

**FACTORS INFLUENCING IMPLEMENTATION OF QUALITY
MANAGEMENT SYSTEM IN TECHNICAL VOCATIONAL
EDUCATION AND TRAINING INSTITUTIONS IN NAIROBI
COUNTY, KENYA**

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**A Research Project Report Submitted in Partial Fulfillment of the Requirements for the
Award of the Degree of Master of Arts in Project Planning and Management of the
University of Nairobi.**

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DECLARATION

This is my original work and it has not been presented for any academic award in any other university.

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DEDICATION

I dedicate this project report to my dear loving husband Peter Obonyo, my son George Otieno and my daughter Debbie Akinyi. They make my life meaningful.

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I would like to express my sincere gratitude to all the people who have in one way or the other contributed towards my studies and specifically towards the development of this project report. Above all, I thank God for granting me the knowledge, wisdom, good health and seeing me this far.

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ABBREVIATIONS / ACRONYMS

ISO: International Organization for Standardization

IT: Information Technology

KEBS: Kenya Bureau of Standards

KNP: Kabete National Polytechnic

NTTI: Nairobi Technical Training Institute

QM: Quality Management

QMS: Quality Management System

SPSS: Statistical Package for Social Sciences

TQM: Total Quality Management

TVET: Technical Vocational Education & Training

UoN: University of Nairobi

ABSTRACT

Quality management system (QMS) are practices applied by organizations which mainly focus on meeting the customers' requirements as well as achieving quality policies and objectives in order to continually improve the effectiveness and efficiency of its performance. Many technical institutions in Kenya have adopted QMS as part of performance contracting requirement by government to enhance performance and improve service delivery. Implementing QMS in an organization is expensive and time consuming. Despite enormous resources spent and massive investment by government in TVET institutions; implementation still remains a challenge .Therefore this study sought to investigate factors influencing implementation of quality management systems in public technical vocational education and training (TVET) institutions in Nairobi, Kenya. The study was guided by the following objectives: To establish the influence of resource availability on quality management system of public technical vocational education and training (TVET) institutions in Kenya; To determine the influence of employee training on quality management system of public TVET institutions in Kenya; To examine the influence of top management skills on quality management system of public TVET institutions in Kenya; and To assess how information technology influence quality management system of public technical and vocational education and training institutions in Kenya. The primary data was collected using self-administered questionnaires with both open and closed ended questions from the sampled lecturers and students of the two public technical and vocational education and training institutions which were purposively selected since they are both ISO 9001:2008 certified. The target population was 300 lecturers and 800 students, from which a sample size of 78 lecturers and 207 students was drawn. The study used descriptive survey design. Krejcie and Morgan table was used to get the sample size. The data collected was analyzed using Statistical Packages of Social Sciences (SPSS). Quantitative data was analyzed using descriptive statistics and inferential statistics while qualitative data was analyzed through content analysis. Results revealed that physical facilities were not adequate, thus not influencing implementation of QMS. Funds were sufficient for the smooth running of the institutions, while human resource was rated very high in terms of academic qualification. This influenced implementation of QMS. The top management was found to be lacking skills on analyzing and interpretation of statistical data. This, to a great did not influence implementation of QMS. However, they were well conversant with monitoring and evaluation of ISO standards as well as auditing skills. It was also established that the institutions has not integrated the recent ICT technology in training and other areas of operation. Thus technology infrastructure is still lacking in TVET institutions. The findings also showed that the institutions do not have adequate number of computers for student use, as well as insufficient internet connectivity to facilitate student research. The institutions were also found to be lacking the most recent technology; hence students could not access wifi as well as internet services in the institution. The study recommended that the top management of TVET institutions should request for more funding from the government to put up more physical facilities such as lecture rooms, laboratories and recreational facilities. It also recommended that the top management invest in staff development, while top management to undertake training on analyzing and interpretation of statistical data. It was also noted that there was need to invest in information technology infrastructure. Further studies should be conducted on similar research related to this in another County to enable further generalization of the findings and also on other factors influencing implementation of QMS apart from the ones dealt with in this research.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Quality management systems (QMS) are practices applied by organizations which focus mainly on meeting the customers' requirements as well as achieving their set objectives. Implementing quality management (QM) normally influences an organization's performance towards achieving its objectives (Powell, 1995; Samson and Terziovski, 1999). Many organizations today are embracing implementation of a QMS since they are able to provide quality for their customers thus giving them value for their money as well as improving their own processes.

A good quality management system is geared towards commitment to providing quality and customer satisfaction, as well as continual improvement (Chris, 2009). QMS ensures full documentation of all the processes within an organization's system, training of the process owners and internal auditors to increase efficiency in the operational processes (Chong, 2006). According to Nanda (2005), QMS also develops and builds an organization's network which helps in boosting their customer base as well as retaining the already existing customers. This is maintained through conducting regular internal audits followed by surveillance audits based on the organization's documentations for review of performance.

Organizations that once adopted quality initiative for the simple sake of display are now realizing the importance of implementing QMS in their organizations. ISO 9000:2005.3.1.1 was attained by the use of programs such as six sigma, TQM, and ISO 9000 which are becoming very common, but it is realized that QMS tend to offer much more value through quality improvement. Researchers have distinguished the quality analysis programs and found out that all adopt the use of statistical and analytical tools, but the ISO 9000 was found to be the most recognized international quality program (Heras, Casadeus and Dick, 2002).

The implementation and certification of a QMS is a voluntary process which can only be achieved depending on how much value an organization puts. (EN ISO 9001:2008, 2008). Aggelogiannopoulos, Drosinos and Athanasopoulos (2007) argue that the documentation and implementation of an organization's QMS depends on the organizational structure, type and

size of the organization. Dale *et al.*, (2007) suggested that for an organization to implement QMS standards, it should be fully committed and ready to abide by the rules since the process is very costly that cannot to go down the drain with no benefits reaped from it.

Altahayneh (2014) study of total quality management (TQM) principles by Jordanian colleges found poor implementation. Moreover, non commitment of the top management, poor planning, failure to involve employees, failure to undertake staff development or capacity building among the employees for quality, lack of focus on customer satisfaction were possible factors hindering the implementation of TQM. In order to achieve excellence, organizations should identify customers like and dislikes and ensure they meet the demand as they focus on quality (Jain and Sahney, 2011). Jeevarathnam, dayaneethie and Dion (2012) argued that the globally, education in higher education institutions today mainly focus on service quality delivery in order to release qualified and competent graduates in the job market that will match the skills required.

Nickel (2007) indicated that German TVET institutions adopted a system which interlinked all the functional areas and give feedback to the management so that they are aware of what goes on in all operational areas of the institution. Their attention was more focused on ensuring that their internal processes were carried out as stipulated in the QMS documentation of the institution rather than the final performance of the graduates. On infrastructure, Litao and Sixin, (2008) found that focus was on putting up modern and spacious offices rather than putting up and equipping modern laboratories and workshops as well as a well stocked library facilities for research.

In China, expansion of the TVET sector has led to the decline in quality due to limited resources and rapidly rising student-teacher ratios (Wu and Zheng, 2008). Memon, Joubish and Khurram (2010) observed that in Pakistan, the quality of education in the TVET sector has dropped due to inadequate staff, poor condition of the workshops with outdated tools and equipment and curriculum skills mismatch with the standards currently in the job market.

In India, the quality of technical education has suffered due to massification, commoditization and poor demonstration (Hans, 2013). Moreover, there are still disparities in terms of regions, resources and outcomes, as well as hurdles in the complete formalization of quality. The shortage

of teaching faculty, unhealthy student teacher ratio and poor quality content are also areas of serious concern (Konwar, 2012).

In Nigeria, TVET institutions faced a number of issues that affected quality (Asiyai, 2013). This include inadequate funding, lack of academic staff, lack of infrastructure, lack of information communication technology (ICT), incessant staff union disputes and subsequent closures of the institutions, lack staff development programme and capacity building, brain drain of qualified staff due to poor incentives, bad leadership within the government level and at the institutions top management level.

The Ghanaian technical education still faces a number of hurdles in ensuring success. (Baryeh, 2009). These include high demand for entry into the TVET education sector due to population growth, poor households among its citizens, thus increased poverty.

TVET institutions in Ethiopia suffered insufficient internet and this affected training since ICT could not be integrated in training. Infrastructure in the institutions was also below the expected standard thus affecting training (Geressu, 2014). Budgetary allocation for training equipment and materials was also insufficient to sustain efficient training. In South West, Nigeria, Bandele and Faremi (2012) noted that the technical staff was untrained, tools and equipment was obsolete and deplorable state of laboratories and workshops. Further, Dasmani (2011) found that TVET institutions in Ghana did not operate as the expected standards due to inadequate human, financial and physical resources. At the same time, they did not have further opportunity for capacity development for their staff and internship for their trainees. This led to practical skill mismatch since the staff lacked current skills required by the industries and thus becoming difficult to impart the same knowledge to the trainees to be applied in the industry.

Ngure (2013) study indicates Kenya TVET institutions suffer from various challenges that have hampered its growth. These include implementation of curriculum that does not take into account the current needs of the industries where graduates are absorbed once they graduate. The curricula do not provide adequate time for practical lessons which is the backbone in TVET training. Hence this leads to the training being offered to the trainees not to match with what the industries require since the curricula has to be implemented to the later. In curricula design, he

noted that very key stakeholders like the industries and curriculum implementers are not involved thus bringing the mismatch. Hence you find many trainers are deviating from the set curricula in order to match their training needs with the industry.

1.2 Statement of the Problem

The implementation of QMS and its subsequent certification has been found to be a very expensive and time consuming process by most organizations. It involves a number of processes which range from implementers training, development of QMS procedures manual, staff sensitization, auditors training, lead auditors training, implementation, pre-certification audit and certification. A study conducted at Kenya Bureau of Standards which is one of the certification bodies in Kenya indicates that the cost of implementing ISO 9001 up to certification ranges from Ksh 3,500,000 to 5,000,000 depending on the type and size of the organization (KEBS, 2017). This has been seen to be challenge for many organizations who are grappling with tight budget constraints since they have to give priority to very key processes in the organization. Further, Wright (2006) has shown that certified companies are performing at the same level with uncertified companies.

Implementation of QMS has been found to be a very expensive undertaking in terms of resources required with lack of guarantee that adoption of QMS will translate to improved institutional performance (Ngerechi, 2003). Several studies have been done on QMS in Kenya like Gichara (2013), who studied the application of TQM in TVET institutions in Nairobi County which revealed a number of factors such as communication systems, resource availability, employee training and involvement that influenced QMS.

All personnel and all areas in an organization are affected by QMS. Training regarding the QMS should be provided for all employees (Patel and Randell, 1994). They too found that top management is reluctant to commit time and expenses to train their staff. Chew *et al.*, (1996) in Mohammad (2000) also mentioned that some organizations perceived that QMS is all about documentation of procedures which could still be applied by their employees and hence ignored the importance of training them.

The implementation of QMS should not be considered to be an easy task by top management. Every organizations success lies with the top management and therefore their participation in all

aspects is very key, thus should acquire skills in various areas of operation for smooth implementation process (Chew *et al.*, 1996) in Mohammad (2000). They further stated that the reason for such problem was due to lack of sensitization of employees about the benefits of the QMS. Tan (2010) observed that most top management of companies did not place quality as a priority against the factor of skills

Integration of IT into an organization's system today has been found to be very crucial since all processes are becoming automated, hence less or no manual operation of processes (Kharuddin, Ashhari and Nassir, 2010). However, most organizations still face a number of challenges in this area since they are yet to adopt the new technology and therefore service delivery is not efficient.

Although these researchers focused on QMS, there exists a knowledge gap as none of them has addressed QMS in TVET institutions in Nairobi County as a case study. It is against this background that the researcher seeks to study the factors influencing implementation of QMS in public TVET institutions in Nairobi County, Kenya.

