and unbiased	12.0	12.8	21.1	33.9	20.3	100.0
The students' progression rates and completion rates are monitoring and measured by the university	11.2	8.1	23.7	34.1	22.9	100.0

It indicates that on the first statement that there is a system for taking the students' and staff views to improve quality, 13.3% of the respondents were very dissatisfied with the statement, 17.7% were dissatisfied with the statement, 16.7% were uncertain, 34.6% of the total respondents were satisfied and 17.7% were very satisfied with the statements. On the other statement that the students provide feedback on the quality of courses and teaching, 8.1% of the respondents said that they were very dissatisfied with the statement, 12.0% were dissatisfied, 16.4% were uncertain, 44.3% were satisfied and 19.3% of the total respondents indicated that they were very satisfied with the statement. On the statement that class proceedings and activities are to the point and well directed, 5.5% of the respondents said that they were very dissatisfied, 13.8% said they were dissatisfied, 15.9% were uncertain, 45.3% were satisfied, and 19.5% of the total respondents said that they were very satisfied with the statement.

The study further sought to establish the respondents' level of satisfaction on the statement that lecturers provide useful feedback to the students. On this, 5.2% of the respondents were very dissatisfied with the statement, 11.7% were dissatisfied, 18.5% were uncertain, 41.9% of the respondents were satisfied and 22.7% of the respondents said that they were very satisfied with the statement. The other statement was that lecturers provide assistance to the students where 4.4% of the respondents said that they were very dissatisfied with the statement, 12.8% of the respondents were dissatisfied, 13.3% were uncertain, 43.8% were satisfied and 25.8% of the total respondents were very satisfied with the statement. On the statement that the university has the means to correct nonconforming achievement in individual learners to avoid learner's dissatisfaction, 14.1% of the respondents indicated that they were very dissatisfied with the statement, 11.7% were dissatisfied, 21.6% were uncertain, 35.9% were satisfied and 16.7% of the respondents were very satisfied.

The study also sought to determine the views of the respondents on the statement that there is an assessment schedule for the students' performance where 6.5% of the respondents said that they were very dissatisfied, 10.9% were dissatisfied, 19.9% were uncertain, 42.2% of the respondents were satisfied and 20.8% were very satisfied. On the statement that there are clear procedures to ensure grades and



certification awarded to students are fair and unbiased, 12.0% of the respondents were very dissatisfied, 12.8% of the respondents were dissatisfied, 21.1% were uncertain, 33.9% of the respondents said that they were satisfied and 20.3% said that they were very satisfied with the statement. The other statement was that the students' progression rates and completion rates are monitoring and measured by the university and in this, 11.2% of the respondents said that they were very dissatisfied with the statement, 8.1% of the respondents said that they were dissatisfied, 23.7% were uncertain, 34.1% were satisfied, 22.9% were very satisfied.

The study findings compare with those by Machumu and Kisanga (2014) who established that the management competency embodied by the institution management plays the key role in promoting the satisfaction of the customers. According to Machumu and Kisanga (2014) organizational management brings the strategies to manage the staff and other stakeholders thus the effective their strategies of management are, the more the services offered by the employees are effective thus promoting customer satisfaction. Elsewhere, Papadimitriou and Westerheijden (2010) established that improvement management through involvement of the stakeholders and keeping track of the record of quality of services offered by organizations, enhance the satisfaction of the customers and other stakeholders. According to Papadimitriou and Westerheijden (2010), when the management improves its management strategies, the stakeholders are well catered for thus enhancing their satisfaction.

#### **4.4.6 Students' Satisfaction**

In the study, students' satisfaction was operationalised into; Quality of service; Perceived reliability; Repeat purchase of courses; Student completion rates and Complaints rate. A five -point scale was used to measure each of the sub-variable and the results were presented in tables.

The dependent variable for the study was the students' satisfaction. The study sought to establish the role played by documentation, leadership, resource management, product realisation and improvement management on the students' satisfaction in universities certified on the ISO 9001:2008. The results as presented in table 4.10.

**Table 4.10: Level of Satisfaction with statements on Students' Satisfaction in Percentage**

<b>Statement</b>	<b>Very dissatisfied</b>	<b>Dissatisfied</b>	<b>Uncertain</b>	<b>Satisfied</b>	<b>Very satisfied</b>	<b>Total</b>
How do you rate the overall quality of services provided by the university?	5.5	15.9	18.8	40.6	19.3	100.0
How do you rate the quality of teaching and facilities provided by the university?	4.2	12.2	20.8	40.6	22.1	100.0
How do you perceive the overall reliability of services provided by the university?	5.5	12.0	25.8	34.6	22.1	100.0
How do you perceive the reliability of the examination results provided by the university?	9.4	15.1	34.9	41.9	25.5	100.0
How do you rate if students will take another course from the university after graduating?	12.2	14.8	17.2	28.9	26.8	100.0
Will you recommend the university to your friend and family members?	12.5	14.8	12.0	29.9	30.7	100.0
How do you rate the student completion rate?	3.4	7.0	25.0	39.8	24.7	100.0
How do you rate the level at which students drop out of university or repeat classes in the university?	9.9	16.1	26.0	26.0	21.9	100.0
How satisfied are you with how the university handle the students' complaints?	18.2	21.6	12.5	26.8	20.8	100.0
Rate how you are satisfied with complaints feedback from the university management	21.1	16.7	15.1	20.1	27.1	100.0

The first statement that how do you rate the overall quality of services provided by the university, 5.5% of the respondents rated the quality of the services offered to be very dissatisfying, 15.9% said they were dissatisfied with the service quality, 18.8% were uncertain with the quality of services, 40.6% of the respondents said that they were satisfied with the service quality and 19.35 % of the total respondents said that they were very satisfied with the quality of services offered by their respective universities. On the question on rating the quality of teaching and facilities provided by the university, 4.2% of the respondents said that they were very dissatisfied, 12.2% said that they were dissatisfied, 20.8% were uncertain, 40.6% were satisfied and 22.1% of the total respondents said that they were very satisfied with the quality of teaching they got. The other question was on the respondents' perception on the overall reliability of services provided by the university where 5.5% said that they were very dissatisfied with the reliability of the services, 12.0% were dissatisfied, 25.8% were uncertain, 34.6% were satisfied and 22.1% of the respondents said that they were very satisfied with the reliability of the services offered. The other statement was on the reliability of the examination results provided by the university where 9.4% of the respondents were very dissatisfied, 15.1% were dissatisfied, 34.9% were uncertain, 41.9% were satisfied, and 25.5% were very satisfied with the reliability of the examination results by the institutions.

The study further sought to find the respondents' level of satisfaction on the ability of a student to take another course in the university after graduating where 12.2% said that they were very dissatisfied with the statement, 14.8% were dissatisfied, 17.2% were uncertain, 28.9% were satisfied and 26.8% were very satisfied. On the statement recommending the respective university to friends and family, 12.5% of the respondents were very dissatisfied, 14.8% were dissatisfied, 12.0% were uncertain, 29.9% were satisfied and 30.7% of the respondents were very satisfied. The other statement on satisfaction of the students was on rating the students' completion rate where 3.4% were very dissatisfied, 7.0% were dissatisfied, 25.0% were uncertain, 39.8% were satisfied and 24.75% were very satisfied. The other statement was on rating the level at which students dropped out of university or repeated classes in the university where 9.9% of the respondents were very

dissatisfied, 16.1% were dissatisfied, 26.0% were uncertain, 26.0% were satisfied and 21.9% were very satisfied.

On the satisfaction of the students on how the universities handle the students' complaints, 18.2% were very dissatisfied, 21.6% were dissatisfied, 12.5% were uncertain, 26.8% were satisfied and 20.8% were very satisfied. On the statement that how much they were satisfied with complaints feedback from the university management, 21.1% of the total respondents said that they were very dissatisfied with the statement, 16.7% indicated that they were uncertain, 20.1% were satisfied, and 27.1% were very satisfied.

The findings imply that as far as the universities seem to have done a lot in enhancing students' satisfaction through use of the various studies highlighted, there is still a wide gap to fill as far as satisfaction of the students is concerned. As noted by Cianfrani and West (2009) states, only following the ISO 9001 certification guidelines is not enough to enhance and promote satisfaction and quality services but also requires commitment by the organizational management. According to Hoyle (2009), quality of services offered in an organization especially an academic institution depends on the competency of the management. Hoyle (2009) argues that the customer satisfaction levels in an organization always differ based on the expectations of the individuals and whatever they are provided with.

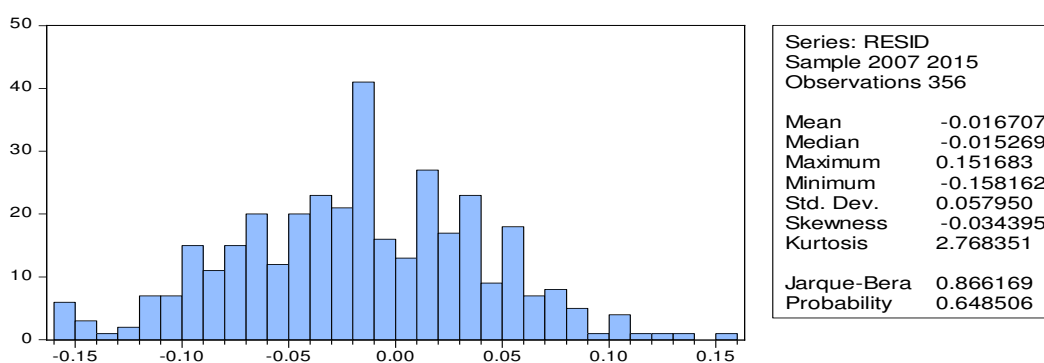
#### **4.5 Diagnostic tests**

The study conducted various diagnostic tests to ensure that the assumptions of CLRM were not violated and appropriate model chosen for analysis in the event that CLRM assumption was not compromised. Estimating the probit models when the CLRM assumptions are violated would result in inefficient and inconsistent parameters estimates. This section presents the results of the following diagnostic tests: test for normality test, heteroscedasticity test and multicollinearity test.

### 4.5.1 Normality Test

The normality test was conducted using the Jarque-Bera (JB) and normality graph. The results in the figure 4.11 indicate that the residuals were normally distributed. To further establish whether the residuals were normally distributed the study adopted the Jarque-Bera test which is a more conclusive test than the graphical inspection approach of testing for normality (Gujarati, 2003; Razali & Wah, 2011). The results of the Jarque-Bera test are shown Figure 4.6

#### Bar graph presentation



**Figure 4.6 Normality test**

The Alternative hypothesis under this test is that the residuals are not significantly different from a normal distribution. Given that the p-value was greater than 5% for the residual, we failed to reject the null hypothesis and thus the conclusion that the residuals are normally distributed. It's clear that the residual were normally distributed and therefore, the model could be applied in the analysis (Brooks, 2008).

### 4.5.2 Test for Heteroskedasticity

The study further conducted heteroskedasticity test to test the assumption that the residuals have a constant variance (they should be homoskedastic). The Modified Wald test was used to test for heteroskedasticity where the null hypothesis of the test is that error terms have a constant variance (should be Homoskedastic). The study failed to reject the null hypothesis given that the reported p-value 0.000 was less than the critical value and thus concluded that the observations have constant variance or

do not have the problem of heteroskedasticity. The results of heteroskedasticity test are shown in table 4.12.

**Table 4.12: Test for Heteroskedasticity**

---

. xttest3

---

Modified Wald test heteroskedasticity  
 chi2 (42) = 2.4e+09  
 Prob>chi2 = 0.0000

---

### 4.5.3 Multicollinearity

To test for multicollinearity the study used variance inflation factor (VIF). This study adopted the rule of thumb for VIF value of 10 as the threshold. The VIF values of greater than 10 would indicate presence of multicollinearity. The results are demonstrated in table 4.13

**Table 4.13: Results for Multicollinearity Test**

---

	Tolerance	VIF
System Documentation	0.893	1.119
Leadership Management	0.804	1.241
Resource Management	0.734	1.362
Product Realization	0.711	1.407
Continual improvement	0.425	2.351

---

These results indicated that the VIF values of the independent variables were within the threshold of 10. The tolerance value was greater than 0.1 ruling out the possibility of multicollinearity (Field, 2009).The result, therefore implied non-existence of a multicollinearity problem among the independent variables and hence the level of multicollinearity in the model could be tolerated. The multicollinearity diagnosis indicated that that there was no threat of multicollinearity problem and therefore, all the independent variables were used in further analysis using the ordered probit model. In either studies VIF less than five and tolerance greater than

0.2 are recommended and in the study, values for tolerance and VIF are within acceptable range.

#### 4.6 Inferential results

The relationship between the independent variables and the students' satisfaction in ISO 9001:2008 certified Universities in Kenya, inferential analysis was done. This was done using the Probit analysis model. The P-Values are used to make conclusions regarding the relationship among the variables. The results are presented in tables and figures.