1.3 Purpose of the study

The purpose of this study was to determine the factors influencing implementation of QMS in public TVET institutions in Nairobi County, Kenya.

1.4 Research Objectives

The study was guided by the following objectives;

- i) To establish the influence of resource availability on implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya
- ii) To determine the influence of employee training on implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya
- iii) To examine the influence of top management skills on implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya

- iv) To assess how information technology influences implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya

1.5 Research Questions

The research was aimed at answering the following questions;

- i) What are the influences of resource availability on implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya?
- ii) To what extent does employee training influence implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya?
- v) How does top management skill influence implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya?
- vi) In what way does information technology influence implementation of quality management system of public technical vocational education and training institutions in Nairobi County, Kenya?

1.6 Significance of the Study

The study was significant in that the findings might be employed by managers in TVET institutions in Kenya as they seek to implement effective QMS. By doing this research, the study might show the benefits that will be gained with the implementation of QMS in the academic library. Policy makers may also obtain knowledge on factors influencing implementation of QMS in public TVET institutions. They may therefore obtain guidance from this study in designing appropriate policies to enhance implementation of QMS. The study may also have a significant contribution to the body of knowledge for researchers in the field of QMS.

1.7 Assumptions of the Study

The study assumed that resource availability, employee training, top management skills and information technology influence implementation of QMS in TVET institutions. The study was conducted under the assumption that respondents will be well versed with QMS issues. Similarly, it also assumed that the respondents will be willingly able to provide honest and truthful information since participation is voluntary and anonymity is to be preserved. It also assumed that respondents had a good understanding of the factors influencing implementation of QMS of public TVET institutions.

1.8 Limitations of the Study

The limitation of the study was in the high cost incurred due to the large number of respondents which required a significant amount of time to collect adequate data, which the study had no control over. To overcome this limitation, the researcher contracted research assistants.

1.9 Delimitation of the Study

The study was carried out in two public TVET institutions in Nairobi namely Nairobi Technical Training Institute (NTTI) and Kabete National Polytechnic (KNP). Out of the four public TVET institutions in Nairobi County, the two were selected because they are both ISO 9001:2008 certified. The other one which is also ISO 9001:2008 certified was used in the pre-test while the one not included in the study is not ISO certified. The researcher was confined to establishing the factors influencing implementation of QMS in public TVET institutions. The total population comprised of 300 teaching staff and 800 students in the two public TVET institutions.

1.10 Definition of Significant Terms used in the Study

Employee training: employee training on filing system, record keeping system put in place by the organization as well as the number of employees trained on ISO.

Implementation of quality management system: putting to use policies and documentation processes that are applied in the day to day operations so as to ensure customer satisfaction, corporate image, performance in examination and student completion rates.

Information technology: this involves information technology (IT) infrastructure available and computerization of services being offered.

Resource availability: the state of facilities used including physical facilities, availability of funds and human resource.

Top management skills: the organizational leadership that seeks to achieve organizational quality by analyzing and interpreting statistical data, continuous monitoring and evaluation of ISO and acquisition of financial and ISO auditing skills.

1.11 Organization of the Study

Chapter One of this study presents the background of the study, statement of the problem, purpose of the study, study objectives, research questions, significance of the study, scope of the study, limitations of the study, delimitations of the study, assumptions of the study, definition of significant terms used in the study and organization of the study. Chapter Two covers the literature review explaining the factors influencing the implementation of quality management system. The chapter also provides a theoretical framework, conceptual framework which outlines the relationship between the dependent and independent variables identified in the subject of study as well as a summary of reviewed literature. Chapter Three outlines the research methodology which includes introduction, research design, target population, sample size and sampling procedure, research instruments which include; questionnaire, pre-test, validity of the research instruments and reliability of the research instruments, data collection procedure, data analysis techniques, ethical considerations and operationalization of variables. Chapter Four covers data analysis, presentation and interpretation. Chapter Five covers the summary and discussions of findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of the literature review in this chapter is to establish the root cause of the problem being investigated. The review is done under the following sub-headings; theoretical framework,

implementation of quality management system, factors influencing quality management system in the two public TVET institutions and conceptual framework. This chapter outlines both empirical and theoretical review which helps understand the theories associated with the study. Also, the literature review intends to make the researcher identify the challenges facing implementation of ISO standards in organizations.

2.2 Empirical Review

The empirical review of the study was based on the knowledge from other related studies carried out by different researchers. The review was mainly evidence based. These include;

2.2.1 Quality Management System

Quality Management System (QMS) is defined as procedures that have been laid down by an organization that will guide it in its daily operations. These procedures are usually documented and are followed in every aspect of its operation for the purpose of achieving quality and maximize its productivity (Maranhão, 2005). The QMS mainly is concerned with adherence to the documented procedures, implementing the procedures to ensure the objectives are achieved and keeping evidence. Hence it concerns all staff within an organization (Moura, 2003).

The value of QMS according to ISO 9001 standards will depend on the way staff embrace it. It is important that before implementation, all staff be sensitized in order to accept any changes that may arise. This can lead to an organizations improvement in performance since it will bring totally a new system in place (Michael, Lorente and Rafael, 2007).

The implementation of a QMS today is seen to be very critical in the management of an organization. (Psomas, 2010). QMS when implemented seeks to ensure standards within an organization are maintained, customer satisfaction as well as continual improvement so as to keep pace with the emerging trends. For any organization to be successful in implementation of QMS, all the documented processes should be followed and evidence based. Since ISO 9001 standard deals with processes, it is implemented in many business organizations as well education institutions for success (Conti, 2004).

Quality in TVET education covers a very wide area. It encompasses all functions and activities within a TVET institution from the time of admission to graduation of a trainee. (Ginkel & Dias,

2007). It is important that a lot of emphasis is put on technical educational since it is only through quality training that a trainee can fit into the job market both locally and abroad. (Sarker, Davis and Tiropanis, 2010). Athiyaman (1997) study results of an Australian medium sized university revealed that quality when put first and maintained will maximize customer satisfaction.

A QMS is the framework of processes used to ensure that an organization fulfills its objectives and ensures there is continual improvement (Bell, 2010). It is important for all staff in an education system to understand and be conversant with the processes that are involved in a QMS in an organization (Sarbu *et al.*, 2009). To ensure compliance, pre-certification audits are carried out by a certification body which approves or disapproves certification (Nickel, 2007). EN ISO 9001:2008 as cited by Kaziliunas (2010) indicates that to benefit more from ISO 9000 certification, organizations need to keep pace with any changes within the organization and its environment. According to Wali (2007) study findings, most companies indicate that implementation of QMS is influenced by good top management leadership supported by qualified and experienced staff.

The factors influencing QMS implementation identified from review by Wardhani *et al.*, (2009), include sensitization and involvement of staff in the process in all stages and top management leadership styles that is geared towards uniting and motivating staff. The TQM factors revealed by Kasongo and Moono (2010) study include quality focus by the top management that is geared towards ensuring customer satisfaction, engagement of staff in all operations involved in the QMS processes undertaken and provision of the required resources. Subrata and Anindya as cited in Ater (2013) identify some of the challenges associated with implementation of QMS in textile industry in India as: non committal of the top management, lack of sensitization of staff on QMS by the management, insufficient financial resources thus affecting certification due to cost implication, failure to undertake staff development or capacity building and too much documentation of processes combined with heavy workload.

Gulbarga *et al.*, (2012) indicated that the QM practice in TVET institutions in India is still below the world's expectation. Furthermore, the external focus of the technical institutions is lacking with these institutions having to focus more on developing the office facilities and ensuring a

conducive working environment, rather than putting more emphasis on tuition rooms/ lecture halls, staff development and putting up laboratories and workshops equipped with modern equipment to boost technical education. To implement a QMS that conforms to ISO 9001, an organization must ensure the following; training the implementers, training the internal auditors, training the lead auditor, documentation of the operation processes, sensitizing all staff and undertake an internal audit (Toffel & Levine, 2010). Furthermore, the old procedures should be abandoned once the new procedures has been documented and implemented. The only challenge mainly encountered during implementation of QMS is that staff tend to put more emphasis when audit is about to be carried and forget everything once the audit is done thus deviating from their mandate of ensuring QMS implementation is a continuous process (Bitange, 2007).

2.2.2 Resource availability and implementation of quality management system.

The process of implementing ISO standards is not an expensive venture as some organizations may think. Many find the cost to be relatively high and hence shy away from the whole process. To implement the process, organizations need to consider their position in terms of availability of the required resources (Bhuiyan and Alam, 2005). In technical education, the physical resources required include; offices, lecture halls/ classrooms and well equipped laboratories/ workshops. For human resource, qualified and competent staff is required both at the top management level and teaching level. Financial resource which is very critical in this area is needed in the whole process of ISO standards implementation to certification stage. At the implementation stage, an organization is required to hire the services of a consultant to guide it throughout the process (Bhuiyan and Alam, 2005). Further, other costs is incurred in training the process owners and sensitizing the implementers, training the auditors, training the lead auditors and undertaking a pre-certification and certification audit in readiness for certification.

TVET institutions in Indonesia are found to be to lacking adequate funds as well development and operational grants from the central government to boost their technical education. This led to constraints on the resources available thus affecting the growth of technical education and at the same time acting as a barrier in the implementation of a ISO 9000 standard (Amar and Zain, 2002). Other resources that affected implementation of ISO standards include; unequipped laboratories/ workshops, obsolete tools, manpower and tight schedule of the already existing workload. On the other hand, staffs are found to inherit a culture of resistance to change due to unforeseen benefits thus becoming a roadblock to the process of implementing a QMS within the

institutions (Amar and Zain, 2002). This arise due lack of sensitization of the staff before bringing in change in an organization.

Resources in an institution may be categorized under physical resource (infrastructure), human resource (teaching and non-teaching staff) both at university and technical level (Bakare, 2009). According to Owino *et al.*, (2014), the physical evidence that influences the state of perceived service quality in any learning institution is; modern tuition rooms fitted with smart boards and overhead projectors to facilitate learning, well equipped laboratories/ workshops with modern equipment, a library system fully installed with wifi that facilitates the use of e-books and an ICT laboratory equipped with modern computers installed with the latest programs for learning. Sang, Muthaa & Mbugua, (2012) found that TVET institutions operated without adequate physical facilities, did not have adequate training tools and lacked adequate training materials. Furthermore, most of the training equipments found were not technologically in tandem with equipments found in industries and business organizations.

Today, students' perception on quality in an institution is the availability of a wifi system installed in the library that gives them access to e-books with current learning materials (Tsinidou, Gerogiannis and Fitsilis, 2010). Furthermore, they are able to carry out research in their specialized area of study without going to the field, hence less time consuming. Reports have shown in some instances that students take lessons while standing due to lack of seating space in the classroom, while in some cases, students have to listen from outside the classroom (Sawyerr, 2004). In addition, the reading space in the libraries is inadequate hence overcrowded, while the material available is outdated (Sawyerr, 2004).

Gudo, Olel and Oanda, (2011) in their study found that in most public institutions of higher learning, effective curriculum implementation was mainly affected by inadequate space in classrooms due large number of students thus forcing students to undertake their lessons while standing outside the room. Furthermore, the institutions lacked adequate and modern ICT infrastructure for smooth implementation of the curriculum. This affected the academic performance of the institutions and the quality of graduates. Likoko, Mutsotso and Nasongo, (2013) found that some colleges had inadequate facilities like classrooms, offices, libraries and recreation facilities. It also emerged that most of the institutions were located in uncondusive

learning environments such as next to littered backstreets, overcrowded market centers' and dilapidated buildings while others were lying on a less than half an acre piece of land leaving no room for playgrounds.