##### 4.6.1 Inferential Analysis of Documentation and Students' Satisfaction

*H<sub>A1</sub>: QMS documentation had a positive significant effect on students' satisfaction in ISO 9001 certified universities in Kenya.*

The study sought to establish the relationship between system documentation and students' satisfaction. Ordered Probit model was used to determine the variation coefficients as shown in table 4.14

**Table 4.14: Ordered Probit Model on System Documentation and Students' Satisfaction**

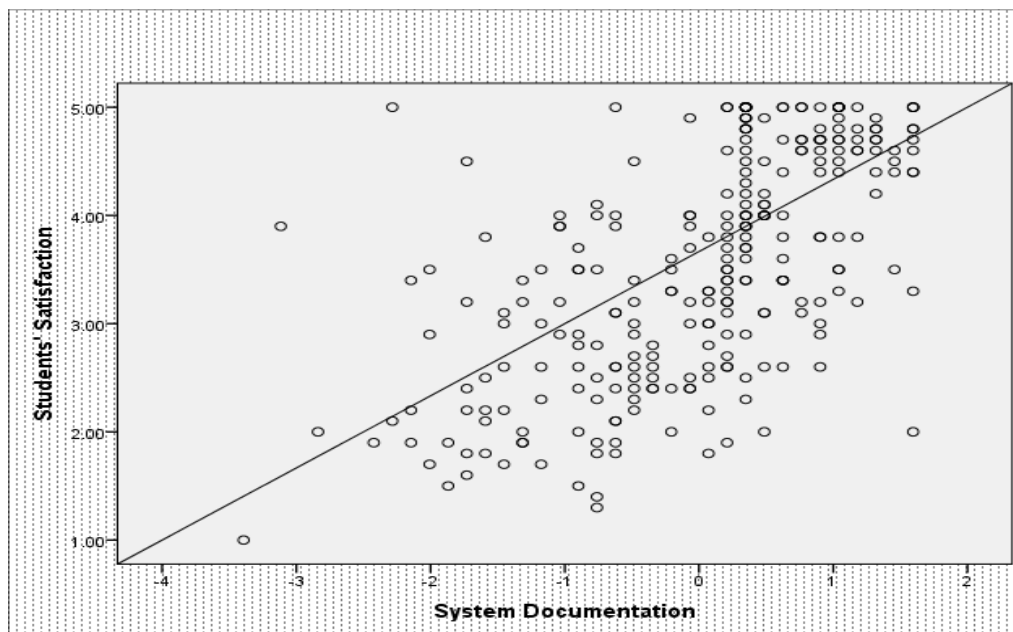
Satisfaction	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]
Documentation	.9732563	.072487	13.43	0.000	.8311844 1.115328
Number of obs	269				
Pseudo R <sup>2</sup>	0.1420				

The parameter estimates reported shows that the p-value is 0.000 which is less than 0.05 meaning that the variable (documentation) is significantly related to the students' satisfaction. The output further shows that at a confidence interval of 95%, a unit change (increase) in documentation can explain up to 83% (.831184) of students' satisfaction and therefore accept the alternative hypothesis that system documentation has a positive significant effect on the students' satisfaction among ISO certified universities in Kenya.

The findings from the ordered probit model compare with those by Firdaus (2006) who established that service quality and satisfaction of stakeholders is based on the level of stakeholder involvement and the follow up that is made to ensure adequate tracking of the service offered. According to Garwe (2015), documenting the available and projected service quality parameters and strategies enables the management to keep track of the changes that need to be done and gives the service receivers the confidence that their demands are going to be met.

### Scatter Plot diagram

A scatter plot was also presented to show the relationship between system documentation and students' satisfaction. The Y-axis represents Dependent variable (Students' satisfaction) while the X- Axis represents Independent variable (System documentation management). The results are as shown in figure 4.7.



**Figure 4.7: Scatter Diagram on System Documentation**

The scatter plot diagram indicates a positive gradient which is an indicative that system documentation positively and significantly influences students' satisfaction.

### 4.6.2 Inferential Analysis of Ordered Probit Model on the Leadership Management and Students' Satisfaction



*H<sub>A2</sub>: QMS leadership had significant positive influence on students' satisfaction in ISO 9001 certified universities in Kenya*

The study sought to find out the coefficients of determination and variation between leadership management and students' satisfaction. An ordered probit model analysis was used to determine the effect of leadership management on students' satisfaction in the ISO 9001 certified universities in Kenya. The results are as shown in table 4.15.

**Table 4.15: Ordered Probit Model on Leadership Management and Students' Satisfaction**

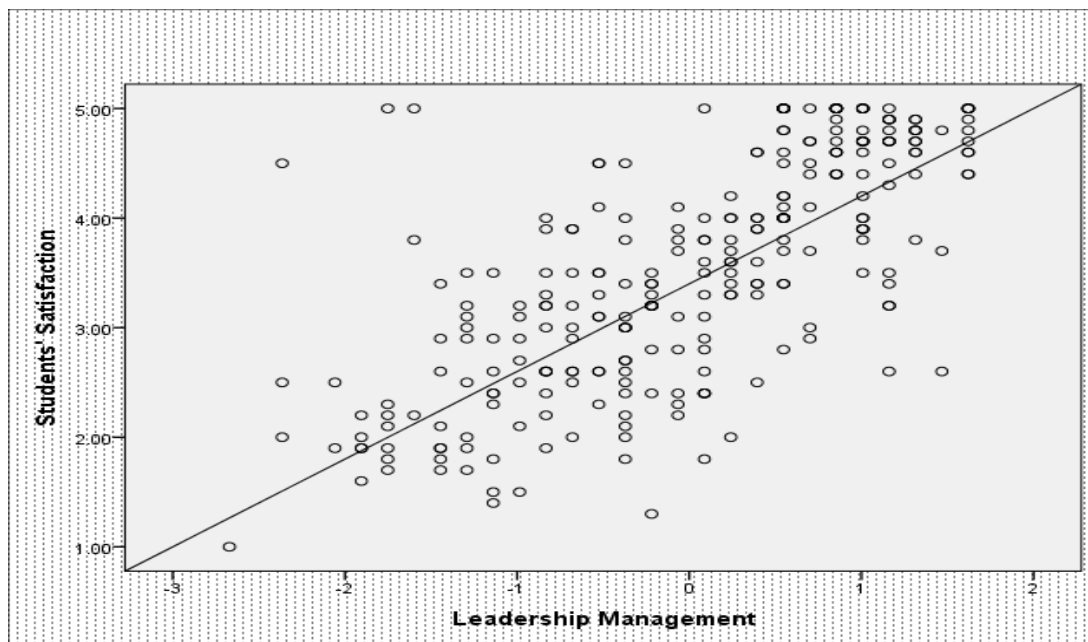
<b>Satisfaction</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
<b>leadership</b>	1.054384	.0676279	15.59	0.000	.9218363	1.186933
<b>Number of obs</b>	269					
<b>Pseudo R<sup>2</sup></b>	0.0938					

It demonstrates that leadership management has a significant relationship with students' satisfaction, and the p-value is 0.000 which is below 0.05. This is therefore to mean that leadership management has a positive effect on students' satisfaction which means the better the leadership management the more the students' satisfaction. The findings show that leadership management has a statistically significant effect on the satisfaction of students in ISO 9001 certified universities in Kenya. From the analysis, it is clear that the alternative hypothesis goes the same direction with the study findings and therefore accept the alternative hypothesis that leadership management has a positive significant effect on the students' satisfaction among ISO 9001 certified universities in Kenya. The model output compares with the findings by Purgailis and Zaksa (2012) who found that leadership is significantly related to satisfaction in that through involvement of the members and showing them that they are part of the strategies put in place to deliver services, they get more motivated and thus are satisfied. Enhancing communication and promoting

information sharing play a very crucial role in enhancing satisfaction (Purgailis & Zaksa (2012).

## Scatter Plot diagram

To clearly bring out the relationship between the variable leadership management and the satisfaction of students among the ISO 9001 certified Universities in Kenya, a Scatter plot diagram was established. The Y-axis represents Dependent variable (Students' satisfaction) while the X- Axis represents Independent variable (leadership management).The results are as shown in figure 4.8.



**Figure 4.8: Scatter Plot diagram on Leadership Management**

The scatter diagram indicates a positive gradient which is an implication that leadership management positively and significantly influences the satisfaction of students among the ISO 9001 certified Universities in Kenya. The findings compared with those by Sakthivel, et al. (2005) that students' satisfaction and leadership management produces a positive gradient curve implying a positive relationship between the variables.

### 4.6.3 Inferential Analysis of the Ordered Probit Model on Resource Management and Students' Satisfaction

$H_{A3}$ : *QMS resource allocation had positive significant effect on students' satisfaction in ISO 9001 certified universities in Kenya.*

To determine the level and the effect of resource management on students' satisfaction, ordered Probit model was carried out. The model output is shown on table 4.16.

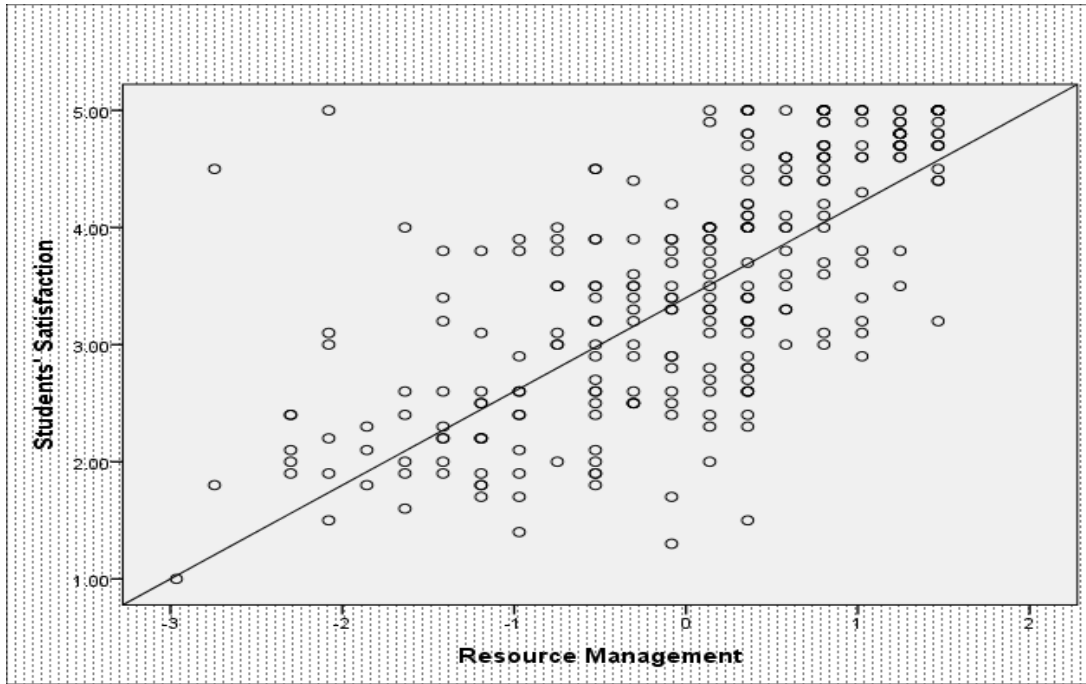
**Table 4.16: Estimation of the probit model for Resource Management and Student's Satisfaction**

<b>Satisfaction</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
<b>Resource Management</b>	.9477518	.0632649	14.98	0.000	.8237548	1.071749
<b>Number of obs</b>	269					
<b>Pseudo R<sup>2</sup></b>	0.1087					

It indicates, the resource management is significantly and positively related to students' satisfaction. The P-value is 0.000 which is less than 0.05 meaning the variables are positively related. The findings further show that resource management can explain up to 82% (0.82375) of the students' satisfaction. With a P-value that is less than the standard P-value of 0.05, it is worth noting that the findings support the alternative hypothesis for the variable and therefore accept the alternative hypothesis that resource management has a positive significant effect on the students' satisfaction among ISO 9001 certified universities in Kenya. The findings compared with those by Shibru and Darshan (2011) whose model established that resource management had a p-value of 0.001 thus concluding that resource management was significantly related to customer satisfaction. According to Cruz, da Souza and Melleiro (2010) resource management is one of the key factors that enhances satisfaction among the users or receivers of a product/service. Through provision of the required resources and enhancing the accessibility of the shared needs, the users have more feeling that their requirements are well taken care of thus become more satisfied. However, the findings does not concur with those of Kaingi (2012) who found that resources did not contribute to the satisfaction of the students but only made them feel associated with the institutions.

### **Scatter plot diagram**

To clearly bring out the relationship between the variable resource management and the satisfaction of students among the ISO 9001 certified Universities in Kenya, a Scatter plot diagram was established. The Y-axis represents Dependent variable (Students' satisfaction) while the X- Axis represents Independent variable (resource management). The results are as shown in figure 4.9



**Figure 4.9: Scatterplot on Resource Management and Students' Satisfaction**

The findings from the scatter diagram indicated a positive relationship between the two variables; Resource management and students' satisfaction. The implication is that as a unit increase in resource management positively changes (increases) the students' satisfaction increases as well.

#### **4.6.4 Inferential Analysis of the Probit model on Product realization and Students' Satisfaction**

*H<sub>A4</sub>: QMS product realisation had a positive significant effect on students' satisfaction in ISO 9001 certified universities in Kenya.*

The study sought to find out the relationship between the variable; product realization and students' satisfaction. Ordered Probit model was used to determine the relationship as shown in table 4.17.

**Table 4.17: Ordered Probit model on Product Realization and Students' Satisfaction**

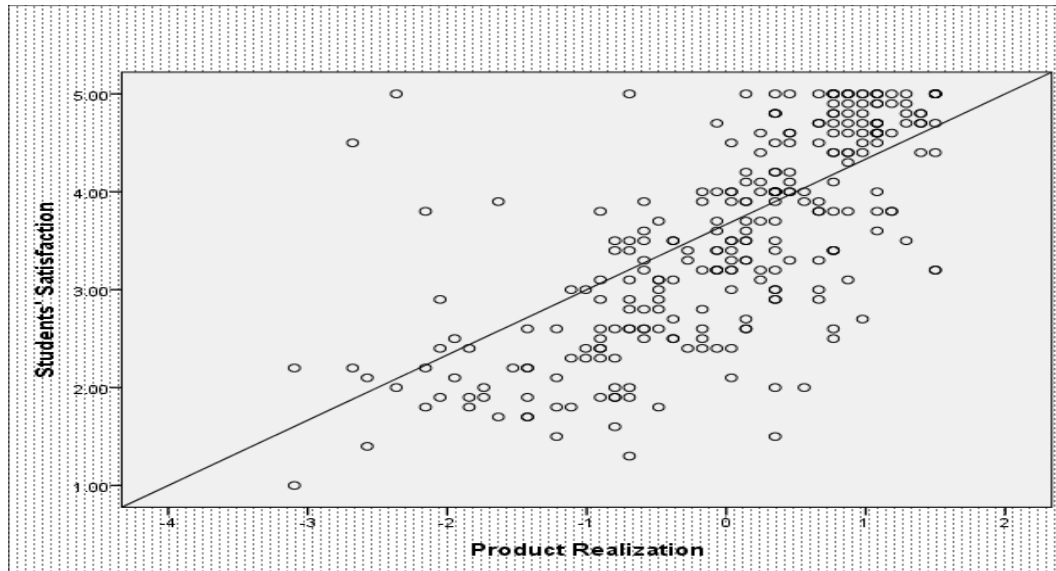
<b>Satisfaction</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
<b>Product Realization</b>	1.167404	.075077	15.55	0.000	1.020256	1.314552
<b>Number of obs</b>	269					
<b>Pseudo R<sup>2</sup></b>	0.0934					

As the findings indicate, the coefficient for the product realization is 1.167 and the p-value is 0.000 and the R<sup>2</sup> is 0.0934. The model output therefore implies that product realization is positively (1.167) and significantly (p-value = 0.000<0.05) to the students satisfaction among the ISO 9001 certified universities in Kenya. The output further shows that at a confident level of 0.95, a unit change in product realization can explain up to 1.02 of the change in students' satisfaction. As the findings portray, product realization has a notable effect on the students' satisfaction. It is on this merit the alternative hypothesis, that product realization has a positive significant effect on the students' satisfaction among ISO 9001 certified universities in Kenya is accepted.

According to Al-Refaie, Ghnaimat and Li (2012) product realization through provision of intensified and clear products and their specifications, enhances the satisfaction of the customers among Jordan organizations to a very great extent. The findings from the model also compared with those of Cheng-Ling et al. (2011) who established that product realization through specifications, modification and innovativeness enhances the customer satisfaction to a most relevancy based on the fact that customers seek the product from the organization and thus the mode and criteria to which the obtain the product will determine the levels of satisfaction.

### **Scatter Plot diagram**

A scatter diagram was established so as to clearly present the relationship between Product Realization and students' satisfaction. This will assist to explain the gradient of the two variables as far as their relationship is concerned.



**Figure 4.10: Scatter Plot on Product Realization and Students' Satisfaction**

The Y-axis represents Dependent variable (Students' satisfaction) while the X- Axis represents Independent variable (product realisation).The findings are as shown in figure 4.10.

From the Scatter diagram, it is concrete clear that there is a positive gradient between the two variables an indication that product realization significantly and positively influences the satisfaction of the students. Similar results were observed by Al-Ibrahim (2014) and Cianfrani and West (2009) who found that product realization determine the better part of students' satisfaction.

#### **4.6.5 Ordered Probit Model on Improvement management and Students' Satisfaction**

*H<sub>A5</sub>: QMS improvement management had a positive significant influence on students' satisfaction positively in ISO 9001 certified universities in Kenya.*

The study sought to find out the relationship between improvement management which was one of the independent variables of the study and the students' satisfaction. This would then help the study to determine whether to reject or accept the alternative hypothesis. As the model output shown in table 4.18 and Figure 4.10.

**Table 4.18: Ordered Probit model on Continual Improvement and Students' Satisfaction**

<b>Satisfaction</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>Z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
<b>Improvement management</b>	1.404349	.0776417	18.09	0.000	1.252174	1.556524
<b>Number of obs</b>	269					
<b>Pseudo R<sup>2</sup></b>	0.1314					

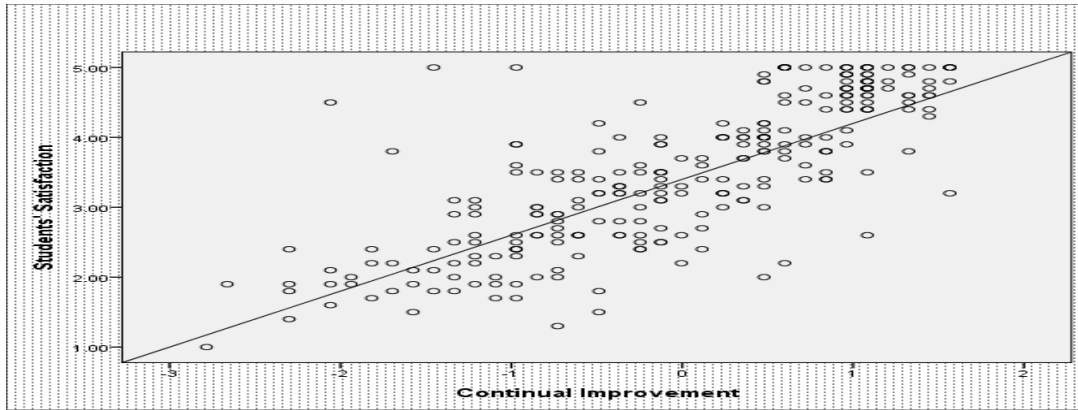
Improvement management was found to be positively and significantly related to the students' satisfaction. The output indicates that the p-value is 0.000 which is less than 0.05 and the coefficient of improvement management to students' satisfaction is 1.404. The model also shows that at a confidence level of 0.95, a unit change in improvement management can explain up to 1.252 of the students' satisfaction. With a p-value of 0.000, it clearly depicts that improvement management is an important aspect as far as students' satisfaction is concerned. This gives the weight to therefore accept the alternative hypothesis that improvement management has a positive significant impact on the students' satisfaction among ISO 9001 certified universities in Kenya

The findings therefore imply that improvement management play a key role in enhancing the students' satisfaction among the ISO 9001:2008 certified universities in Kenya. According to Paulová and Míkva (2011) improvement management through leadership centred supervision enhances the customer satisfaction since strategic leaders seek to focus more on the customers and the best ways to incorporate them on the organizational matters so as to make decision that meet their demands and expectations.

### **Scatter Plot diagram**



The analysis results of the relationship between improvement management and satisfaction of students in ISO certified universities was also presented on a Scatter plot diagram. The Y-axis represents Dependent variable (Students' satisfaction) while the X- Axis represents Independent variable (improvement management). The results are as shown in figure 4.10.



**Figure 4.11: Improvement management and Students' Satisfaction**

From the scatter diagram, it is clear that the two variables had a positive gradient. This implies that improvement management positively and significantly influences the students' satisfaction.

#### 4.7 Overall Model

The study required a combined overall probit model so as to establish the relationship between the independent variables (documentation management, leadership management, Resource management, product realisation and improvement management) and the dependent variable (Students' satisfaction). The overall model output is shown in table 4.19.

**Table 4.19: Overall Ordered Probit Model**

Satisfaction	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
<b>Documentation</b>	-.002935	.1069236	-	0.978	-.2125017	.2066311
			0.03			
<b>Leadership</b>	.251376	.1071559	2.35	0.019	.0413542	.4613977
<b>Resources</b>	.2044643	.0963381	2.12	0.034	.0156452	.3932835
<b>Product</b>	.2385112	.1144574	2.08	0.037	.0141788	.4628436

<b>Improvement</b>	.9219217	.1222346	7.54	0.000	.6823462	1.161497
<b>Number of obs</b>	<b>LR Chi<sup>2</sup>(5)</b>		<b>Prob&gt;Chi<sup>2</sup></b>	<b>Pseudo R<sup>2</sup></b>	<b>Log likelihood</b>	
<b>384</b>	269.34		0.0001	0.1420	-1160.7442	

The likelihood ratio chi-square of 269.34 with a P-value (Prob>Chi<sup>2</sup>) of 0.0001 tells us that the model as a whole is statistically significant. Documentation management is not significantly related to the students' satisfaction. This is evidenced by the p-value which is more than the critical p-value of 0.05 ( $P > 0.05 < 0.978$ ). The coefficients for documentation management as shown by the model is -0.002935 (-0.29.35%) meaning that the variable is insignificantly and negatively related to the students' satisfaction. The model further shows that at a confidence interval of 95%, -21.25% of students' satisfaction can be explained by a unit change in documentation management. The findings further show that the variable; improvement management is the most significantly and positively related with the students' satisfaction. This is evidenced by the illustration that the p-value for the variable is the least amongst all other variables ( $p < 0.05$ ;  $p < 0.000$ ) indicating that the variables contributes more to the students' satisfaction. The variable (improvement management) also has a confident level of 0.6823 meaning that a unit change in improvement management can explain up to 68.23% change in students' satisfaction.

The findings therefore imply that the study rejects the alternative hypothesis 1 ( $H_{A1}$ ) but accepts the other hypotheses ( $H_{A2}$ ,  $H_{A3}$ ,  $H_{A4}$  and  $H_{A5}$ ). The probit model used was;

$$y_i^* = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \beta_5 x_{5i} + \epsilon_i$$

Where;

$$y_i^* = \text{Students' satisfaction}$$

$$x_{1i} = \text{Documentation Management}$$

$$x_{2i} = \text{Leadership Management}$$

$x_{3i}$  = Resource management

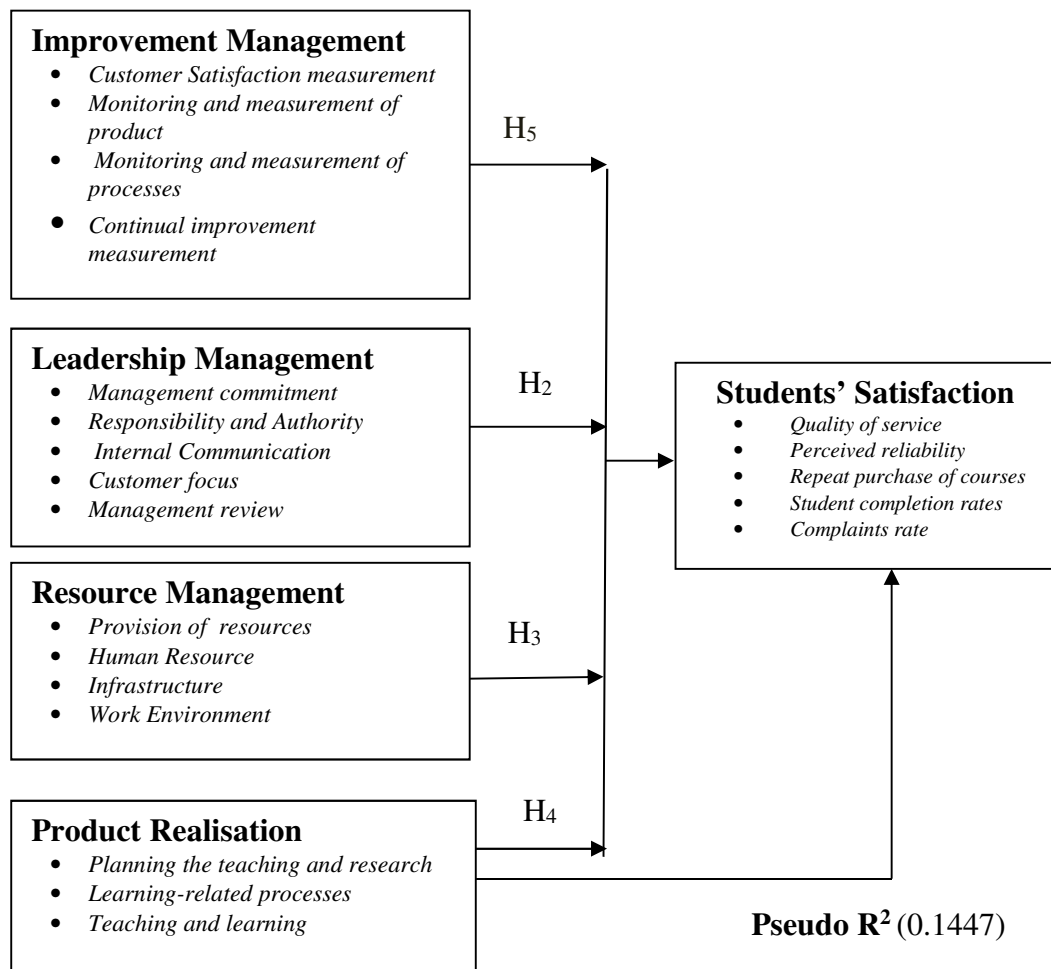
$x_{4i}$  = Product realisation Management

$x_{5i}$  = Improvement Management

$\epsilon_i$  = Error of estimation

#### 4.8 Optimal Research Model

The following is the optimal model for the study. The model presents four independent variables namely are; Improvement management, leadership management, resource management and product realisation. System documentation was left out among the variables since the regression coefficient associated with it was insignificant ( $P=0.978>0.05$ ). The Pseudo  $R^2$  for all the variables is 0.14447 and this was contributed by the hypotheses as shown in the figure 4.11.