In Pakistani universities, students response from a study carried out showed that they are not satisfied with the library services. They raised concern about non availability of internet connectivity system thus lack of wifi system hence difficulty in carrying out research. (Abbasi & Malik, 2011). Students' dissatisfaction was also noted in the dilapidated laboratory/workshop tools used in carrying out practical lessons. In a study of Nigerian universities, office space was found to be inadequate for teaching staff hence difficulty in lesson preparation. Staff also used lecture method since ICT is yet to be integrated in teaching and learning. Tuition rooms as well as workshops were inadequate thus less practical lessons resulting in low imparting of skills required. Basic needs such as power and water supply was also a hitch due to lack of a back up (Babatope, 2010).

Bakare (2009) indicates that seats and desks were available in all the universities though some of the furniture was in a disreputable condition which is affected by the maintenance culture. There were generally many lecture rooms and theatres but they were not adequate in some cases and some of the rooms were too small for the number of students utilizing the facility. Facilities that were generally in short supply were ICT/computers and hostels. Infrastructure in learning institutions is inadequate due to lack of enough revenue and too much reliance on government grants (2008) cited in (Yizengaw, 2008). Moreover, resources such as infrastructure, such as internet access, automated library system fully installed with wifi, current text materials and journals, tools, workshops and tuition room space is an obstacle in growth of education in institutions of higher learning.

Mwangi and Maurice (2011), confirm that library facilities in most Kenyan public institutions of higher learning lacked sufficient internet connectivity which limited access to wifi, thus affecting research. Mwangi and Maurice (2011) further observed that these led to the drawback in research area which is mainly done online. In Nigeria, a study by Tunde and Issa (2013) indicate, the reading text materials are inadequate due to an increase in student enrolment, thus not sufficient to serve the students adequately. Further, some books are old and no longer in use. Moreover,

the availability of a well stocked library facility with current reading materials encompassed the research facilities for students clearly indicates that education in institutions of higher learning is linked to a good library. Muthimi (2013) shows that Kenyatta University operations have been affected by the dwindling resources, against the background of an increasing demand for higher education. This forces the University to diverge from its core business of provision of excellent higher education and instead engage in income generating activities so as to substitute its financial resources. Moreover, public universities have now to compete for the scarce government resources.

2.2.3 Employee training and implementation of quality management system

For any implementation to take place, training is to be done. This is to equip the staff with the skills that are required in their area of operation to perform a given task. Large institutions in the past have recorded a big number of staff development as well as capacity building in various areas to boost their operations (Zakuan *et al.*, 2012). Staff development in an organization depends in the area with less competent staff. Hence need for building their competency in area of operation, come up with new ideas, and be able to know the outcome as a result of these new ideas.

Training is an important factor that helps in providing required skills to the employee as well as making efforts towards quality improvement (Zakuan *et al.*, 2012). It helps creates alertness in important areas of an organization. Further, it is a drive in which staff competency is built thus leading to an improvement in the organizations performance as well as change in their perception as far as quality is concerned. Wambugu and Ombui (2013) noted that in Kabete National Polytechnic, staff performance is related to awards given. Furthermore, awards are found to motivate staff to perform better in their area of specialization. Thus it was summarized that employees perform better when motivated and as a result their efforts be recognized through benefits such as good salaries, awards and capacity building.

Nell (2006) argues that good working conditions help organization attain motivation and retain high caliber of employees. Organizations that strive to remain on top apply strong working condition strategy in the relevant market to outdo their opponents from the market hence a challenge to HRM. Dzvimbo (2006) found that low salaries in most African and underdeveloped countries lead to high staff turnover with most seeking opportunities overseas in countries

offering good salary package. With the mushrooming of institutions of higher learning, the rate of staff turnover is found to be very competitive due to the many vacancies available. This has resulted in engagement of bachelor degree graduates in teaching undergraduate programs as part-time lecturers (CHE, 2012). This is a clear indication that staff performance and achievement of the set objectives is derived from the top management and not just going to class to teach (Mpaata, 2010). Moreover, lack of motivation and job dissatisfaction by staff in most institutions of higher learning lead to mass exodus of highly qualified and competent staff to seek opportunities for greener pastures.

According to Madu (1997), organizations embraced employee training programs since it enabled them to gain skills that aid in improving quality and thus solve problems. Ashire, Golhar and Waller, (1996) in their study noted that organizations need to consider money put in staff development and capacity building as a boost in achieving its objectives. To measure the level of trainings undertaken, they considered the following; resource availability, sessions undertaken and frequency of carrying out capacity building, benefit from the training and its contribution to the organization.

Messah and Mucai (2011) study on strategic plan enactment indicate a clear staff motivation ISO process and Board of Governors decisions towards implementation of strategic plans was low. Furthermore, for effective operation of a quality system, the top management of an organization must totally change the perception of the employees towards knowing what goes on within the organization, participating in the decision making process, taking up responsibilities when called upon and working towards a successful organization (Ruzevicius, Adomaitiene and Sirvidaite, 2004). In addition, the staff needs to be motivated in order to come up with new strategies that can be used to improve performance. Bell (2010) recommends educating the workforce about the benefits of implementing the QMS prior to and during the implementation process. Moreover, a portfolio of training methods should be part of the education and awareness campaign.

On many occasions, the recruitment and appointment procedures for staff members in institutions for higher learning are not competitive and transparent and hence, inefficient personnel are brought on board to serve the institutions (Wanzala, 2013). Baligidde (2006), argue that institutions of higher learning top management need to put into consideration the subordinate staff of their institutions and how to satisfy their needs since they play a very

important and a crucial role. He further noted that public universities have been faced by a number of challenges due to the influx of students with no employment of additional human resource. This led to low morale and work dissatisfaction since the teaching load was too high and at the same time salary offered was low given their high academic qualification in comparison to their counterparts with the same qualifications working in private organizations (Ng'ethe, Namusonge and Iravo, 2012). Selesho and Naile (2014) found that staff movement was voluntarily inspired by an opportunity arising for growth in line of education or when an opportunity for a higher grade or post arises.

Due to the high demand for higher education, institutions of higher learning has suffered inadequacy in the number of teaching staff to match with the high enrolment of students thus forcing them to engage bachelor degree graduates to teach degree programs. This poses a great danger in the quality and competency of the graduates being released in the job market. This practice was experienced in India in 1970s and 1980s when there was massive expansion of institutions of higher learning (Singh, 1988).

Mwebi (2012) identified the quality of teaching in a university as a gauge of its student completion rates. Due to much focus on quality of education offered in institutions of higher learning, demand for staff development has taken a centre stage in the academic arena (Ho, Watkins and Kelly, 2001). Dang (1997) cited in Lam (2009), found that remuneration for academic staff was poor as compared to the high standard of living. This led to majority of the academic staff engaging in part-time teaching during their normal working hours to bridge the income gap thus compromising their level of performance. Likewise, they dedicated less time in research since it did not yield any good additional income as compared to part-time teaching (Lam,2009).

It is estimated that up to two-thirds of lecturers at Kenyan universities have no pedagogical training (Nyaigotti, 2004). Moreover, many hire unqualified staff without or very little basic training as a lecturer. Thus leads to substandard training due to lack of mastery of content by the lecturer thus concentrating more on dictating notes to the students (Okionga, Onsonga and Nyaboga, 2012).

2.2.4 Top management skills and implementation of quality management system

Simiyu (2009) established that management skills influenced the attractiveness of TVET institutions. The principal had qualification both in administrative and pedagogical level. He was conversant with technical training and practices a results-based form of management. Furthermore, by developing a five-year strategic plan, most institutions are able to achieve very many goals with little or no expenditure at all such as improving the work environment, punctuality to work, staff motivation and promoting teamwork. This kind of support from the top management influences the implementation of a QMS (Wardhani *et al.*, 2009).

A QMS must be driven by the top management of an organization since success lies wholly with them. Other staff in any organization is there to perform tasks assigned to them by the top management without having any authority to influence the outcome of a QMS within the higher education institutions (Nickel, 2007). Therefore, the top management must work closely with the staff to know their concerns and thus engage them fully in the QMS implementation process (Tan *et al.*, 2011). It is therefore important for organizations to frequently train their staff on ISO 9001 standard and come up with a strategy of recognizing staff who adopt QMS in their day to day operations (Tan *et al.*, 2011).

2.2.5 Information Technology and implementation of quality management system

Information technology (IT) is the application of systems in a computer to store, retrieve and send information through networks. According to Achimugu *et al.*, (2009), technology today has proved to be the most reliable, cheap and the fastest means of relaying information from one point to another. As observed by Basheti (2004), technology is rapidly growing in terms of innovation and more advanced computer programs are being installed by learning institutions for wider coverage. Today, most TVET institutions are integrating IT in various areas of operations in order improve its performance and also a competitive edge in the implementation of QMS (Lai, Zhao and Wang, 2006).

Sobhani (2008) and Ismail (2007) observed that most organizations invested heavily in IT infrastructure without much influence on implementation of QMS. Gichara (2013) study of total quality management (TQM) in public (TVET) institutions indicates that a majority had a specific technological orientation for use which was modern and computer based, the technology was

used in all levels of management. In addition, the level of technology in use was found to extensively influence the use of TQM in the management of the TVET institutions. Technology was used in preparation of certificates, presentation of academic information, archiving academic information and dissemination of information among other uses.

A baseline survey by Hooker *et al.*, (2011) indicates that most TVET institutions have adopted the use of information communication technology by integrating IT in both teaching and learning process. Earlier on, students not taking ICT as a course focused mainly in having group discussions due to lack of access to computer laboratories. Macharia (2013) indicates that the available IT infrastructure was not sufficient to keep pace with the fast growth of the institutions. The Internet connectivity was confined to ICT workshops, staff rooms and administrative offices while being constantly overstretched by the growing numbers.

2.3 Theoretical Framework

A number of theories that can explain the issues of QM in an organization include;

2.3.1 Deming Cycle

This tool focused mainly on continuous improvement. Its effort was mainly towards the improvement of an organizations products or services. The main tool used for continuous improvement is a four-step quality model, also known as Deming Cycle: Plan; Do; Check and Act (PDCA) cycle (Deming, 1991). Deming's philosophy aims at ensuring that there is improvement in the quality of products and/or services offered without deviating from the actual design. In his view, any deviation in the final products, services or processes from the original design was perceived as poor quality. Hence PDCA cycle helps in monitoring operation process for continual improvement.

2.3.2 Juran's Trilogy Theory

His focus mainly was on ensuring that the top management team is well trained for them to perform better. By so doing, he expected improvement in human relations and thus fewer problems. Because employees are usually resistance to change, the top management is to ensure this cultural practice that affects quality is done away with. In "The Quality Trilogy", he encountered that through problems, one is able to improve in quality. However, he further points

out that organizations should avoid crisis in quality which can compromise the quality of a product or service being delivered, Juran (2009).

2.3.3 Crosby's Theory

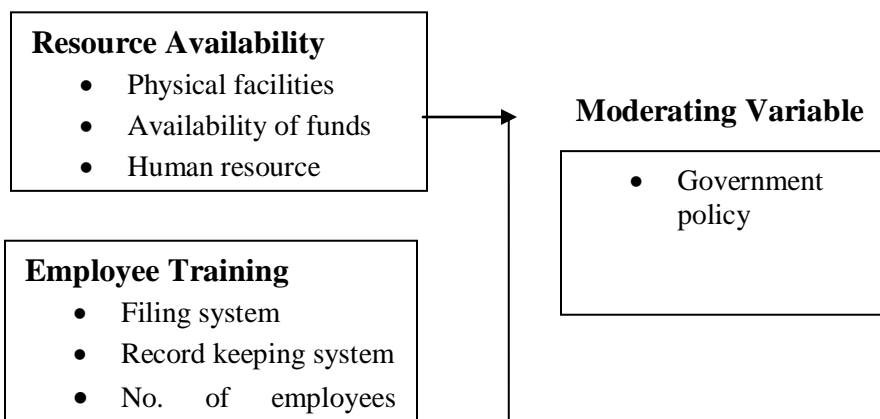
His main focus was on achieving quality by ensuring there are no defects during production process and at the same meet the specified requirements. In achieving the specified requirements, it is the employees' responsibility to agree upon the requirements of what needs to be achieved and the discretion is totally left to the employees. Managers used quality to determine the price of a product or service (Crosby, 1996). His standard of performance for Managers' is doing things right the first time. Occasionally, he held "Zero Defects Day" where both managers and employees come together and celebrate their hard work to ensure quality prevails. Capacity building for managers mainly focused on achieving the right quality the first time. Generally, his aim is to produce quality products and services that are free from defects and at the same time satisfy the customers' needs.