(Source: Author, 2018)

**Figure 4.12: Optimal model**

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

The chapter focused on the discussion of the summary of the study findings, the conclusion and the recommendations based on the findings of the study. The main aim of the study was to find out the role of quality management systems implementation on the students' satisfaction in ISO 9001:2008 certified universities in Kenya. The chapter specifically presented the summary, conclusion and recommendations systematically as per the research variables which were; system documentation, leadership management, resource management, product realization and improvement management.

#### **5.2 Summary of Findings**

The breakdown of the study findings is hereby presented. The summary is systematically presented as per the study variables and the major findings are covered. The variables were; system documentation management, leadership management, product realization management, resource management, and improvement management.

##### **5.2.1 Effect of QMS Documentation on Students' Satisfaction**

The study aimed at finding out the effects of quality management documentation on the satisfaction of students in universities certified to the ISO 9001:2008 in Kenya. The study established that system documentation was embraced by most of the

universities where many of the respondents were satisfied with the statements given on the system documentation. The study established that 76% of the respondents were satisfied that the university communicated its procedures and instructions to the stakeholders and on the other hand 66% of the respondents said that they were satisfied with the level at which the respective universities gave information to support teaching and learning to the stakeholders. The model analysis of the variable (system documentation) revealed that the variable is significantly related to the students' satisfaction. The findings concurred with those of Nyuke and Gasva (2015) who established that QMS documentation enhances the quality of service delivered by an organization thus promoting the customer satisfaction.

### **5.2.2 Effect of QMS leadership on students' satisfaction**

The study aimed at establishing the influence of leadership management on the satisfaction of university students. The findings revealed that the universities embraced leadership management through enhancement of communication, provision of feedback to the students and other members of staff as well as seeking the views of the students on the matters pertaining university management. The study further established that the leadership management was significantly related to the students' satisfaction and this concurred with the findings by Sumaedi et al (2011) who established that customers are better satisfied with enhanced leadership styles whereby the management communicates and involves them in all the matters pertaining the services and/or products that they consume. The findings established that students' satisfaction requires institutions to not only communicate the changes that they ought to undertake to the students but also give them the feedback.

### **5.2.3 Influence of Resource management on the students' satisfaction**

The study sought to find out the relationship between resource management and students' satisfaction. The finding from the study revealed that resource management allocation was effectively done by the universities whereby majority (56%) of the respondents indicated that they were satisfied with the resource support given to them by the university management. The study further established that majority of the universities had provided enough physical structure to the students where 69% of

the respondents said that they were satisfied with the available buildings, playgrounds, libraries and labs. The study further had it that the resource management was positively and significantly related to the students' satisfaction. The study findings compared with a study by Hutyra (2011) who established that the resources allocated by the institutions enhances the satisfied of the customers since their main goal in such institutions is to get the services thus any support such as resources support enhances their satisfaction.

#### **5.2.4 Effect of Product Realization on the Students' satisfaction**

The other objective of the study was to find out the influence of product realization on the satisfaction of the students in the Universities. The study findings revealed that enhancement of product management and realization by the universities enhanced the students' satisfaction. The findings had it that 62% of the respondents were satisfied that their institutions' ability to provide opportunities for the them to learn and practice the existing knowledge. The findings indicated that 72% of the respondents were satisfied with engagement that they got from their institutions through interactive lessons and enhanced discussions. The model analysis revealed that product realization was positively and significantly related to the students' satisfaction. The findings compared with those of Venkatraman (2007) that the engagement of the customers and making them realization the kind of products that they are being offered increase their satisfaction.

#### **5.2.5 Influence of Improvement management and Students' Satisfaction**

Establishing the Relationship between improvement management and the satisfaction of the Students in universities certified to the ISO 9001 was the focus of the study. The study established that improvement management was embraced by the universities thus providing the students with ample learning environment. As the findings showed, 64% of the total respondents were satisfied that class proceedings and activities were well directed. The study found that improvement management was enhanced by the universities through provision of adequate and effective assessments, setting clear procedures on grading the students as well as monitoring students' progression and completion rates. The model output revealed that

improvement management was positively and significantly related to the students' satisfaction. The findings compare with those of Papadimitriou and Westerheijden (2010) who established satisfaction of the customers is mostly enhanced by continued improvement of the products or the services offered.

### **5.3 Conclusion**

The aim of the study was to establish role of quality management systems implementation on the students' satisfaction in ISO 9001:2008 certified universities in Kenya. From the findings, the study concluded that the universities have embraced the use of system documentation through provision of necessary information and feedback to the students and communicating procedures and instructions of running matters pertaining the students. It is concluded that some universities were however not enhancing the satisfaction of the students through the system documentation such that the students can access the information that they need and adequately. Although most of the students are satisfied with the documentation strategies done by the universities, there are still a number of students who said that they are unsatisfied with the documentation done by their universities which means the some of the universities have still not adopted system documentation as a quality management strategy.

The study concluded that leadership management contributes to satisfaction of the students among the universities. The study further concluded that the universities have embraced strategies to enhance proper leadership which made the students certified. The study also established that as much as most of the universities had embraced leadership management to enhance students' satisfaction, there were still some universities that had not embraced the strategy based on the fact that there were responses of dissatisfaction among the respondent as per the findings of the study.

On the effects of resource management on students' satisfaction, the study concluded that resource management through proper students' engagement and provision of proper human resources enhanced the satisfaction of the students. The study also concludes that resources provided by most of the ISO 9001 certified universities in Kenya are sufficient to satisfy the students. However, the study concluded that the

universities have not effectively enhanced resource allocation and management strategy based on the fact that some students (respondents) still felt dissatisfied with the resource allocation strategies done by their respective universities thus signifying the absence of adequate resources.

The study on product realization on the students' satisfaction, It is concluded that most of the universities had embraced product realization strategy to enhance the satisfaction of the students. The study further concluded that students' satisfaction was to a great extent enhanced by the product realization through provision of opportunities for the students to learn and practice new knowledge. The study also concluded that the satisfaction has been attained by majority of the students as a result of engagement by the institutional management but there are still a lot to be done to enhance the students satisfaction since from the findings there are still those who said that they were dissatisfied with the product realization strategies carried out by their respective institutions.

Students were satisfied with the improvement management strategies done by the university management. The study concluded that the universities embraced proper direction of class proceedings and activities so as to ensure enhanced students satisfaction and delivery of good quality services. The study also concluded that universities have not fully embraced the improvement management strategies to satisfy the students.

#### **5.4 Recommendations of the Study**

The study recommends that the universities should enhance system documentation so as to increase the students' satisfaction. The findings of the study showed that still there are some universities that have not embraced satisfaction of the students thus there is need to have proper strategies put in place to ensure proper communication and feedback are provided to the students.

The university management should adopt proper leadership strategies such as involvement of the students and seeking their views on the best direction to offer. The study recommends that the students should be put on note on the requirements



and the progress that the university has put in place to enhance the quality of their services so as to make them feel part of the university community and get satisfied.

The management of the ISO 9001 certified universities in Kenya should embrace effective resource management strategies such as allocation of the resources equally and ensuring that the students' needs as far as the resources are concerned are met. The management of the universities should ensure that the human resources provided such as the lecturers teaching the students are well trained so as to provide the required quality of services.

The Universities should ensure that the products that they offer are the right products that are required in the market. Based on the findings, the provision of coherent programs and courses are not effectively embraced thus there is need for the universities to set appropriate measures to ensure that the courses that they offer are satisfactory enough for the students.

Lastly, the study recommended that the Kenyan universities certified by ISO 9001:2008 should have strategies to ensure they improve the service delivery to enhance satisfaction of the students. The study recommended that the management of the universities should carry out frequent monitoring of the services offered to ensure that they meet the quality requirements so as to satisfy the employees.

### **5.5 Recommendations for further Study**

The study aimed at establishing the role of quality management systems implementation on the students' satisfaction in ISO 9001:2008 certified universities in Kenya. The study therefore focused on the ISO 9001 certified universities only thus there is need for a similar study to be conducted focusing on the universities and other higher learning institutions that are not ISO 9001:2008 certified.

Universities were the central focus of the study. These are basically learning institutions whereas the quality management systems may differ from other sectors. There is therefore an urge for a similar study to focus on other sectors such as the

manufacturing and production sectors which are also as critical as the educational system in the economy.

There is need for a different study to focus on other factors that affect the satisfaction of the students among the ISO 9001 certified universities in Kenya such as the quality of the education that the universities offer and the competency of the management of such universities since the current study was on the role of quality management systems.

The locale of the study was in the main campuses of the ISO 9001:2008 certified universities in Kenya. This therefore means that only the views of the students in the main campuses were captured thus there is need for a similar study to focus on the other campuses of these universities as well as their constituent universities to examine whether the satisfaction levels are extended to them as well.

There is need for a comparative study between the levels of students' satisfaction among the ISO 9001:2008 certified universities and those not certified to ascertain whether certification by ISO 9001:2008 enhances the satisfaction or not.

## **5.6 Contribution of the Study to the existing Knowledge**

The study contributes to the existing knowledge, models and theories by unveiling that implementation of quality management system can be defined documentation management, leadership management, resource management, product realization and improvement management.

The study further established that there is a flow of the variables based on their level of significance. Improvement management was the most significant, followed by leadership management, resource management and product realization.

## REFERENCES

- AbaalKhail, M., & Irani, Z. (2012). A Study of Influential Factors on Quality of Education. *International Journal of Humanities and Applied Sciences*, 4(11), 94-97.
- Abdullah, M., Omar, M., & Khan, B. Z. (2012). Measuring the Impact of ISO 900 Adoption on Business Performance: The Case of Malaysian SMEs. *Global Conference on Operations and Supply Chain Management*, 200-212.
- Akhtar, J. (2011). Determinants of Service Quality and Their Relationship with Behavioural Outcomes: Empirical Study of the Private Commercial Banks in Bangladesh. *International Journal of Business and Management*, 112(6), 146-156.
- Akpotu, N. E., & Akpochafo, W. P. (2009). An Analysis of Factors Influencing the Upsurge of Private: An Analysis of Factors Influencing the Upsurge of Private. *Journal of Social Sciences*, 3(8), 21-27.
- Al Hazza, M., H., & Seder, A. M. (2014). Review on the theory of attractive quality kano model. *Journal of Advanced Science and Engineering Research*, 90(6), 88-102.
- Al Khattab, S. A., & Aldehayyat, J. S. (2011). Perceptions of Service Quality in Jordanian Hotels. *International Journal of Business and Management*, 7(9), 226-233.
- Alamri, A., M., Alharthi, A., M., Alharthi, D., K., Alhabashi, W., S., & Hasan, S., A. (2014). Organization Performance Improvement using TQM. *International Journal of Computer Applications*, 12(3), 29–33.
- Albadran, A. (2014). Review of ISO 9000 Effective Implementation in Various Organisation structures. *Industrial Science*, 9(12), 1-14.
- Aldrich, J., H. & Nelson, F. D. (1984). *Linear Probability, Logit, and Probit Models*. Thousand Oaks, CA: SAGE Publications, Inc.