2.3.4 Similarities of the three theories

Both Deming, Juran and Crosby main focus was on quality. They all concurred by saying that for quality in any organization to be achieved, the top management must play a very key role in all areas of operation. The organizations vision, mission and core values must be well displayed and understood by all employees, and the management is to work towards fulfilling the organizations vision, mission and core values. To achieve this, the top management must show commitment and lead by example. They further agreed that for uniformity of standards, employees need to be subjected to frequent capacity building in order to advance their skills.

2.4 Conceptual Framework

Independent Variable



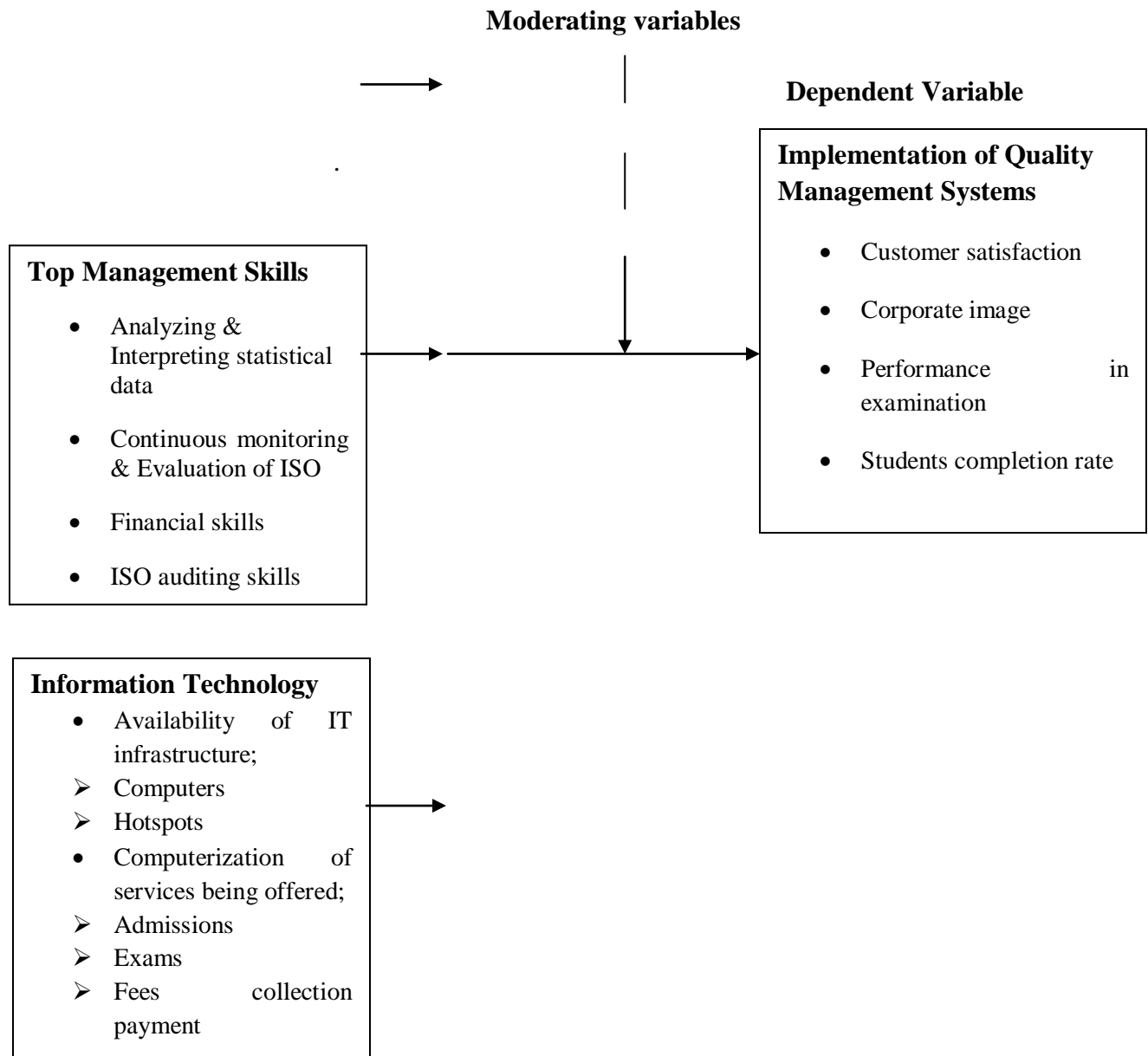


Figure 1: Conceptual Framework

The diagrammatic presentation in Fig.1 explains the existing relationship between the independent, moderating and dependent variables. In this study, an attempt was made to find out how the independent variables, resource availability, employee training, top management skills, and information technology influence implementation of quality management systems. Implementation of QMS as a dependent variable focused on customer satisfaction, corporate image, performance in examination and student completion rates. For implementation of QMS to take place, there is dependence on a number of independent variables which include; resource

availability such as physical facilities, availability of funds and human resource; employee training such as filing system, record keeping system and number of employees trained on ISO; top management skills such as analyzing and interpreting statistical data, continuous monitoring and evaluation of ISO, financial skills and ISO auditing skills and information technology such as availability of IT infrastructure and computerization of services. Government policy is presented as a moderating variable.

2.5 Research Gap

Table 2.1: Summary of knowledge gaps

Variable	Author	Finding	Knowledge gap
Influence of resource availability on implementation	Muthimi (2013)	University operations affected by dwindling resources against an increasing number of	The extent of limited resources and its influence needs to be

of quality management system		students	studied.
Influence of employee training on implementation of quality management system	Amar and Zain (2002)	Staff resistance to change is due to unforeseen benefits thus becoming a roadblock to the process of implementing QMS.	Training the workforce on QMS implementation has benefits. The extent of this influence needs to be studied.
Influence of top management skills on implementation of quality management system	Simiyu (2009)	Top management influenced the attractiveness of TVET institutions.	There is need to determine the exact influence that top management skills have on QMS of the organizations
Influence of information technology on implementation of quality management system	Gichara (2013)	The level of technology in use influence the use of TQM in management of TVET institutions	The level of technology adopted by TVET institutions need to be studied

2.6 Summary of Reviewed Literature

This chapter has reviewed existing literature on factors influencing implementation of QMS globally, regionally and locally. The value of QMS according to ISO 9001 standard depends on the way it is implemented. The performance of an organization can improve due to staff sensitization and bring totally a new system in place (Michael, Lorente and Rafael, 2007). Success of implementation of QMS depends on how the certification is conducted. Quality in

TVET institutions was found to be a multi-dimensional that encompasses all functions and activities within a TVET institution (Ginkel and Dias, 2007). QMS was also used to ensure an organization fulfills its objectives (Bell, 2010).

Implementation of QMS does require organizations need to consider the availability of the required resources (Bhuiyan and Alam, 2005). Amar and Zain (2002) noted that lack of sufficient funds and financial support were the difficulties encountered during the implementation ISO 9000 standard. According to Owino *et al.*, (2004), attractive physical facilities influenced the level of perceived quality, though TVET operated without adequate physical facilities, thus influencing implementation of QMS.

For any implementation plans, training must take place since it equips the staff with the required skills in their area operation to enable one perform a given task (Zakuan *et al.*, 2012). However, training was found to differ according to the level of employee. Training is a very important factor towards quality improvement since it helps create alertness in various areas within an organization. It is a tool that raises employees' attitudes towards quality. Therefore, organizations should embrace employee training programs since this will enable them gain skills that will aid in improving quality and thus solve problems (Madu, 1997). Hence organizations should invest in training programs (Ashire, Golhar and Waller, 1996).

Implementation of QMS is not possible within an organization without a commitment from top management (Kelkar, 2008). Management skills do influence the attractiveness of an institution (Simiyu, 2009). This helps in attaining the set objectives without high expense. For any QMS to succeed, the top management must be fully involved (Nickel, 2007). According to Tan *et al.*, (2011), top management needs to be continuously trained on ISO and implement it into the system.

Effects of technology globally in organizations are becoming widely felt. IT today is being adopted by many institutions in order to gain and sustain competitive advantage in the implementation of QMS (Lai, Zhao and Wang, 2006). By integrating IT in a QMS, quality has been achieved, improved service delivery and reduction in operation cost. However, technology provision was found to be hampered by issues related to inaccessibility for trainees not studying

ICT as a course, hence even though IT infrastructure was available, it could still not meet the high demand in the institutions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused on the research methodology that was employed in the study. The researcher addressed the following: research design, target population, sample size and sampling

procedure, data collection instruments, data collection procedure, validity and reliability, data analysis, ethical considerations and operational definition of variables.

3.2 Research Design

The research is designed to use descriptive survey design. This was adopted because the researcher wanted to describe a specific behavior as it occurs in the environment. The study was quantitative in nature with the main aim being to quantitatively analyze the association between the independent and dependent variables. To collect data, surveys were used. O’Leary (2004) Survey can be defined as gathering information from the respondents by asking a wide range of the same questions in order to get their varied opinions (O’Leary, 2004). To collect quantitative data for this study, questionnaires were used.

3.3 Target Population

Population can be defined as a group of individuals or items from which sample are taken for analysis (Kombo & Trump, 2006). The target population comprised of lecturers and students of two public TVET institutions in Nairobi County namely NTTI and KNP. The two public technical vocational education and training institutions were purposively selected as they are ISO 9001:2008 certified. A population of 300 lecturers as per the Teachers Service Commission staff returns (2016) and 800 students was targeted. Third year students were targeted because they have been in the institution long enough, hence may be conversant with the QMS of the institution. Hence the total population targeted was 1100.

3.4 Sample size and Sampling procedure

According to Cooper and Schindler (2003), a sampling frame is a list of elements from which the sample is actually drawn and is closely related to the population.

3.4.1 Sample size

The sampling frame consisted lecturers and students. According to the Krejcie and Morgan sample size table (1970), the sample size of this study was 78 teaching staff and 207 students which were selected proportionately (Appendix 6). The sampling frame is presented in Table 3.1.

3.4.2 Sampling procedure

The study adopted a stratified random sampling design because the population is heterogeneous. After stratification, the researcher applied a proportionate method in order to obtain a sample size of 285 (Krejcie and Morgan sample size table, 1970). Thereafter, simple random sampling was used to select the HODs and lecturers to participate in the study.

Table 3.1 Sample size of respondents

Respondents	Category of respondents	Total population	Sample size
Kabete National Polytechnic teaching staff & 3 rd Year Students	Lecturers	162	42
	3 rd Year Students	450	116
	Total	612	158
Nairobi Technical Training Institute teaching staff & 3 rd Year Students	Lecturers	138	36
	3 rd Year Students	350	91
	Total	488	127
	Grand total	1100	285

3.5 Research instruments

The researcher used primary data which were collected from the respondents. The data was analyzed to get the respondents opinion on factors influencing implementation of QMS in TVET institutions in Nairobi county, Kenya. The study used self-administered questionnaires as the instrument to collect data where the respondents remained anonymous. The researcher gave the respondents adequate time to complete the questionnaires after which they were submitted back as agreed.