- Alharbi, M., & Yusoff, R. Z. (2012). Leadership styles and their relationship with quality management practices in public hospitals in Saudi Arabia. *International Journal of Economics and Management Sciences*, 1(02), 59-67.
- Al-Ibrahim, A. (2014). Quality Management and Its Role in Improving Service Quality in Public Sector. *Journal of Business and Management Sciences*, 2(9), 123-147.
- Alipoor, M., Nejad, M. R., & Sabzikara, E. (2017). The Impact of Social Responsibility on Satisfaction and Loyalty of the Customers of Sports Complexes in West Azerbaijan Province. *International Journal of Humanities and Social Science Invention*, 77(9), 60-64.
- Allen, I. E., & Seaman, C. A. (2007). Likert Scales and Data Analyses. *Quality Progress*, 44(2), 64-65.
- Alloubani, A. M., Almatari, M., & Almukhtar, M. M. (2014). Review: Effects of leadership styles on quality of services in healthcare. *European Scientific Journal*, 2(10), 118-129.
- Al-Refaie, A., Ghnaimat, O., & Li, M. H. (2012). Effects of ISO 9001 Certification and KAAE on Performance of Jordanian Firms. *Jordan Journal of Mechanical and Industrial Engineering*, 9(11); 45-53.
- Alves, A. C. R. R. and Viera, A. (2006). The SERVQUAL as a marketing instrument to measure services quality in higher education institutions, in *Second International Conference: Product management – Challenges of the future*, Poznań, Poland, May 18–20
- Ameer, I. (2014). Satisfaction- A behavioural perspective on consumer: Review, criticism and contribution. *International Journal of Research Studies in Management*, 12(3), 75-82.
- Athiyaman, A. (1997). Linking Student Satisfaction and Service Quality Perceptions: The Case of University Education. *European Journal of Marketing*, 528-540.

- Azarian, R. (2011). Potentials and Limitations of Comparative Method in Social Science. *International Journal of Humanities and Social Science*, 113-125.
- Bahri, S., Hamzah, D., & Yusuf, R. M. (2012). Implementation of Total Quality Management and Its Effect on Organizational Performance of Manufacturing Industries Through Organizational Culture in South Sulawesi, Indonesia, *IOSR Journal of Business and Management (IOSR-JBM)*, 10–24.
- Balague, N. & Saarti, J. (2008). “Benchmarking Quality Systems in Two European Academic Libraries,” *Library Management*, 227-239.
- Battaglia, M. P. (2008). *Non Probability Sampling . Encyclopedia of Survey Reserch Methods*. SAGE Publications, 1-4.
- Bohoris G. A., & Vorria, E. P. (2007). Leadership vs Management. Business Excellence/Performance Management view. *Linköping Electronic Conference Proceedings*. Retrieved from [http://www.ep.liu.se/ecp/026/076/ecp0726\\_076.pdf](http://www.ep.liu.se/ecp/026/076/ecp0726_076.pdf),
- Becket, N., & Brookes, M. (2006). Evaluating quality management in university departments. *Quality Assurance in Education*, 123 - 142.
- Borooah, Vani K. (2002). *Logit and Probit: Ordered and Multinomial Models*. Thousand Oaks, CA: Sage Publications.
- Boyce, K. (2006). Using a Comprehensive Leadership Framework as a Scholarship and Teaching Tool. *Journal of Leadership Education*, 69-79.
- Bradley, D., Noonan, P., Nugent, H., & Scales, B. (2008). *Review of Australian higher education: Final report*. Canberra: Department of Education, Employment and Workplace Relations.
- Brucaj, S. (2014). Promoting quality at newly established universities: new approaches to leadership management. *European Journal of Research on Education*, 62-67

- Brucaj, S. (2014). Quality in private higher education system; New challenges regarding student's satisfaction. *The Online Journal of Distance Education and e-learning*, 21-26.
- Bryman, B., & Bell, E. (2011) *Business Research Methods*, 3<sup>rd</sup> edition., Oxford: Oxford University Press.
- Casassus, J. (2000). Problems of Educational Management in Latin America: or the tension between type A and type B paradigms. Preliminary version. Paris: UNESCO.
- Cervachiaro, I. B., & Ayrosa, E. A. (2008). Comparing perceptions of service quality in Brazil and UK. *Revista Eletronica de Negocios Internacionais da ESPM*, 58-76.
- Chaipooirutana, S. (2008). The Development and Measurement of Different Service Quality Models. *AU Journal of Management*, 45-51.
- Cheng, Y. C. (1990). Conception of school effectiveness and models of school evaluation: a dynamic perspective. *Education Journal*, 47-62.
- Cheng, Y. C. (1995). School education quality: conceptualization, monitoring, and enhancement. In Siu, P.K. and Tam T.K. (eds), *Quality in Education: Insights from Different Perspectives*, Hong Kong Education Research Association, Hong Kong, 123-147.
- Cheng, Y. C. (1996). *The Pursuit of School Effectiveness: Theory, Policy, and Research*, The Hong Kong Institute of Educational Research, The Chinese University of Hong Kong, Hong Kong.
- Cheng, Y. C., & Tam, W. M. (1997). Multi-models of quality in education. *Quality Assurance in Education*, 22-31.

- Cheng, Y. Y., Lyu, J., & Lin, Y. (2004). Education Improvement through ISO 9000 Implementation: Experiences in Taiwan. *International Journal in Engineering Education*, 91-95.
- Cheng-Ling, T. Hasnah, H., Sofri, Y., Noornina, D., Yen Nee, G., & Mohamed Azlan, A. (2011). Perception of Concerns about the Quality Management System Implementation on Its Levels of Use. *International Journal of Business and Social Science*, 201-208.
- Cianfrani, C. A., & West, J. E. (2009). *Cracking the Case of ISO 9001:2008 for Service: A Simple Guide to Implementing Quality Management to Service Organizations*. 2nd edition. Milwaukee: American Society for Quality.
- Clegg, S., & Bailey, R. J. (2008). *International Encyclopedia of Organization Studies*. Sage Publications.
- Connelly, L. M. (2008). Pilot studies. *Medsurg Nursing*, 411-412.
- Coombs, P. H. (1985). *The world crises in education: The view from the eighties*. New York: Oxford University Press.
- Cooper, D. R., & Schindler, P. S. (2008). *Business Research Methods*. 10<sup>th</sup> edition.. Irwin: McGraw-Hill
- Creemers, B. P. M., & Kyriakides, L. (2008). *The dynamics of educational effectiveness: A contribution to policy, practice and theory in contemporary schools*. London: Routledge.
- Creemers, B. P., & Kyriakides, L. (2006). Critical analysis of the current approaches to modelling educational effectiveness: The importance of establishing a dynamic model. *School Effectiveness and School Improvement*, 347-366.
- Creemers, B., & Kyriakides, L. (2009). Situational effects of the school factors included in the dynamic model of educational effectiveness. *South African Journal of Education*, 293-315.

- Creemers, B., & Kyriakides, L. (2015). Developing, testing, and using theoretical models for promoting quality in education. *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice*, 102-119.
- Cronbach L. J., (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 297-334
- Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality; a re-examination and extension. *The Journal of Marketing*, 55-68.
- Crosby, P. (1994). *Completeness*. Penguin Books, New York.
- Crosby, P.B. (1979). *Quality Is Free: The Art of Making Quality Certain*. New
- Cruz, W. B. da Souza, & Melleiro, M. M. (2010). Assessment levels of the user's satisfaction in a private hospital. *Revista da Escola de Enfermagem da USP*, 147-153
- CUE. (2016, January 15). Status of Universities. Retrieved from [http://cue.or.ke/images/phocadownload/Accredited\\_Universities\\_Kenya\\_Nov\\_2015.pdf](http://cue.or.ke/images/phocadownload/Accredited_Universities_Kenya_Nov_2015.pdf)
- Day, R.L. (1977), *Extending The Concept Of Customer Satisfaction*, N.A, Howard.
- Davidson, R., & MacKinnon J. G. (2004). *Econometric Theory and Methods*, Oxford University Press, USA.
- Davig, W., Brown, S., Friel, T.I., & Tabibzadeh, K. (2003). Quality management in small manufacturing. *Industrial Management & Data Systems*, 68-77.
- Deming, W. E. (1986). *Out of the Crisis*, 2nd edition. MIT Center for Advanced Engineering Study, Cambridge, Massachusetts.
- Deming, W. E. (1986) *Out of the Crisis: Quality, Productivity, and Competitive*



- Dinmukhamed, K., Kuatbek, K., Rima, Y., Botagoz, D., & Alima, A. (2015). Determination of Quality Requirements in Tourism Management and Finance Departments of Akhmet Yassawi University by Kano Model. *Mediterranean Journal of Social Sciences*, 34-42.
- Dissanayake, H. N. (2011). A Comparison of the Requirements of University Library Quality Assurance System with Internationally Recognized ISO 9001:2000 and ISO 9001:2008 Quality Management systems. *Journal of the University Librarians' Association of Sri Lanka*, 83-97.
- Dobrzanski, L., & Roszak, M. (2007). Quality Management in University Education. *Journal of Achievements in University Education*, 223-226.
- Dominici, G., & Palumbo, F. (2013). How to build an e-learning product: Factors for student/customer satisfaction. *Business Horizons*, 87-96.
- Dornyei, Z. (2007). *Research methods in applied linguistics*. New York: Oxford University Press.
- Dudek-Burlikowska, M. (2007). Quality estimation of sale process with usage of quality methods in chosen company. *Journal of Achievements in Materials and Manufacturing Engineering*, 531-534.
- Duff, X. G. A., & Hair, M. (2008). Service quality measurement in the Chinese corporate banking market. *International Journal of Bank Marketing*, 305-27.
- Duriau VJ, Reger R. K., & Pfaffer M. D. (2007). A content analysis of the content analysis literature in organization studies: Research themes, data sources, and methodological refinements. *Organizational Research Methods*, 10(4), 5–34.
- Ehigie, B. O., & McAndrew, E. B. (2005). Innovation, diffusion, and adoption of total quality management (TQM). *Management Decision*, 925-940.
- Ekong, D., Escotet, M. A., Karani, A., Cappon, P., Orozco, S., & Brun, J. M. (2003). *Quality of Higher Education*, Final Report, Comission II,

- El Abbadi, L., Bouayad, A., & Lamrini, M. (2013). ISO 9001 and the Field of Higher Education: Proposal for an Update of the IWA 2 Guidelines. *Quality Approaches in Higher Education*, 14-19.
- El-Hilali, N., Al-Jaber, S., & Hussein, L. (2015). Students' Satisfaction and Achievement and Absorption Capacity in Higher Education. *Procedia Social and Behavioral Sciences*, 420-427.
- El-Morsy, A., Shafeek, H., Alshehri, A., & Gutub, S. A. (2014). Implementation of Quality Management System by Utilizing ISO 9001:2008 Model in the Emerging Faculties. *Life Science Journal*, 119-125.
- Enayati, T., Modanloo, Y., Behnamfar, R., & Rezaei, A. (2013). Measuring Service Quality of Islamic Azad University of Mazandaran using SERVQUAL Model. *Iranian Journal of Management Studies (IJMS)*, 99-116.
- Faganel, A., & Macur, M. (2005). Competing through quality in higher education: the case of faculty of management Koper, Intellectual capital and knowledge management, in *Proceedings of the 5th International Conference of the Faculty of Management, Koper*.
- Farris, P. W., Neil T. Bendle P. E., Pfeifer; D. J. (2010). *Marketing Metrics: The Definitive Guide to Measuring Marketing Performance*. Upper Saddle River, New Jersey: Pearson Education, Inc
- Feigenbaum, A. (1991). *Total Quality Control*. 3rd edition. New York: McGraw-
- Feinberg, M. (2006). An examination of authority in social classification systems. In Furner, Jonathan & Tennis, Joseph T. eds. *Proceedings 17th Workshop of the American Society for Information Science and Technology Special Interest Group in Classification Research* 17, Austin, Texas. Retrieved from [list.sir.arizona.edu/1783/01/feinberg.pdf](http://list.sir.arizona.edu/1783/01/feinberg.pdf)
- Firdaus, A. (2006). Measuring service quality in higher education: three instruments compared. *International Journal of Research & Method in Education*, 71-89.

- French, E., Summers, J., Kinash, S., Lawson, R., Taylor, T., Herbert, J., & Hall, C. (2014). The practice of quality in assuring learning in higher education. *Quality in Higher Education*, 24-43.
- Garwe, E. C. (2015). The effect of institutional leadership on quality of higher education provision. *Research in Higher Education Journal*, 1-10.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update*. 4th edition. Boston: Allyn & Bacon.
- Gilmore, A., & McMullan, R. (2009). Scales in services marketing research: a critique and way forward, *European Journal of Marketing*, 640-51.
- Gomez, L. (2017). Comparative analysis of the educational management strategies between public and private university in Mexico. *Journal Plus Education*, 21-40.
- Gordon, G., & Partington, P. (1993). *Quality in higher education: overview and update*. Briefing Paper 3. Sheffield: University Staff Development Unit, University of Sheffield.
- Greene, W. H. (2012). *Econometric Analysis*. Harlow: Pearson Education Limited.
- Grönroos, C. (1984). A Service Quality Model and Its Marketing Implications, *European Journal of Marketing*, 36-44.
- Habanik, J., & Jambor, J. (2014). Implementation and certification of the quality management system at the university. *Proceedings of the scientific conference quality and leading innovation* (pp. 136-150). Košice: Technical University of Košice.
- Hansson, J., & Klefsjo, B. (2003). A core value model for implementing total quality management in small organizations. *The TQM Magazine*, 71-81.
- Hazzi, O. A., & Maldaon, I. S. (2015). A Pilot Study: Vital Methodological Issues. *Business: Theory and Practice*, 53–62.

- Heizer, J., & Render, B. (2009). *Operations Management Flexible Version*. 9th edition. Prentice-Hall: Boston.
- Helgesen, O., & Nettet, E. (2007). What accounts for students' loyalty? Some field study evidence. *International Journal of Educational Management*, 126-143
- Hersey, P., K. Blanchard, & Johnson, D. (2002). *Management of organizational behavior: Leading human resources*. 8th edition) Englewood Cliffs, N.J.: Prentice-Hall.
- Hersey, P., & Blanchard, K. (1988). *Management and Organizational Behavior*. Englewood Cliffs: Prentice Hall.
- Hertzog, M. A. (2008). Considerations in Determining Sample Size for Pilot Studies. *Research in Nursing & Health*, 180-191.
- Hill, F. M. (1995). Managing Service Quality in Higher Education: The Role of Students as Primary Consumer", *Quality Assurance in Education*, 10-21.
- Hoffman, K. D., & Bateson, J. E. G. (2006). *Services marketing: concepts, strategies, & cases*, (3rd edition), Ohio: South-Western.
- Holma, B. & Pakalna, D. (2007). Aspects of the quality management of the LIS education, paper presented at *INFORUM 2007: 13th Conference on Professional Information Resources*, Prague, 2007, 1-10.
- Hoyle, D. (2009). *ISO 9000 Quality Systems Handbook*. Oxford: Elsevier Limited.
- Hutyra, M. (2011). Self-Assessment according to EFQM Excellence Model as the Tool for Evaluation of University. *55th EOQ Congress*. Budapest: European Organization for Quality.
- Ilker, E., Sulaiman, A. M., & Rukayya, S. A. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics* , 1-4.

- Imelda, S. (2014). Is There a Conceptual Difference between Theoretical and Conceptual Frameworks? *Journal of Social Sciences*, 185-195.
- Ishikawa, K., & Lu, D. (1985). *What is total quality control?* Englewood Cliffs,
- Ismail, K., & Gadar, K. (2008). A Beneficiary-Driven and Recipient-Focused Program Using ISO 9001:2000 in Teaching and Learning in Malaysian University. *The Journal of International Management Studies*, 3(2), 133-140.
- ISO. (2016, January 12). *ISO Survey*. Retrieved from ISO-International Organization for Standardization: <http://www.iso.org>
- IWA. (2007). *International Standard, Quality management systems - Guidelines for the application of ISO 9001:2000 in education*.
- Jakobsson, U., & Westergren, A. (2005). Statistical methods for assessing agreement for ordinal data. *Scandinavian Journal of Caring Sciences*, 427-431.
- Jamieson, S. (2004). Likert scales: how to (ab)use them. *Medical Education*, 1212–1218.
- Jankowicz, A. D. (2005). *Business Research Projects*. London: International Thomson Business Press 4<sup>th</sup> edition.
- Johanson, G. A., & Brooks, G. P. (2010). Initial Scale Development: Sample Size for Pilot Studies. *Educational and Psychological Measurement*, 394-400.
- Juran, M., and Godfrey, A. (1998). *Juran's quality handbook*. 5th edition. Washington, DC: McGraw-Hill Companies, Inc.
- Juran, J. M. (1988). *Juran on Planning for Quality*. London: Collier Macmillan
- Kagumba, A. M., & Gongera, G. E. (2013). Quality Assurance Strategy on Organizational Performance: Case of Kenyatta University. *European Journal of Business and Management*, 265-270.

- Kalthom, A., Muhammad, T. J., & Noorhazilah, A. M. (2012). A Structural Equation Modelling Approach to Validate the Dimensions of SERVPERF in Airline Industry of Malaysia. *International Journal of Engineering and Management Sciences (IJEMS)*, 134-141.
- Kasumawati, L., Kamaruddin, N. M., Razali, T. N., Ching Lee, T. D., Azim, A., Masri, T., & Othman, A. (2010). The Implementation of Quality Management System (QMS) in Teaching, Learning and Assessment in Faculty of Engineering, Universiti Malaysia Sarawak. *The 3rd Regional Conference on Engineering Education and Research in Higher Education* (pp. 1-5). Kuching: RCEE & RHED.
- Kaziliunas, A., (2010). The Implementation of Quality Management Systems in Service Organizations. *Public policy and administration*, 71–82.
- KEBS. (2015, June 13). *Certified Firms: ISO 9001:2008 Quality Management Systems*. Retrieved from KEBS: [http://kebs.org/index.php?mopt=certification&view=qms\\_firms](http://kebs.org/index.php?mopt=certification&view=qms_firms)
- Kemenade, E. V., Pupius, M., & Hardjono, T. W. (2008). More value to defining quality. *Quality in Higher Education*, 175–185.
- Kepes, S. & McDaniel, M. A. (2013). How trust worthy is the scientific literature in industrial and organizational psychology? *Industrial and Organizational Psychology. Perspectives on Science and Practice*, 6, 252–268.
- Kimani, A. W., & Okibo, B. W. (2013). Effectiveness of ISO 9001:2008 Certification on Services Delivery of Public Universities in Kenya. *European Journal of Business and Management*, 232-242.
- KNBS. (2015). *Economic Survey 2015*. Nairobi: Kenya National Bureau of Statistics (KNBS).
- KNBS. (2015). *Statistical Abstract 2015*. Nairobi: Kenya National Bureau of Statistics

- Kontic, L. (2014). Measuring Service Quality in Higher Education: The Case of Serbia. *Human Capital without Borders: Knowledge and Learning for Quality of Life Proceedings of the Management, Knowledge and Learning International Conference* (pp. 645-654). Portoroz: ToKnowPress.
- Kothari, C. R. (2008). *Research Methodology: Methods and Techniques*. Second Edition. *New Age International Publishers*, New Delhi.
- Kothari, C., & Garg, G. (2014). *Research Methodology-Methods and Techniques* (3rd ed.). New Delhi: New Age International(P) Limited.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*.
- Kulcu, O. (2009). Quality documentation and records management. *a survey of Turkish universities*, 459-473.
- Kumar, D. A., & Balakrishnan, V. (2011). A study on ISO 9001 quality management system (QMS) certifications - reasons behind the failure of ISO certified organizations. *Journal of Research in International Business and Management*, 147-156.
- Kuzon, W. M. Urbanek, M., & McCabe, S. (1996). The Seven Deadly Sins of Statistical Analysis. *Annals of the plastic Surgery*, 265-272.
- Kwek, C. L. Lau, T. C., & Tan, H. P. (2010). The 'Inside-out' and 'Outside-in' Approaches on Students' Perceived Service Quality: An Empirical Evaluation. *Management Science and Engineering*, 01-26.
- Kwek, C. L. Lau, T. C., & Tan, H. P. (2010). Education Quality Process Model and Its Influence on Students' Perceived Service Quality. *International Journal of Business and Management*, 154-165.
- Kyriakides, L. & Creemers, B. M. (2008). Using a multidimensional approach to measure the impact of classroom-level factors upon student achievement: a

- study testing the validity of the dynamic model. *School Effectiveness and School Improvement*, 14(2); 183-205
- Kyriakides, L. (2008). Testing the validity of the comprehensive model of educational effectiveness: A step towards the development of a dynamic model of effectiveness. *School Effectiveness and School Improvement*, 12(6); 429–446
- Kyriakides, L. (2013). *Towards the Development of a Dynamic Approach to Teacher Professional Development*. New York: Springer Science+ Business Media Dordrecht.
- Ladhari, R. (2009). A review of twenty years of SERVQUAL research, *International Journal of Quality and Service Sciences*, 4(10), 172-198.
- Ladhari, R. (2009). A review of twenty years of SERVQUAL research, *International Journal of Quality and Service Sciences*, 172-198.
- Lai, H. J. & Wu, H. H. (2011). A Case Study of Applying Kano's Model and ANOVA Technique in Evaluating Service Quality. *Information Technology Journal*, 89-97.
- Lamprecht, J. L. (1991). ISO 9000 implementation strategies. *Quality*, 13(2); 14-17.
- Lazibat, T., Sutic, I., & Jurcevic, M. (2009). Quality management system at The Faculty of Economics and Business. *31st Annual EAIR Forum* (1-10). Vilnius: The European Higher Education Society.
- Lewis, L. K., & Seibold, D. R. (1993). Innovation modification during intra-organizational adoption. *Academy of Management Review*, 1(8), 322–354.
- Liao, T., (1994). *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models*. SAGE Publications, Inc.
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 55–60.



- Ling, K. C., Piew, T. H., & Chai, L. T. (2010). The Impact of Resource Input Model of Education Quality on the Overall Students' Perceived Service Quality. *Canadian Social Science*, 125-144.
- Long, J. S., & Freese, J. (2014). *Regression Models for Categorical Dependent Variables Using Stata*. College Station: Stata Press.
- Loshini, T., & Sabri, A. (2014). Structural Equation Modelling: Confirmatory Factor Analysis to Construct Measurement Model & Mediator Check among Formed Factors. *Mathematical Theory and Modelling*, 71-82.
- Lovelock, C., & Wirtz, J. (2011). *Services Marketing*. New Jersey: Pearson Education.
- Lushi, I., Mane, A., Kapaj, I., & Keco, R. (2016). A Literature Review on ISO 9001 Standard, *European Journal of Business, Economics and Accountancy*, 4(2), 81-85.
- Lushi, I., Mane, A., Kapaj, I., & Keco, R. (2016). A Literature review on ISO 9001 Standards. *European Journal of Business, Economics and Accountancy*, 81-85.
- Mabururu, N. M. (2011). The challenges of university education in Kenya. *International Journal for Disaster Management & Risk Reduction (IJDMMR)*, 155-163.
- Machumu, H. J., & Kisanga, S. H. (2014). Quality Assurance Practices in Higher Education Institutions: Lesson from Africa. *Journal of Education and Practice*, 144-156.
- Maguad, B. A. (2006). The modern quality movement: Origins, development and trends. *Total Quality Management*, 179-203.
- Magutu, P. O., Mbeche, M. I., Nyaoga, B.R., Nyamwange, O., Onger, R., N., & Ombati, T.O. (2010). Quality Management Practices in Kenyan Educational

Institutions: The Case of The University Of Nairobi. *African Journal of Business & Management AJBUMA*). Retrieved from <http://www.aibuma.org/journal/index.htm> ,2010

Mai, J. (2010). *The subject indexing process: an investigation into the problems in knowledge representation*. Dissertation from the University of Texas, Austin.

Majeed, S., & Ziadat, M. (2008). *Quality and Accreditation of public education institutions and university*. Amman: Dar al - Safaa for publication and distribution.

Manders, B. (2014). *Implementation and Impact of ISO 9001*. Rotterdam: Erasmus Research Institute of Management.

Maslowski, R., Doolaard, S., & Bosker, R. J. (2008). Much more than the effective classroom: a lifetime of research, evaluation, improvement, and dissemination. *School Effectiveness and School Improvement*, 353-363.

McLeod, S. A. (2008). Likert Scale. Retrieved from <http://www.simplypsychology.org/likert-scale.html>

Mehmood, I., Khan, S. B., Raziq, K., & Tahirkheli, S. A. (2012). Role of Academic Leadership in Change Management for Quality in Higher Education in Pakistan. *Journal of Education and Practice*, 13(6); 194-198.

Mehralizadeh, Y., & Safaeemoghaddam, M. (2010). The applicability of quality management systems and models to higher education: A new perspective. *The TQM Journal*, 175 - 187.

Meirovich, G., & Bahnan, N. (2008). Relationship between the components of product/service quality and the customers' emotions and satisfaction. *Journal of Industrial Engineering and Management*, 185-208.

- Mekic, E., & Goksu, A. (2014). Implementation of ISO 9001:2008 & Standards for Accreditation at Private University in Bosnia And Herzegovina. *European Researcher*, 947-961.
- Michalska-Ćwiek, J. (2009). The quality management system in education - implementation and certification. *Journal of Achievements in Materials and Manufacturing Engineering*, , 733-750.
- Mikulic, J., & Prebezac, D. (2011). A critical review of techniques for classifying quality attributes in the Kano model. *Managing Service Quality*, 46-66.
- Miller, B. A. (2007). *Assessing Organizational Performance Higher Educatioun*. San Francisco: John Wiley.
- Miller, R. S. (1977). Relationship Commitment and Attention to Alternatives. *Journal of Personality and Social Psychology*
- Misztal, A. (2013). The impact of leadership on the quality management systems. *8th Research/Expert Conference with International Participations "QUALITY 2013"* (pp. 41-46). Neum: ISSN 1512-9268.
- MOE. (2012). *Towards A Globally Competitive Quality Education for Sustainable Development*. Nairobi: Government of Kenya.
- Mohammad, A. A., Yusnidah, I., & Mohd., H. R. (2009). Quality education management at private universities in Bangladesh: An exploratory study. *Jurnal Pendidik dan Pendidikan, Jil.*, 17-32.
- Mugenda, O., & Mugenda, A. (2008). *Research Methods: Quantitative and Qualitative*. Nairobi, Kenya: Act Press.
- Mundhe, T. S. (2014). Importance of quality and customer satisfaction. *Global Online Electronic International Interdisciplinary Research Journal (GOEIJR)*, 127-133.