3.5.1 Questionnaire

Questionnaire was used to gather data from the lecturers and students which had likert scale and open ended questions covering the respondents. The students' questionnaire comprised of four sections. Section I of the questionnaire includes items on: customer satisfaction; improved

corporate image; improved quality of performance in examination and completion rates. Section II outlines resource availability which is composed of items on: physical facilities; availability of funds and human resource. Section III focused on teaching staff training which comprises items on: record keeping system. Section IV focused on technology which comprises items on: availability of IT infrastructure and computerization of services.

The lecturers' questionnaire comprised of five sections. Section I of the questionnaire includes items on: customer satisfaction; improved corporate image; improved quality of performance in examination and completion rates. Section II outlines resource availability which is composed of items on: physical facilities; availability of funds and human resource. Section III focused on teaching staff training which comprises items on: filing system; record keeping system and employee training on ISO. Section IV highlight on top management skills which comprises items on: analyzing and interpretation of statistical data; continuous monitoring and evaluation of ISO; financial skills and ISO auditing skills. Section V focused on technology which comprises items on: availability of IT infrastructure and computerization of services.

3.5.2Pre-Test

The research instrument was pre-tested in one of the TVET institution which was not included in the final study. According to Freund and Wilson (1997), pre-test is where the same questionnaire to be used in the study is used on individuals who are related to the study though not part of the respondents to be covered in the study. Through pre-testing, the researcher was able to detect those items which were unclear and areas where more information was required and necessary adjustments were made. It also enlightened the researcher on issues such as ease of administration of the equipment and length of time needed for data collection. This helped in making the instrument for data collection valid and reliable.

3.5.3 Validity of the research instruments

Validity of a research instrument is the degree to which an instrument measures what it is supposed to measure (Kothari,2004). Validity is purely concerned with measurement error or bias. Braun (2005) describes the validity in quantitative research as construct validity. The content validity of the research instrument for this study was determined through pre-testing to determine if the questions are acceptable, answerable and well understood. Additionally, the

researcher consulted a quality management expert and the university supervisor. Based on their opinion and advice, the questionnaire was amended in order to enhance its content validity.

3.5.4 Reliability of the research instruments

This is the extent to which results of a study are consistent over time and there is an accurate presentation of the total population under study. Reliability analysis aims at finding out the extent to which a research instrument will yield the same result over and over again when subjected to the same conditions, (Nachimias & Nachimias, 2008). To test the reliability of the questionnaires as a research instrument, a pre-test was carried out and a cronbach alpha computed which specified a coefficient of 0.9. The reliability therefore is acceptable since the minimum coefficient for acceptable reliability is 0.7 (Eisinga, Grotenhuis and Pelzer, 2013).

3.6 Data collection procedure

Data collection procedure began upon approval of the proposal after its defense. An introduction letter was issued from the department for consent to collect data from the respondents. The researcher was to employ a research assistant to assist with data collection. The permit for the study was sought from the Ministry of Education headquarters in Nairobi, State Department of Technical and Vocational Training through the assistance of the centre for extra- mural education, University of Nairobi (UoN). Using the permit and an introductory letter from UoN, the researcher was able to seek permission from the principals of the two TVET institutions to conduct the research. The HODs were used to identify lecturers in their departments and students who are to participate in the study. The questionnaires were administered with the help of research assistants for a period of three months.

3.7 Data analysis techniques

Descriptive data collected was analyzed, interpreted and inferred through triangulation of information. The identified independent variables were analyzed through review of questionnaires from the target population interviewed. Before processing the responses, the completed questionnaires are to be checked for completeness and comprehensibility to ensure consistency. The data was summarized, coded and entered into the Statistical Package for Social Sciences (SPSS) version 21 for analysis to enable the responses to be grouped into various categories. Data was analyzed using composite mean which was computed by getting the

average of the entire mean ranging from 1-5. Anything above the average influenced implementation of QMS, while anything below the average did not influence implementation of QMS. Data was then processed and presented using tables. Quantitative data collected was ordinal and data presentation was done by the use of tables and percentages.

3.8 Ethical considerations

The ethical issues were considered, particularly in regard to, data collection during the study. The researcher is to treat the respondents with high levels of respect. The data obtained is only to be used for research purposes only. The consent of the respondents was also sought before giving them the questionnaires. The information collected was treated with confidentiality.

3.9 Operationalization of the variables

The measurement of variables in this study and their quantitative indicators are illustrated in the Table 3.2.

Table 3.2: Operationalization of the variables

Objective	Type of Variable	Indicator	Measurement	Measurement Scale	Research Approach	Data Analysis
To establish the influence of resource availability on quality management system of public technical and vocational education and training institutions in Kenya	Independent Variable Resource availability	-Physical facilities -Availability of funds -Human resource	-Adequacy of facilities -Smooth running of the institution -No. of human resource -Qualifications of human resource	-Ordinal	Quantitative	Descriptive Statistics
To determine the influence of employee training on quality management system of public technical and vocational education and training institutions in Kenya	Independent Variable Employee training	-Filing system -Record keeping system -No. of employees trained on ISO	-Trained personnel on office record filing -Easy retrieval of records -No. of staff who understand what ISO certification	-Ordinal	Quantitative	Descriptive Statistics
To examine the influence of top management skills on	Independent Variable Top	-Analyzing & Interpreting	-Knowledge on data analysis -Knowledge on	-Ordinal	Quantitative	Descriptive Statistics

quality management system of public technical training institutes in Kenya	management skills	statistical data -Continuous monitoring & Evaluation of ISO -Financial skills -ISO auditing skills	interpretation of statistical data -Frequent monitoring and evaluation of ISO standards -Budget implementation - No. trained on ISO			
To examine how information technology influence quality management system of public technical training institutes in Kenya	Independent Variable Information technology	-Availability of IT infrastructure; <ul style="list-style-type: none"> • Computers • Hotspots -Computerization of services being offered; <ul style="list-style-type: none"> • Admissions • Exams • Fees payment collection 	-No. of computers -Access to internet services and wifi -Online registration of students -Online access of fees statements and examination results -Online access to admission letter	-Ordinal	Quantitative	Descriptive Statistics

<p>To determine the factors influencing implementation of quality management system in public technical training institutes in Kenya</p>	<p>Dependent Variable Implementation of quality management system</p>	<p>-Customer satisfaction -Corporate image -Quality of performance in examination -Student completion rates</p>	<p>-No. of customers complaints -Performance in national examination -No. of graduates -No. of drop outs</p>	<p>-Ordinal</p>	<p>Quantitative</p>	<p>Descriptive statistics</p>
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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter highlights the analysis, presentation and interpretation of the empirical data as well as the findings of the study. The purpose of the study was to investigate the factors influencing implementation of quality management system in public TVET institutions in Nairobi County, Kenya. The raw data collected was summarized, edited, coded and organized in appropriate themes and analyzed using Statistical Package for Social Sciences (SPSS) version 21 for analysis to enable the response be grouped into various categories. Quantitative technique of data analysis was used. Quantitative data collected was ordinal and was analyzed using composite mean which was computed by getting the average of the entire mean. Anything above the average influenced implementation of QMS, while anything below the average did not influence implementation of QMS. Data presentation was done by use of tables and percentages since percentages have considerable advantage over more complex statistics because they are easy to interpret (Piel, 1995).

4.2 Questionnaire return rate

A total of 285 questionnaires were administered to the respondents out of which 78 were lecturers while 207 were for students. However, out of the 285, only 265 were received, thus the response rate was 92.98%. According to Mugenda and Mugenda (2003), a response rate of 60% is good, while that of 70% and above is very good. Since the response rate was over 60%, it was sufficient to proceed with data analysis.

4.3 Students Response

The students' data response was analyzed as follows;

4.3.1 Quality Management System

The aim here was to explain how the concept of QMS influences its implementation in public TVET institutions.

4.3.1.1 Customer satisfaction

The respondents were asked to rate how customer satisfaction influence implementation of quality management system. The results are presented in Table 4.1.

Table 4.1 Customer satisfaction

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std deviation
Our institution offer customers quality service	13.2% (25)	11.6% (22)	15.3% (29)	42.9% (81)	16.9% (32)	1.00	5.00	3.3862	1.26912
The top management strives to ensure that all customers are served satisfactorily	11.6% (22)	16.4% (31)	14.8% (28)	43.9% (83)	13.2% (25)	1.00	5.00	3.3069	1.22952
The students are satisfied with the institution's customer service	20.6% (39)	20.6% (39)	17.5% (33)	30.2% (57)	11.1% (21)	1.00	5.00	2.9048	1.33346
Composite Mean									3.1993

Results in Table 4.1 indicate that majority of the respondents 59.8% (113) agreed that their institution offer customers' quality service, 15.3% (29) were not sure, while 24.8% (47) disagreed.

The top management was also found to strive to ensure that all customers are served satisfactorily where 57.1% (108), agreed, 14.8% (28) were not sure, while 28% (53) disagreed.

Students were found not to be satisfied with the institution's customer service where 41.3% (78) agreed, 17.5% (33) were not sure, while 41.2% (78), disagreed.

The findings clearly indicate that quality service offered by the institutions and strive by top management to ensure all customers are served satisfactorily influence implementation of QMS TVET institutions, while satisfaction of the students with the institutions customer service does not influence implementation of QMS in TVET institutions.

Analysis was made on a scale of (1), (2), (3), (4), (5), where (1) represent strongly disagree, (2) disagree, (3) not sure, (4) agree and (5) strongly agree.

4.3.1.2 Corporate image

The respondents were asked to rate how corporate image influence implementation of quality management system. The results are presented in Table 4.2.

Table 4.2: Corporate image

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
Our institution is recognized national wide on good performance	6.3% (12)	4.8% (9)	11.6% (22)	36.5% (69)	40.7% (77)	1.00	5.00	4.0053	1.13689
Our institution is a top player in the TVET sector	9.0% (17)	5.8% (11)	13.8% (26)	32.8% (62)	38.6% (73)	1.00	5.00	3.8624	1.24717
Our programs are highly competitive in the job market	5.3% (10)	4.2% (8)	9.0% (17)	38.6% (73)	42.9% (81)	1.00	5.00	4.0952	1.07754
Our institution has a good corporate image.	(7.4% (14)	4.8% (9)	16.4% (31)	37.0% (70)	34.4% (65)	1.00	5.00	3.8624	1.16332
Composite Mean								3.9563	

Results displayed in Table 4.2 indicate that the institution is recognized national wide on good performance where 77.2% (146), agreed, 11.6% (22) are not sure, while 11.1% (21) disagreed.

The institution was also found to be a top player in the TVET sector where 71.4% (135) agreed, 13.8% (26) were not sure, while another 14.8% (28), disagreed.

Majority, 81.5% (154), also agreed that the programs are highly competitive in the job market, 9.0% (17) were not sure, while 9.5% (18) disagreed.

On institutions good corporate image where 71.4% (135) agreed, 16.4% (31) were not sure, while 12.2% (23), disagreed.

It is evident that corporate image influence implementation of QMS in TVET institutions.

4.3.1.3 Quality of performance in examination

The respondents were asked to rate how quality of performance in examination influence implementation of quality management system. The results are presented in Table 4.3.

Table 4.3: Quality of performance in examination

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
Our graduates good performance in examination is reflected in their good performance in the job market	5.3% (10)	4.2% (8)	11.6% (22)	42.3% (80)	36.5% (69)	1.00	5.00	4.0053	1.06440
Our students perform better than other institutions in the final exams	4.2% (8)	4.8% (9)	14.8% (28)	43.4% (82)	32.8% (62)	1.00	5.00	3.9577	1.02537
The number of students failing the final exam have reduced close to zero	13.8% (26)	19.0% (36)	22.2% (42)	28.6% (54)	16.4% (31)	1.00	5.00	3.1481	1.29206
Composite Mean								3.7037	

From Table 4.3, majority of the respondents 78.8% (149), agreed that graduate's good performance in examination is reflected in their good performance in the job market, 11.6% (22) were not sure, while 9.5% (18) disagreed.