- Murillo, F. J., & Hernandez-Castilla, R., (2011). School factors associated with socio-emotional development in Latin American Countries. *E-Journal of Educational Research, Assessment and Evaluation*, 1-21.
- Nachmias, C. F. & Nachmias, D., (2009). *Research Methods in the Social Sciences*, London, Replika Press Ltd.
- Nadeem, M. (2012). Participative Management Style: A Tool to Enhance Quality Education. *IOSR Journal of Humanities And Social Science*, 08-14.
- Naidoo, V. (2011). Managerial issues associated with service quality-the case of the quality University of KwaZulu Natal. *International Conference on Business and Economics Research*, 127-131.
- Naidu, P., & Derani, N. E. (2016). A Comparative Study on Quality of Education Received by Students of Private Universities versus Public Universities. *Procedia Economics and Finance*, 659 – 666.
- Naik, C. K., Gantasala, S. B., & Prabhakar, G. V. (2010). Service Quality (Servqual) and its Effect on Customer Satisfaction in Retailing. *European Journal of Social Sciences*, 231-243.
- Neyestani, B. (2017). Principles and Contributions of Total Quality Mangement (TQM) Gurus on Business Quality Improvement. *The Munich Personal RePEc Archive (MPRA)*, 1-17.
- Neyestani, B., & Juanzon, J. B. P. (2016). Developing an Appropriate Performance Measurement Framework for Total Quality Management (TQM) in Construction and Other Industries. *IRA-International Journal of Technology & Engineering*, 32-44.
- Neyestani, B., & Juanzon, J. B. P. (2016). Identification of A Set of Appropriate Critical Success Factors (CSFs) for Successful TQM Implementation in Construction, and Other Industries, *International Journal of Advanced Research*, 1581–1591.

- Ng'ang'a, S., & Oti, L. (2013). Constructivism and the Likert Scale on the Perception of Teaching/Learning Creativity at the University Level. *Journal of Sociological Research*, 19-48.
- Northouse, G. (2007). *Leadership theory and practice*. 3rd edition. Thousand Oak, New Delhi: Sage Publications, Inc
- Nyuke, L. S., & Gasva, D. (2015). Implementation of Quality Management principles at Zimbabwe Open University (ZOU)'s selected regional centre: Quest for Quality. *Journal of Business and Management (IOSR-JBM)*, 89-97.
- Obadara, O. E. (2012). Comparative Analysis of Public and Private Universities Administration in Nigeria. *Journal of Social Sciences*, 357-363.
- O'Connell, A. A. (2006). *Logistic regression models for ordinal response variables*. Thousand Oaks: Sage Publications, Inc.
- Odebiyi, A. I., & Aina, O. I. (2009). Alternative modes of financing higher education in Nigeria and implications for university governance. Final Report. Accra: *Association of African universities*. Retrieved from <http://www.aau.org/studyprogram/notpub/odebaina.pdf>
- Ojiambo, P. O. (2009). Quality of Education and its Role in National Development: A Case study of Kenya's Educational Reforms. *Kenya Studies Review*, 133-149.
- Olugbenga, A. T. (2010). Private Universities in Nigeria – the Challenges Ahead. *American Journal of Scientific Research*, 15-24.
- Oommen, A. (2012). Teaching Global English- a Shift of Focus on Language Skills. *The International Journal of Language Learning and Applied Linguistics World (ILLALW)*, 10-20.
- Oxford. (2003). *The Oxford compact english dictionary*. New York: Oxford University Press.

- Papadimitriou, A., & Westerheijden, D. F. (2010). Adoption of ISO-oriented quality management system in Greek universities: Reactions to isomorphic pressures. *The TQM Journal*, 229 - 241.
- Paulová, I., & Míkva, M. (2011). Leadership – The Key Element in Improving Quality Management. *Quality Innovation Prosperity*, 27-36.
- Pitman, T. (2014). Reinterpreting higher education quality in response to policies of mass education: the Australian experience. *Quality in Higher Education*, 1-16.
- Poksinska, B., Kahlgaard, J. J. & Antoni, M. (2002). The State of ISO 9000 Certification: A study of Swedish Organizations. *The TQM Magazine*, (14)5, 297-306. doi:10.1108/09544780210439734.
- Pratasavitskaya, H., & Stensaker, B. (2010). Quality Management in Higher Education: towards a better understanding of an emerging field. *Quality in Higher Education*, 37-50
- Pryor, M. G., Toombs, L., Anderson, D., & White, J. C. (2010). What Management and Quality Theories Are Best for Small Businesses. *Journal of Management and Marketing Research*, 4(12); 20-32.
- Pryor, M. G., Anderson, D., Toombs, L. A., & Humphreys, J. H. (2007). Strategic Implementation as a Core Competency: The 5P's Model. *Journal of Management Research*, 16(1); 3-17.
- Pryor, M. G., White, J. C., & Toombs, L. A. (1998). *Strategic Quality Management: A Strategic, Systems Approach to Quality*. Thomson Learning.
- Pryor, M. G., & Toombs, L. A. (1993). *Total Quality Management*, Center for Excellence, A Partnership between Raytheon E-Systems and Texas A&M University- Commerce, Commerce, Texas.

- Purgailis, M., and Zaksa, K. (2012). The impact of perceived service quality on student loyalty in higher education institutions. *Journal of Business Management*, 138-152
- Quinn, A., Lemay, G., Larsen, P., & Johnson, D. M. (2009). Service quality in higher education. *Total Quality Management*, 139-152.
- Ram, K. P., & Manoj, K. J. (2013). Quality Measures in Higher Education: A Review and Conceptual Model. *Journal of Research in Business and Management*, 7(1); 23-40.
- Rehman, I., Malik, K., & Abbas, Q. (2010). Implementing TQM Including A UKAS and ISO 9001 System in an Academic Organisation. *3rd International Conference on Assessing Quality in Higher Education*, (174-188). Lahore
- Rosa, M., Sarrico, C., & Amaral, A. (2012). Implementing Quality Management Systems in Higher Education Institutions. *Quality Assurance and Management*, 129-146.
- Rozsak, M. T. (2009). Systemic approach to problems of the quality in education, *Journal of Achievements in Materials and Manufacturing Engineering*, 751-758.
- Rowley, J. (1996). Motivation and academic staff in higher education. *Quality Assurance in Education*, 4, 11–16.
- Russell, M. (2005). marketing education: a review of service quality perceptions among international students. *International Journal of Contemporary Hospitality Management*, 17, 65-77.
- Safari, A., & Sabouri, R. (2014). Studying the relationship between leadership styles and applying Principles total quality management. *Indian journal of Scientific Research (IJSR)*, 391-299.

- Saizarbitoria, I. H. (2006). How Quality Management Models Influence Company Results– Conclusions of an Empirical Study Based on the Delphi Method. *Total Quality Management*, 775–794.
- Sakthivel, P., Rajendran, G., & Raju, R. (2005). TQM implementation and students' satisfaction of academic performance. *The TQM Magazine*, 573-589.
- Sandhu, M. A., Mahasan, S. S., Rehman, A. U., & Muzaffar, S. (2013). Service Quality Dimensions Impact on Customer Satisfaction in Telecom Sector of Pakistan. *Journal of Basic and Applied Scientific Research*, 34; (2)27-34.
- Sanongpong, K. (2009). Automotive Product Realization;A Process-Based Management. *International MultiConference of Engineers and Computer Scientists 2009*. Hong Kong: IMECS 2009.
- Sarbu, R., Ilie, G. A., Enache, C. A., & Dumitriu, D. (2009). The quality of Education services in Higher Education-Assurance, Management or Excellence? *Quality Management in Services*, 11(26), 383-392.
- Sarrico, C. S., Rosa, M. J., Teixeira, P. N., & Cardoso, M. F. (2010). Assessing quality and evaluating performance in higher education: Worlds apart or complementary views? *Minerva*, 35-54.
- Saunders, M., Lewis P., & Thornhill, A. (2009). *Research Methods for Business Students* (5<sup>th</sup> edition). New Jersey: Prentice Hall.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach*. New Jersey: John Wiley and Sons.
- Sekaran, U., & Bougie, R. (2010). *Research Methods for Business: A Skill Building Approach* (5th edition). New Jersey: John Wiley and Sons.
- Seniwoliba, A., (2014). Academic Quality Assurance Practices in Ghanaian Public Universities: Experience from University for Development Studies. *Global Educational Research Journal*, 152-166.



- Serafimovska, H., & Ristova, E. (2011). The impact of leadership on achieving total quality management. *The international journal for science, techniques and innovations for the industry "Machines, Technologies, Materials"*, 26-28.
- Shahin, A., & Samea, M. (2010). Developing the Models of Service Quality Gaps: A Critical Discussion. *Business Management and Strategy*, 12(9); 1-11.
- Sharma, M. K., & Jain, M. S. (2013). Leadership Management: Principles, Models and Theories. *Global Journal of Management and Business Studies*, 3(3), 309–318.
- Sheps, I. (2011). Is there a need to change the 8 quality management principles? *International journal Total quality management and Excellence*, 9(10), 23-26.
- Shibru, B., & Darshan, G. (2011). Transformational Leadership and its Relationship with Subordinate Satisfaction with the Leader (The case of Leather Industry in Ethiopia). *Interdisciplinary Journal of Contemporary Research in Business*, 4(11), 689-697.
- Shivany, S. (2013). Attitude as determinant of mobile advertising reception, and the moderating effect of control facilities. *TRANS Asian Journal of Marketing & Management Research*, 13(7); 1-16.
- Singh, C., & Sareen, K. (2006). Effectiveness of ISO 9000 standards in Indian educational institutions: a survey. *International Journal of Services Technology and Management*, 48(3), 404-415.
- Smith, B. (2005). From concepts to clinical reality: an essay on the benchmarking of biomedical terminologies. *Journal of biomedical informatics* 3(9); 288-298.
- Soutar, G., & McNeil, M. (1996). Measuring service quality in a tertiary institution. *Journal of Educational Administration*, 2(5), 72-82

- Sullivan, G. M., & Artino, A. R. (2013). Analyzing and Interpreting Data from Likert-Type Scales. *Journal of Graduate Medical Education*, 7(1), 541–542.
- Sultan, P. (2013). Antecedents and consequences of service quality in a higher education context”. *Quality Assurance in Education*, 70-95
- Sumaedi, K., Bakti, G. M. Y., & Metasari, N. (2011).The effect of students’ perceived service quality and perceived price on student satisfaction. *Management science and engineering*, 32(4), 88-97
- Tari, J. J. (2005). Components of successful total quality management. *The TQM Magazine*, 8(4), 182-194.
- Thompson-Whiteside, S. (2013). Assessing acadmeic standards in Australian higher education. In S. Marginson (Ed.), *Tertiary education policy in Australia*, 12(8), 39-58.
- Thonhauser, T. (2005). *Factors that relate to the successful implementation of ISO 9000 in education: a comparison between the US and England*, Pennsylvania State University, University Park, PA.
- Tushnet, M. (1991). Public and Private Education: Is There a Constitutional Difference?. *University of Chicago Legal Forum*: 1991
- Uddin, M. N., Hamiduzzaman, M., Salahuddin, A., & Siraj, S. (2011). Promotion of higher education in Bangladesh: A comparative analysis between public and private universities’, *Journal of Research in International Business and Management*, 10(1), 136-146
- Uka, A. (2014). Student Satisfaction As An Indicator Of Quality In Higher Education. *Journal Of Educational And Instructional Studies In The World*, 14(9), 6-10.
- Usman, A. (2010). The Impact of Service Quality on Students’ Satisfaction in Higher Education Institutes of Punjab. *Journal of Management Research*, 2(2), 1-11.

- Van der T., W., & Sibinga, S. (2008). The pyramid model as a structured way of quality management. *Asian Journal of Transfusion Science*, 2(1), 6-8.
- van Staden, S., & Howie, S. (2014). Reflections on Creemers' Comprehensive Model of Educational Effectiveness for Reading Literacy: South African Evidence from PIRLS 2006. *Perspectives in Education*, 16(4), 172-192.
- Venkatraman, S. (2007). A framework for implementing TQM in higher education programs. *Quality Assurance in Education*, 10(9), 92-112.
- Vlasic, S., Vale, S., & Puhar, D. K. (2009). Quality Management in Education. *Interdisciplinary Management Research*, 21(11), 565-573.
- Vloeberghs, D., & Bellens, J. (1996). Implementing the ISO 9000 standards in Belgium. *Quality Progress*, 29(6); 43-81.
- Vusa, H. K. (2016). *ISO 9001:2008 Quality Management System Certification and Service Quality In Kenyan Public Universities: A Case of the University of Nairobi*. Unpublished Research Project, University of Nairobi.
- Wafula, E. (2013, February). Editorial. *CHE news* pp. 2.
- Wahid, R. A., & Corner, J. (2009). Critical success factors and problems in ISO 9000 maintenance. *International Journal of Quality & Reliability Management*, 22(8), 881-93.
- Wanjohi, I. N. (2012). Fostering sustainable development through quality assurance in higher education. 5th International Conference of Education, Research and Innovation (pp. 2393-2400). Madrid, Spain. 19-21 November, 2012: IATED.
- Wanzala, W., (2013). Quest for quality and relevant higher education, training and learning in Kenya: An overview. *Education Journal*, 4(9), 36-49.
- Waweru, S. N. (2013). The role of private universities in meeting demand for higher education in Kenya. *International Journal of Education and Research*, 19(7), 1-8.