Students were also found to perform better than other institutions in the final exams where 76.2% (144), agreed, 14.8% (28) were not sure, while 9.0% (17) disagreed.

However, 45% (85) agreed that the number of students failing the final exam had still not reduced close to zero, 22.2% (42) were not sure and another 32.8% (62) disagreed.

From the findings, it is evident that graduates good performance in examination which is reflected in their good performance in the job market and students performance in the final examination better than other institutions influence implementation of QMS in TVET institutions. On the other hand, students failing exam having reduced close to zero did not influence implementation of QMS in TVET institutions.

4.3.1.4 Students completion rate

The respondents were asked to rate how students completion rate influence implementation of quality management system. The results are presented in Table 4.4.

Table 4.4: Students completion rate

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
Student completion rate is 100% from the enrolled register	19.0% (36)	28.0% (53)	21.7% (41)	20.6% (39)	10.6% (20)	1.00	5.00	2.7566	1.27330
Student complete their courses within the timelines projected on their curriculum	13.2% (25)	14.8% (28)	15.9% (30)	33.3% (63)	22.8% (43)	1.00	5.00	3.3757	1.33753
Student dropout rate is low compared to other institutions	8.5% (16)	11.6% (22)	25.4% (48)	34.9% (66)	19.6% (37)	1.00	5.00	3.4550	1.17796
Composite Mean								3.1958	

From the results in Table 4.4, few of the respondents 31.2% (59) agreed that the student completion rate is 100% from the enrolled register, 21.7% (41) were not sure and 47% (89) disagreed.

Majority of the respondents 56.1% (106) agreed that students complete their courses within the timelines projected on their curriculum, 15.9% (30) were not sure, while another 28% (53) disagreed.

Further, the student's dropout rate was found to be low compared to other institutions where 54.5% (103) agreed, 25.4% (48) were not sure, while 20.1% (38) disagreed.

It is evident that student completion rate is below 100%, hence does not influence implementation of QMS in TVET institutions. However, timeliness within which students complete their courses is projected in the curriculum and also student dropout rate is low compared to other institution, hence influence the implementation of QMS in TVET institutions.

4.3.2 Resource availability

The aim here was to establish how resource availability influences implementation of QMS in public TVET institutions.

4.3.2.1 Physical facilities

The respondents were asked to rate how physical facilities influence implementation of quality management system. The results are presented in Table 4.5.

Table 4.5: Physical facilities

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
We have enough lecture/ class rooms in our institution	32.8% (62)	30.2% (57)	10.6% (20)	17.5% (33)	9.0% (17)	1.00	5.00	2.3968	1.33934
We have enough laboratories/ workshop rooms in our institution	27.5% (52)	28.0% (53)	12.2% (23)	20.6% (39)	11.6% (22)	1.00	5.00	2.6085	1.38192
There are enough recreation facilities for students in our institution	39.2% (74)	24.9% (47)	10.6% (20)	18.0% (34)	7.4% (14)	1.00	5.00	2.2963	1.34364
Composite Mean								2.4339	

Results in Table 4.5 indicate that lecture/ class rooms were found to be inadequate where 26.5% (50) agreed, 10.6% (20) were not sure and another 63% (119) disagreed.

Further, 32.2% (61) agreed that laboratories/ workshop rooms were inadequate, 12.2% (23) were not sure, while 55.5% (105) disagreed.

On recreation facilities, 25.4% (48) agreed that there are enough for students, 10.6% (20) were not sure, while 64.1% (121) disagreed.

It is evident there are no enough physical facilities in the institution, hence does not influence implementation of QMS in TVET institutions.

4.3.2.2. Availability of funds

The respondents were asked to rate how availability of funds influence implementation of quality management system. The results are presented in Table 4.6.

Table 4.6: Availability of funds

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std deviation
There is sufficient funds to run our institution	16.4% (31)	16.9% (32)	23.3% (44)	21.7% (41)	21.7% (41)	1.00	5.00	3.1534	1.37715
Our management team is able to mobilize funds for the smooth running of the institution.	15.9% (30)	18.0% (34)	18.5% (35)	33.9% (64)	13.8% (26)	1.00	5.00	3.1164	1.30351
There are no stagnated projects due to lack of finances in our institution	20.6% (39)	11.1% (21)	24.3% (46)	25.9% (49)	18.0% (34)	1.00	5.00	3.0952	1.38435
Composite Mean								3.1217	

Results displayed in Table 4.6 indicate that few of the respondents 43.4% (82) agreed that there are sufficient funds to run the institution, 23.3% (44) were not sure, while 33.3% (63) disagreed.

The management team was also found not to be able to mobilize funds for the smooth running of the institution where 47.7% (90) agreed, 18.5% (35) were not sure, while 33.9% (64) disagreed.

On stagnated projects, 43.9% (83) agreed that there were no stagnated projects due to lack of finances, 24.3% (46) were not sure and 31.7% (60) disagreed.

From the results, it is evident that availability of funds does not influence implementation of QMS in TVET institutions.

4.3.2.3 Human resource

The respondents were asked to rate how human resource influence implementation of quality management system. The results are presented in Table 4.7.

Table 4.7: Human resource

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
Our institution have highly qualified professionals in various fields	11.6% (22)	6.3% (12)	8.5% (16)	50.8% (96)	22.8% (43)	1.00	5.00	3.6667	1.22908
We have adequate number of staff serving our institution	16.4% (31)	15.9% (30)	15.9% (30)	36.0% (68)	15.9% (30)	1.00	5.00	3.1905	1.33517
There is very low staff turnover in our institution	13.8% (26)	23.3% (44)	18.0% (34)	27.5% (52)	17.5% (33)	1.00	5.00	3.1164	1.32376
Composite Mean									3.3245

Table 4.7 shows that majority of the respondents 73.6% (139) agreed that the institution had highly qualified professionals in various fields, 8.5% (16) were not sure, while 17.9% (34) disagreed.

They further agreed that the institution had adequate number of staff where 51.9% (98) agreed, 15.9% (30) were not sure, while 32.3% (61) disagreed.

On staff turnover, 45% (85) agreed that staff turnover is low, 18.0% (34) were not sure, while 37.1% (70) disagreed.

From the findings, it is evident that highly qualified professionals in various fields and adequate number of staff serving the institution influence implementation of QMS in TVET institutions. However, low staff turnover did not influence implementation of QMS in TVET institutions.

4.3.3 Employee training

The aim here was to establish how employee training influence implementation of QMS in public TVET institutions.

4.3.3.1 Record keeping system

The respondents were asked to rate how record keeping system influence implementation of quality management system. The results are presented in Table 4.8.

Table 4.8: Record keeping system

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
Our staff are well trained on record keeping system	22.2% (42)	15.3% (29)	19.6% (37)	27.0% (51)	15.9% (30)	1.00	5.00	2.9894	1.39905
Our record keeping system is excellent	20.6% (39)	19.0% (36)	17.5% (33)	33.3% (63)	9.5% (18)	1.00	5.00	2.9206	1.31645
Our personal records can be easily retrieved	21.2% (40)	19.0% (36)	14.3% (27)	32.3% (61)	13.2% (25)	1.00	5.00	2.9735	1.37776
It takes very short time to retrieve missing marks in our institution	31.7% (60)	15.9% (30)	14.8% (28)	28.6% (54)	9.0% (17)	1.00	5.00	2.6720	1.40603
Our payment data are properly captured and updated	12.2% (23)	15.3% (29)	15.9% (30)	33.9% (64)	22.8% (43)	1.00	5.00	3.3968	1.31933
Composite Mean								2.9905	

Results in Table 4.8 indicate that few respondents 42.9% (81) agreed that staff are well trained on record keeping system, 19.6% (37) were not sure, while another 37.5% (71) disagreed.

Record keeping system was found not to be excellent where only 42.8% (81) agreed, 17.5% (33) were not sure, while 39.6% (75) disagreed.

Further, 45.5% (86) agreed that personal records can be easily retrieved, 40.2% (76) disagreed, while 14.3% (27) were not sure.

On missing marks, 37.6% (71) agreed that retrieval takes a short time, 14.8% (28) were not sure and 47.6% (90) disagreed.

On proper capturing and updating of payment data, 56.7% (107) agreed, 15.9% (30) were not sure and 27.5% (52) disagreed.

It is evident that well trained staff on record keeping system, excellent recording keeping system, easy retrieval of personal records and time taken to retrieve missing marks in the institution does not influence implementation of QMS in TVET institutions. However, proper capturing and updating of payment influence implementation of QMS in TVET institutions.

4.3.4 Information technology

The aim here was to establish how information technology influences implementation of QMS in public TVET institutions.

4.3.4.1 Availability of IT infrastructure

The respondents were asked to rate how availability of IT infrastructure influence implementation of quality management system. The results are presented in Table 4.9.

Table 4.9: Availability of IT infrastructure

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
We have adequate number of computers in our computer laboratory for students use.	38.1% (72)	22.2% (42)	14.8% (28)	12.2% (23)	12.7% (24)	1.00	5.00	2.3915	1.41989
There is sufficient internet connectivity in our institution to facilitate student research	56.1% (106)	20.6% (39)	6.3% (12)	10.6% (20)	6.3% (12)	1.00	5.00	1.9048	1.27222
Our institution has the most recent technology	39.7% (75)	19.0% (36)	18.5% (35)	15.9% (30)	6.9% (13)	1.00	5.00	2.3122	1.32204
Our lecturers use different technologies during class instruction and lectures.	43.4% (82)	20.1% (38)	12.7% (24)	17.5% (33)	6.3% (12)	1.00	5.00	2.2328	1.33639
All students can access wifi as well as internet services in our institution	64.0% (121)	14.8% (28)	6.3% (12)	9.5% (18)	5.3% (10)	1.00	5.00	1.7725	1.23171
The students are trained on how to use technology to get important information such as exam results, fees statements etc	54.5% (103)	14.3% (27)	11.6% (22)	12.7% (24)	6.9% (13)	1.00	5.00	2.0317	1.34047
								2.1076	
Composite Mean									

Results displayed in Table 4.9 indicate that there was no adequate number of computers in the computer laboratory for students use, where only 24.9% (47) agreed, 60.3% (114) disagreed, while 14.8% (28) was not sure.

Internet connectivity was found to be insufficient to facilitate student research where only 16.9% (32) agreed, 76.7% (145) disagreed while 6.3% (12) were not sure.

Further, only 22.8% (43) agreed that the institution had the most recent technology while 58.7% (111) disagreed and 18.5% (35) were not sure.

On use of different technologies by lecturers during class instruction and lectures, 23.8% (45) agreed, 12.7% (24) were not sure and 63.5% (120) disagreed.

On wifi access as well as internet service by all the students, majority of the respondents 78.8% (149) disagreed, 6.3% (12) were not sure and only 14.8% (28) agreed.

On students training on use of technology to get important information, majority of the respondents 68.8% (130) disagreed, while 19.6% (37) agreed and 11.6% (22) were not sure.

It is evident that availability of IT infrastructure does not influence implementation of QMS in TVET institutions.

4.3.4.2 Computerization of services

The respondents were asked to rate how computerization of services influence implementation of quality management system. The results are presented in Table 4.10.

Table 4.10: Computerization of services

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Min	Max	Mean	Std Deviation
Students are able to register and book units online	55.6% (105)	11.6% (22)	13.8% (26)	11.1% (21)	7.9% (15)	1.00	5.00	2.0423	1.36378
Students can access various services such as fees statements and examination results easily.	42.3% (80)	18.0% (34)	11.6% (22)	16.9% (32)	11.1% (21)	1.00	5.00	2.3651	1.44732
Students get regular updates through internet regarding our institution scheduled events	51.9% (98)	16.4% (31)	6.9% (13)	18.0% (34)	6.9% (13)	1.00	5.00	2.1164	1.38656
Our website is attractive	41.8% (79)	15.9% (30)	14.3% (27)	21.2% (40)	6.9% (13)	1.00	5.00	2.3545	1.38235
Our website is regularly updated	38.6% (73)	16.4% (31)	19.6% (37)	19.0% (36)	6.3% (12)	1.00	5.00	2.3810	1.33403
Our online admission service is user friendly to students	42.9% (81)	16.9% (32)	19.0% (36)	14.3% (27)	6.9% (13)	1.00	5.00	2.2540	1.32450

Table 4.10 shows results on computerization of services where majority of the respondents 67.2% (127) disagreed that students are able to register and book units online, 19% (36) agreed and 13.8% (26) were not sure.

On easy access of various services such as fees statements and examination results by students, 28% (53) agreed, 11.6% (22) were not sure, while 60.3% (114) disagreed.

Further, majority of the respondents 68.3% (129) disagreed that students get regular updates through internet regarding the institutions scheduled events, 24.9% (47) agreed and 6.9% (13) were not sure.

The website was found not to be attractive where only 28.1% (53) agreed, 14.3% (27) were not sure and 57.7% (109) disagreed.

On regular update of the website, 25.3% (48) agreed, 19.6% (37) were not sure, while 55% (104) disagreed.

Online admission service was found not to be user friendly to students where only 21.2% (40) agreed, 19% (36) were not sure, while 59.8% (113) disagreed.

The results clearly indicate that computerization of services is still low and thus does not influence implementation of QMS in TVET institutions.

4.4 Lecturers Response

The lecturers' data response was analyzed as follows;

4.4.1 Quality Management System

The aim here was to explain how the concept of QMS influences its implementation in public TVET institutions.

4.4.4.1 Customer satisfaction

The respondents were asked to rate how customer satisfaction influence implementation of quality management system. The results are presented in Table 4.11.

Table 4.11: Customer satisfaction

	N	Min	Max	Mean	Std. Deviation
We give our customers quality service	76	1.00	5.00	3.9868	.94507
The top management strives to ensure that all customers both internal and external are served satisfactorily	76	1.00	5.00	3.9605	.90097
Many of our new customers are referrals from previous and existing customers	76	1.00	5.00	3.4474	.98515
There are no complaints from our customers	76	1.00	5.00	2.4868	1.07695
Composite mean				3.4704	

Results in Table 4.11 indicate that customers get quality service with a mean value of 3.9868

Top management was also found to strive to ensure that all customers both internal and external are served satisfactorily with a mean value of 3.9605.

Further, many of the new customers were found not to be referrals from previous and existing customers whose mean value stood at 3.4474.

However, complaints from their customers still existed with a mean value of 2.4868.

From the findings, it is evident that quality services offered to customers and strive by top management to ensure both internal and external customers are served satisfactorily influence implementation of QMS in TVET institutions, while referrals of new customers by previous customers and complaints from customers did not influence implementation of QMS in TVET institutions.

4.4.4.2 Corporate image

The respondents were asked to rate how corporate image influence implementation of quality management system. The results are presented in Table 4.12.

Table 4.12: Corporate image

	N	Min	Max	Mean	Std. Deviation
Our institution is recognized nationwide on good performance	76	1.00	5.00	4.1053	1.04024
Our institution is a top player in the Technical Training sector	76	1.00	5.00	4.1579	.93883
Our programs are highly competitive in the market	76	1.00	5.00	4.1447	.90486
Our institution has a good corporate image	76	1.00	5.00	4.0263	.84811
Composite mean				4.1086	

Results displayed in Table 4.12 indicate that institution is not recognized nationwide on good performance with a mean of 4.1053.

However, it was noted that the institution is a top player in the technical training sector with a mean value of 4.1579.

Programs were found to be highly competitive in the market with a mean value of 4.1447.

Institutions were also found to lack good corporate image with a mean value of 4.0263.

From the findings, it is evident that institutions being a top player in the technical training sector and offering highly competitive programs in the market influence implementation of QMS in TVET institutions. However, nationwide recognition on good performance and corporate image does not influence implementation of QMS in TVET institutions.

4.4.4.3 Quality performance in examination

The respondents were asked to rate how quality performance in examination influence implementation of quality management system. The results are presented in Table 4.13.

Table 4.13: Improved quality of performance in examination

	N	Min	Max	Mean	Std. Deviation
Generally there has been improved exam performance over the last five years	76	1.00	5.00	4.0658	.92859
Our graduates are competitive in the labor market	76	1.00	5.00	4.0789	.81262
Our students perform better than other institutions in the final exams	76	1.00	5.00	3.7237	1.05323
The number of students failing the final exam has reduced close to zero	76	1.00	5.00	2.9079	1.12164
Composite mean				3.6941	

Results from Table 4.13 shows that the results indicate that respondents agreed that there has been improved exam performance over the last five years with a mean value of 4.0658.

The graduates were also found to be competitive in the labor market with a mean value of 4.0789.

Further, it was noted that students perform better than other institutions in the final exams with a mean value of 3.7237.

However, the respondents disagreed that the number of students failing the final exam has reduced close to zero with a mean value of 2.9079.

From the findings, it is evident that improved exam performance over the last five years, graduates being competitive in the labor market and students better performance in final exams than other institutions influence implementation of QMS in TVET institutions. However, the number of students failing the final exam reduced close to zero does not influence implementation of QMS in TVET institutions.

4.4.4.4 Students completion rate

The respondents were asked to rate how students completion rate influence implementation of quality management system. The results are presented in Table 4.14.

Table 4.14: Students completion rate

	N	Min	Max	Mean	Std. Deviation
Our students completion rate is 100% from the enrolled register	76	1.00	5.00	2.7500	1.07238
All our students complete their courses within the time frame projected on their curriculum	76	1.00	5.00	3.1974	1.14333
Our student dropout rate is low compared to other institutions	76	1.00	5.00	3.6184	1.03237
All projects undertaken by the institution are completed within the expected timelines	76	1.00	5.00	3.1974	1.24386
Composite mean				3.1908	

Results in Table 4.14 indicate that the respondents disagreed that the student completion rate is 100% from the enrolled register with a mean value of 2.7500.

Further, they agreed that students complete their courses within the timeframe projected in their curriculum with a mean value of 3.1974.

Dropout rate was also found to be low compared to other institutions with a mean value of 3.6184.

The respondents further disagreed that the projects undertaken by the institution are completed within the expected timelines with a mean value of 3.1774.

It is therefore evident that the timeframe within which students complete their courses as projected in the curriculum and low student dropout rate compared to other institutions influence implementation of QMS in TVET institutions. However, timelines within which the projects undertaken by the institutions are completed and 100% student completion rate from the enrolled register does not influence implementation of QMS in TVET institutions.

4.4.2 Resource availability

The aim here was to establish how resource availability influences implementation of QMS in public TVET institutions.

4.4.2.1 Physical facilities

The respondents were asked to rate how physical facilities influence implementation of quality management system. The results are presented in Table 4.15.

Table 4.15: Physical facilities

	N	Min	Max	Mean	Std. Deviation
We have enough lecture/ classrooms in our institution	76	1.00	5.00	2.6842	1.27761
We have enough laboratories/ workshop rooms in our institution	76	1.00	5.00	2.8289	1.24781
There are enough offices for the teaching and non-teaching staff in our institution	76	1.00	5.00	2.6711	1.08797
There are enough facilities to support various activities in our institution	76	1.00	5.00	2.9474	1.11827
Composite mean				2.7829	

From Table 4.15, results indicate that disagreed that there is enough lecture halls/ classroom with a mean value of 2.6842.

On the other hand, they agreed that there are enough laboratories/ workshop rooms with a mean value of 2.8289.

Further, the respondents disagreed that offices for the teaching and non-teaching staff are enough with a mean value of 2.6711.

Lastly, they agreed that there are enough facilities to support various activities within the institution whose mean value stood at 2.9474.

From the findings, it is evident that enough laboratories/ workshop rooms and enough facilities to support various activities within the institution influence implementation of QMS in TVET institutions. However, inadequate lecture halls/ classroom and inadequate offices for teaching and non-teaching staff do not influence implementation of QMS in TVET institutions.

4.4.2.2 Availability of funds

The respondents were asked to rate how availability of funds influence implementation of quality management system. The results are presented in Table 4.16.

Table 4.16: Availability of funds

	N	Min	Max	Mean	Std. Deviation
There is sufficient funds to run our institution	76	1.00	5.00	3.0658	.99780
Our management team is able to mobilize funds for the smooth running of the institution.	76	1.00	5.00	3.6053	.93920
There are no stagnated projects due to lack of finances in our institution	76	1.00	5.00	3.0132	1.33160
Composite mean				3.2281	

From the results in Table 4.16, respondents disagreed that there is sufficient funds to run the institution with a mean value of 3.0658.

They further disagreed that there are no stagnated projects due to lack of finances with a mean value of 3.0132.

However, they agreed that the management team was able to mobilize funds for the smooth running of the institution with a mean value of 3.6053.

From the findings, it is evident that mobilization of funds by the management team for the smooth running of the institution influence implementation of QMS in TVET institutions. On the other hand, insufficient funds to run the institution and stagnated projects due to lack of finances do not influence implementation of QMS in TVET institutions.

4.4.2.3 Human resource

The respondents were asked to rate how human resource influence implementation of quality management system. The results are presented in Table 4.17.

Table 4.17: Human resource

	N	Min	Max	Mean	Std. Deviation
Our institution has the best professionals in various fields	76	1.00	5.00	4.0132	.97288
All our staff are highly qualified in their area of specialization	76	1.00	5.00	4.0000	.96609
We have enough staff serving our institution	76	1.00	5.00	2.8947	1.20642
There is very low staff turnover in our institution	76	1.00	5.00	3.2763	1.19553
Our staff is highly motivated to serve our institution	76	1.00	5.00	3.1579	1.28637
Composite mean				3.4684	

Results in Table 4.17 indicate that the respondents agreed that the institution has the best professionals in various fields with a mean value of 4.0132.

Further, they agreed that all the staff are highly qualified in their area of specialization with a mean value of 4.0000.

However, they disagreed that there is enough staff serving the institution with a mean value of 2.8947.

They further disagreed that there was very low staff turnover in the institution with a mean value of 3.2763.

On staff motivation, they disagreed that staff are highly motivated to serve the institution with a mean value of 3.1579.

It is evident that best professionals in various academic fields and highly qualified staff in area of specialization do influence implementation of QMS in TVET institutions. However, enough staff serving the institution and low staff turnover does not influence implementation of QMS in TVET institutions.

4.4.3 Teaching staff training

The aim here was to establish how teaching staff training influences implementation of QMS in public TVET institutions.

4.4.3.1 Filing system

The respondents were asked to rate how filing system influence implementation of quality management system. The results are presented in Table 4.18.

Table 4.18: Filing system

	N	Min	Max	Mean	Std. Deviation
Every staff in our institution has basic filing skills	76	1.00	5.00	3.2368	1.12982
Our institution has training program on electronic filing system for all staff	76	1.00	5.00	2.1842	1.10406
Every office has trained personnel on office records filing	76	1.00	5.00	3.0526	1.25321
There is need for everyone to be trained on filing in our institution	76	1.00	5.00	4.2632	.94331
Composite mean				3.1842	

Results in Table 4.18 shows that the respondents agreed that every staff in the institution had basic filing skills with a mean value of 3.2368.

On training program on electronic filing system for all staff, the respondents disagreed with a mean value of 2.1842.

They further disagreed that every office has trained personnel on office records filing whose mean value was 3.0526.

However, they agreed that there is need for everyone to be trained on filing whose mean value stood at 4.2632.