- Wessel, G., & Burcher, P. (2004). Six Sigma for small and medium-sized enterprises. *The TQM Magazine*, 83(6), 264-272.
- Winter, J. C., & Dodou, D. (2012). Five-Point Likert Items: t test versus Mann-Whitney-Wilcoxon. *Practical Assessment, Research & Evaluation*, 22(5), 1-16.
- Yang, S. K., Lee, J. Y., & Choi, S. W. (2016). A Comparative Study of National/Public Universities and Private Universities on Education Service Quality Affecting Satisfaction and Loyalty. *International Journal of Applied Engineering Research*, 79(2), 6112-6116.
- Yarimoglu, E. K. (2014). A Review on Dimensions of Service Quality Models. *Journal of Marketing Management*, 14(9), 79-93.
- Yego, H. J. (2013). The Impact of Expansion of the Privately Sponsored Students Programme on the Quality of Education. *International Journal of Advanced Research*, 1(2), 136-144.
- Yousaf, N. (2006). Top Management Commitment for TQM-A Process Model. *Pakistan's 10th International Convention on Quality Improvement*. Lahore: PIQC Institute of Quality.
- Yusoff, M., Mcleay, F. & Woodruffe-Burton, H. (2015). Dimensions driving business student satisfaction in higher education. *Quality Assurance in Education*, 14(6), 86-104
- Zafiroopoulos, C., & Vrana, V. (2008). Service quality assessment in a Greek higher education institute. *Journal of Business Economics and Management*, 10(12), 33-45.
- Zikmund, W. G. (2010). *Business Research Methods*. Florida: The Dryden Press
- Zuckerman, A., & Rhodes, L. (2000). Quality assurance through ISO 9000, *School Administrator*, 33(9), 12-18.

APPENDICES

Appendix I: Letter of Introduction

Dear Sir/Madam,

**RE: STUDY ON ROLE OF QUALITY MANAGEMENT SYSTEM IMPLEMENTATION ON STUDENTS' SATISFACTION IN ISO 9001: 2008 CERTIFIED UNIVERSITIES IN KENYA**

I am a Doctor of Philosophy student in Business Administration specialising in Strategic Management at Jomo Kenyatta University of Agriculture and Technology currently carrying out research on **“Role of quality management system implementation on students’ satisfaction in ISO 9001: 2008 certified universities in Kenya”**. I have identified you as a potential participant to assist in providing relevant information relating to the objectives of this study. I therefore kindly request you to participate in the study by completing the attached questionnaire; it will take approximately 15 minutes. The information given will only be used for the purpose of this study and will be treated with confidentiality.

Yours Faithfully

.....  
**Hilary K. Kandie**

**Student**

.....  
**Dr. Wario Guyo**

**Supervisor**

.....  
**Dr. Thomas Senaji**

**Supervisor**

## Appendix II: Questionnaire

Dear Sir/Madam,

This questionnaire is used to collect data for academic purpose and all your response will be kept confidential. The study seeks to find out the effects of Quality Management System on student's satisfaction in the ISO 9001 certified universities in Kenya.

***INSTRUCTIONS: KINDLY ANSWER ALL THE QUESTIONS BY TICKING THE OPTION(S) AND FILLING BLANK SPACES PROVIDED.***

---

### SECTION 1: GENERAL INFORMATION

Please indicate (fill the blank space or tick in the box)

1. State the name of university.....
2. Type of the University
  - ❖ Public [     ]
  - ❖ Private [     ]
3. Nature of the student
  - ❖ Undergraduate students [     ]
  - ❖ Postgraduate students [     ]
4. State your year of study
  - ❖ 1 [     ]
  - ❖ 2 [     ]
  - ❖ 3 [     ]
  - ❖ 4 [     ]
  - ❖ 5 [     ]
  - ❖ 6 [     ]

5. State your satisfaction level with the university education on the Scale: [1] very dissatisfied, [2] dissatisfied, [3] neither satisfied nor dissatisfied [4] satisfied and [5] very satisfied

❖ 1	[	]
❖ 2	[	]
❖ 3	[	]
❖ 4	[	]
❖ 5	[	]

## SECTION 2: FIVE VARIABLES FOR QMS BASED ON ISO 9001:2008

**Instructions:** Please respond to the following questions by ticking one of the numbers [1] to [5] to the question. The numbers represent the strength or degree of your opinion as the case may be to the question items below.

Scale: [1] very dissatisfied, [2] dissatisfied, [3] neither satisfied nor dissatisfied [4] satisfied and [5] very satisfied

<b>System documentation</b>	1	2	3	4	5
1. The university define the processes ,activities, departments and campus necessary to achieve students' satisfaction					
2. The university has procedures and instructions which are communicated to staff, students and lecturers					
3. Records of all activities in the university are available, accurate, retrievable and regularly maintained					
4. The university provide necessary documents and records to the staff, students and lecturers					
5. Information to support the teaching and learning are well defined by the university					
6. Details of learning activities are available to the staff, students and lecturers					
7. Transfers in and out of programmes or courses are clearly reconsidered and recorded.					
8. Record and statistical data of students' progression are					



available.					
9. The records of students' assessments are up to date and available					
<b>Leadership Responsibility</b>					
<b>Management Commitment</b>	1	2	3	4	5
10. University management is committed to provide the resources for the education service					
11. The students' views are sought in order to enhance the satisfaction					
12. Survey is conducted to identify the needs of the students in order to enhance the satisfaction					
<b>Customer Focus</b>	1	2	3	4	5
13. The students provide feedback on the teaching and courses provided					
14. The staff and administration are easily available to the students.					
<b>Internal Communication</b>	1	2	3	4	5
15. The students are fully informed of their responsibilities					
16. Details regarding the location and availability of all learning and physical resources are communicates to students.					
<b>Resource management</b>					
<b>Human resources</b>	1	2	3	4	5
17. There are sufficient human resources to support education services					
<b>Infrastructure</b>	1	2	3	4	5
18. The students have access to facilities and equipments.					
19. Location and availability of buildings, playgrounds, libraries and labs are provided to students					
<b>Work Environment</b>	1	2	3	4	5
20. Education environment conditions are conducive for education services					
21. The university assess educational service environment for associated risks, security, safety and hygiene					
<b>Product/Service realisation</b>					

<b>Learner-related processes</b>	1	2	3	4	5
22. University provide the opportunity for students to study existing knowledge and to practice its application					
<b>Design and Development programme</b>	1	2	3	4	5
23. Programmes have clear aims and objectives.					
24. Pre-requisites for each course are investigated and established.					
25. The structures of the courses are coherent.					
26. The subjects content are related to the programme aims and objectives					
<b>Teaching and Learning</b>	1	2	3	4	5
27. The academic programme aims and objectives are understood by are the students.					
28. Learning experiences of the students are relevant to employment.					
29. Students are given opportunities to become involved in programme operation					
30. Students are involved in teaching and encouraged to take part in discussion.					
31. The assessment ensures the students attain the required standards					
32. Students assessed work is returned in time.					
<b>System improvement management</b>					
<b>Customer satisfaction</b>	1	2	3	4	5
33. There is a system for taking the students' and staff views to improve quality					
34. The students provide feedback on the quality of courses and teaching					
35. Class proceedings and activities are to the point and well directed.					
36. Lecturers provide useful feedback to the students					
37. Lecturers provide assistance to the students.					
<b>Monitoring and Measurement of Processes</b>	1	2	3	4	5
38. The university has the means to correct nonconforming					

achievement in individual learners to avoid learner's dissatisfaction					
<b>Monitoring and Measurement of Product</b>	1	2	3	4	5
39. There is an assessment schedule for the students' performance					
40. There are clear procedures to ensure grades and certification awarded to students are fair and unbiased					
41. The students' progression rates and completion rates are monitoring and measured by the university					

### SECTION 3: STUDENTS' SATISFACTION

**Instructions:** Please respond to the following questions by ticking one of the numbers [1] to [5] to the question. The numbers represent the strength or degree of your opinion as the case may be to the question items below.

Scale: [1] very dissatisfied, [2] dissatisfied, [3] neither satisfied nor dissatisfied [4] satisfied and [5] very satisfied

**The following questions/statement relate to the students' satisfaction in the university**

	1	2	3	4	5
1. How do you rate the overall quality of services provided by the university					
2. How do you rate the quality teaching and facilities provided by the university					
3. How would you perceive the overall reliability of services provided by the university					
4. How would you perceive the reliability of the examination results provided by the university					
5. How do you rate if students will take another course from the university after graduating					
6. Would you recommend the university to your friend and family					

7. How would you rate the student completion rate					
8. How would you rate the level at which students drop out of university or repeat classes in the university					
9. How are you satisfied with how the university handle the students complaints					
10. Rate how you are satisfied with complaints feedback from the university management					

### Appendix III: Certified Universities as at December 2016

No	Name of University	Certification Body	Public/ Private
1.	University of Nairobi	KEBS	Public
2.	Moi University	KEBS	Public
3.	Kenyatta University	SGS	Public
4.	Egerton University	KEBS	Public
5.	Jomo Kenyatta University of Agriculture and Technology	KEBS	Public
6.	Maseno University	KEBS	Public
7.	Masinde Muliro University of Science and Technology	KEBS	Public
8.	Dedan Kimathi University of Technology	BVC	Public
9.	Chuka University	SGS	Public
10.	Technical University of Kenya	KEBS	Public
11.	Technical University of Mombasa	SGS	Public
12.	Kisii University	SGS	Public
13.	University of Eldoret	KEBS	Public
14.	Maasai Mara University	KEBS	Public
15.	Jaramogi Oginga Odinga University of Science	KEBS	Public
16.	Laikipia University	SGS	Public
17.	South Eastern Kenya University	KEBS	Public
18.	Meru University of Science and Technology	KEBS	Public
19.	Multimedia University of Kenya	KEBS	Public
20.	University of Kabianga	KEBS	Public
21.	Catholic University of Eastern Africa	KEBS	Private
22.	Mount Kenya University	KEBS	Private
23.	Zetech University	SGS	Private
24.	Kababii University	SGS	Public

## Appendix IV: Approval of Ph.D. Thesis and Supervisors



**JOMO KENYATTA UNIVERSITY  
OF  
AGRICULTURE AND TECHNOLOGY  
DIRECTOR, BOARD OF POSTGRADUATE STUDIES**

P.O. BOX 62000  
NAIROBI - 00200  
KENYA  
Email: [director@bps.jkuat.ac.ke](mailto:director@bps.jkuat.ac.ke)

TEL: 254-067-52711/52181-4  
FAX: 254-067-52164/52030

REF: JKU/2/11/HD433-C004-2446/2011

25<sup>TH</sup> JULY, 2017

**KANDIE HILARY KIPCHIRCHIR**  
C/o NCBD  
**JKUAT**

Dear Mr. Kipchirchir,

**RE: APPROVAL OF Ph.D. RESEARCH PROPOSAL AND OF SUPERVISORS**

Kindly note that your Ph.D. research proposal entitled: "ROLE OF QUALITY MANAGEMENT SYSTEM IMPLEMENTATION ON STUDENTS' SATISFACTION IN ISO 9001: 2008 CERTIFIED UNIVERSITIES IN KENYA." has been approved. The following are your approved supervisors:-

1. Dr. Wario Guyo
2. Dr. Thomas Senaji

**PROF. (ENG.) G. N. MANG'URIU**  
**Ag. DIRECTOR, BOARD OF POSTGRADUATE STUDIES**

Copy to: Dean, SEPM  
Director, NCBD

/em



JKUAT is ISO 9001:2008 certified  
Setting Trends in Higher Education, Research and Innovation

## Appendix V: Nacosti Research Authorisation

THIS IS TO CERTIFY THAT: **Permit No : NACOSTI/P/17/59606/19001**  
**MR. HILARY KIPCHIRCHIR KANDIE** **Date Of Issue : 7th September,2017**  
**of JOMO KENYATTA UNIVERSITY OF** **Fee Received :Ksh 2000**  
**AGRICULTURE AND TECHNOLOGY , 0-101**  
**nairobi,has been permitted to conduct**  
**research in All Counties**

**on the topic: ROLE OF QUALITY**  
**MANAGEMENT IMPLEMENTATION ON**  
**STUDENTS' SATISFACTION IN ISO**  
**9001:2008 CERTIFIED UNIVERSITIES IN**  
**KENYA**

**for the period ending:**  
**5th September,2018**

  
Applicant's  
Signature

  
  
Director General  
National Commission for Science,  
Technology & Innovation