From the results, it is evident that basic filing skills possessed by every staff and need for every staff to be trained on filing influence implementation of QMS in TVET institutions. However, training program on electronic filing system for all staff and training of every office personnel on office records filing does not influence implementation of QMS in TVET institutions.

4.4.3.2 Record keeping system

The respondents were asked to rate how record keeping system influence implementation of quality management system. The results are presented in Table 4.19.

Table 4.19: Record keeping system

	N	Min	Max	Mean	Std. Deviation
Our record keeping system is excellent	76	1.00	5.00	3.1447	1.15128
Every office has highly qualified personnel managing records	76	1.00	5.00	2.9342	1.19259
All staff are trained on electronic record keeping	76	1.00	5.00	2.3684	1.16438
Our institution has record keeping training for all new staff	76	1.00	5.00	2.2368	1.16469
Composite mean				2.6710	

Results in Table 4.19 indicate that the respondents agreed that record keeping system was excellent with a mean value of 3.1447.

They further agreed that every office had highly qualified personnel managing the records whose mean value stood at 2.9342.

On the other hand, they disagreed that all staff are trained on electronic record keeping with a mean value of 2.3684.

They further disagreed that the institutions do have record keeping training for all new staff with a mean value of 2.2368.

It is evident from the results that excellent record keeping system and highly qualified personnel in every office managing the records influence implementation of QMS in TVET institutions. However, staff training on electronic record keeping and having record keeping training for all new staff does not influence implementation of QMS in TVET institutions.

4.4.3.3 Employees training on ISO

The respondents were asked to rate how employees training on ISO influence implementation of quality management system. The results are presented in Table 4.20.

Table 4.20: Employees training on ISO

	N	Min	Max	Mean	Std. Deviation
Our institution follows ISO standards in all operations	76	1.00	5.00	3.9868	1.07695
Every staff in our institution has undergone ISO certification training	76	1.00	5.00	3.4474	1.22632
Staff are trained to operationalize ISO standards in their roles	76	1.00	5.00	3.8947	1.02735
Every staff understands what ISO certification means in regard to our institution operations	76	1.00	5.00	3.8947	.93208
Composite mean				3.8059	

Findings from Table 4.20 indicate that the respondents agreed that the institution follows ISO standards in all operations with a mean value of 3.9868.

However, they disagreed that every staff had undergone ISO certification training whose mean value stood at 3.4474.

They also agreed that staffs are trained to operationalize ISO standards in their roles with a mean value of 3.8947.

They further agreed that every staff understands what ISO certification means in regard to the institution operations whose mean value stood at 3.8947.

From the results, it is evident that following of ISO standards by institutions in all operations, training of staff to operationalize ISO standards in their roles and understanding ISO certification by all staff influence implementation of QMS in TVET institutions. However, failure in training every staff in ISO certification does not influence implementation of QMS in TVET institutions.

4.4.4 Top management skills

The aim here was to establish how top management skills influence implementation of QMS in public TVET institutions.

4.4.4.1 Analyzing & interpreting statistical data

The respondents were asked to rate how analyzing & interpreting statistical data influence implementation of quality management system. The results are presented in Table 4.21.

Table 4.21: Analyzing & interpreting statistical data

	N	Min	Max	Mean	Std. Deviation
Our top management team has adequate knowledge on data analysis using various statistical tools	76	1.00	5.00	3.2632	.95734
Our top management have analytical skills	76	1.00	5.00	3.3553	.87489
Our top management are able to interpret statistical data	76	1.00	5.00	3.4737	.84022
Our top management uses statistical data analysis in decision making	76	1.00	5.00	3.3553	.82791
Composite mean				3.3619	

Results in Table 4:21 show that the respondents disagreed that the top management team has adequate knowledge on data analysis using various statistical tools with a mean value of 3.2632. They also disagreed that top management have analytical skills whose mean value stood at 3.3553.

However, they agreed that top management is able to interpret statistical data with a mean value of 3.4737.

Further, they disagreed that top management uses statistical data analysis in decision making with a mean value of 3.3553.

It is evident that inadequate knowledge by top management on data analysis using various statistical tools, lack of analytical skills by top management and use of statistical data analysis by top management in decision making does not influence implementation of QMS in TVET institutions. However, interpretation of statistical data by top management influences implementation of QMS in TVET institutions.

4.4.4.2 Continuous monitoring & evaluation of ISO

The respondents were asked to rate how continuous monitoring & evaluation of ISO influence implementation of quality management system. The results are presented in Table 4.22.

Table 4.22: Continuous monitoring & evaluation of ISO

	N	Min	Max	Mean	Std. Deviation
It is the duty of our top management team to monitor and evaluate ISO standards within our institution	76	1.00	5.00	3.9605	.94433
Our top management is trained on monitoring and evaluation with regards to ISO standards	76	1.00	5.00	4.0000	.83267
Our top management observes ISO standards keenly in their daily performance	76	1.00	5.00	3.8026	1.03305
Composite mean				3.9210	

Results displayed in Table 4.22 indicate that the respondents agreed that it is the duty of top management team to monitor and evaluate ISO standards in the institution with a mean value of 3.9605.

They further agreed that top management is trained on monitoring and evaluation with regards to ISO standards whose mean value stood at 4.0000.

However, they disagreed that top management observes ISO standards keenly in their daily performance with a mean value of 3.8026.

From the findings, it is evident that monitoring and evaluating ISO standards by the top management team and training of top management on monitoring and evaluation with regards to ISO standards influence implementation of QMS in TVET institutions. However, observation of ISO standards by top management in their daily performance does not influence implementation of QMS in TVET institutions.

4.4.4.3 Financial skills

The respondents were asked to rate how financial skills influence implementation of quality management system. The results are presented in Table 4.23.

Table 4.23: Financial skills

	N	Min	Max	Mean	Std. Deviation
Our top management team have financial management skills	76	1.00	5.00	3.6053	.92490
The top management team is able to handle all financial related issues	76	1.00	5.00	3.5526	.85471
The top management team is able to interpret financial statements	76	2.00	5.00	3.6974	.80033
The top management team is able to prepare and implement financial budgets accordingly	76	1.00	5.00	3.7368	.88496
Composite mean				3.6480	

Results in Table 4.23 indicate that the respondents disagreed that top management team have financial skills with a mean value of 3.6053.

They further disagreed that the top management team is able to handle all financial related issues whose mean value stood at 3.5526.

However, they agreed that the top management team is able to interpret financial statements with a mean value of 3.6974.

Further, they agreed that the top management team is able to prepare and implement financial budgets accordingly whose mean value stood at 3.7368.

It is evident that lack of financial management skills and handling of all financial related issues by top management does not influence implementation of QMS in TVET institutions. On the other hand, ability to interpret financial statements as well as preparing and implementing financial budgets by top management team do influence implementation of QMS in TVET institutions.

4.4.4.4 ISO auditing skills

The respondents were asked to rate how ISO auditing skills influence implementation of quality management system. The results are presented in Table 4.24.

Table 4.24: ISO auditing skills

	N	Min	Max	Mean	Std. Deviation
The top management team is adequately trained on ISO auditing	76	1.00	5.00	3.8816	.89394
Our top management audits our ISO standards from time to time	76	2.00	5.00	3.9474	.83098
Composite mean				3.9145	

Results from Table 4.24 indicate that the respondents disagreed that top management team is adequately trained on ISO auditing with a mean value of 3.8816.

However, they agreed that top management audits ISO standard from time to time whose mean value stood at 3.9474.

From the findings, it is evident that inadequate training of top management on ISO auditing does not influence implementation of OMS in TVET institutions while auditing of ISO standards by top management from time to time influence implementation of QMS in TVET institutions.

4.4.5 Information Technology

The aim here was to establish how information technology influences implementation of QMS in public TVET institutions.

4.4.5.1 Availability of IT infrastructure

The respondents were asked to rate how availability of IT infrastructure influence implementation of quality management system. The results are presented in Table 4.25.

Table 4.25: Availability of IT infrastructure

	N	Min	Max	Mean	Std. Deviation
We have enough computers in our offices	76	1.00	5.00	2.5000	1.29099
There is sufficient internet connectivity in our offices	76	1.00	5.00	2.5000	1.23828
Our computers use the most recent technology	76	1.00	5.00	2.7895	1.21453
Our office work have been made easy by use of computers	76	1.00	5.00	3.5000	1.12546
Every staff has access to our LAN as well as internet	76	1.00	5.00	2.7763	1.28165
There are several staff trainings on system and new technology from time to time	76	1.00	5.00	2.6447	1.29310
Composite mean				2.7851	

Results in Table 4.25 indicate that the respondents disagreed that there are enough computers in their offices with a mean value of 2.5000.

They also disagreed that there is sufficient internet connectivity in their offices whose mean value stood at 2.5000.

However, they agreed that their computers use the most recent technology with a mean value of 2.7895.

Further, they agreed that office work has been made easy by use of computers whose mean value stood at 3.5000.

They further disagreed that every staff has access to LAN as well as internet with a mean value of 2.7763.

They also disagreed that there are several staff trainings on system and new technology from time to time whose mean value stood at 2.6447.

It is evident that inadequate computers in the offices, insufficient internet connectivity in the offices, insufficient access to LAN as well as internet by staff and inadequate staff trainings on system and new technology from time to time do not influence implementation of QMS in TVET institutions. However, use of most recent technology in the computers and office work being made easy by use of computers influenced implementation of QMS in TVET institutions.

4.4.5.2 Computerization of services

The respondents were asked to rate how computerization of services influence implementation of quality management system. The results are presented in Table 4.26.

Table 4.26: Computerization of services

	N	Min	Max	Mean	Std. Deviation
There are efforts to go paperless in all services rendered at our offices	76	1.00	5.00	2.8947	1.24984
Students have easy access to services eg fees statements and examination results can be accessed easily	76	1.00	5.00	2.9342	1.23651
Our students can get regular updates through internet regarding our institution eg opening dates, examination dates, closing dates, graduation list etc	76	1.00	5.00	2.8553	1.41142
Our website is regularly updated	76	1.00	5.00	3.1053	1.24984
Our admission online service is user friendly to students	76	1.00	5.00	2.6842	1.29831
Composite mean				2.8947	

Results in Table 4.26 indicate that the respondents agreed that efforts are being made to go paperless in all services rendered in the offices with a mean value of 2.8947.

They further agreed that students do have easy access to services such as fees statements and examination results whose mean value stood at 2.9342.

On the other hand, they disagreed that students do get regular updates through internet regarding opening dates, examination dates, closing dates and graduation list with a mean value of 2.8553.

Further, they agreed that the website is regularly updated with a mean value of 3.1053.

They also disagreed that admission online service is user friendly to students whose mean value stood at 2.6842.

From the results, it is evident that efforts of going paperless in all services rendered in offices, easy access to services such as fees statements and examination results and regular update of the website do influence implementation of QMS in TVET institutions. However, irregular update through internet regarding opening dates, examination dates, closing dates and graduation list as

well as unfriendly admission online service does not influence implementation of QMS in TVET institutions.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter finalizes the study by providing the summary of key findings, discussions, conclusions and recommendations. The summary, discussions, conclusions and recommendations are aligned to the specific objectives of the study.

5.2 Summary of Findings

The purpose of this study was to determine the factors influencing implementation of quality management system in public TVET institutions in Nairobi County, Kenya.

5.2.1 Resource availability

The aim here was to establish how resource availability influences implementation of QMS in public TVET institutions.

On lecture/classrooms, majority of the respondents 63% (119) disagreed that TVET institutions have enough lecture/classrooms while 26.5% (50) agreed that lecture/classrooms were adequate. On recreation facilities for students, 25.4% (48) agreed that the facilities were adequate and another 64.1% (121) disagreed. On laboratories/workshop rooms, few respondents 32.2% (61) agreed that laboratories/workshop rooms are adequate while 55.5% (105) disagreed. So it was clear that physical facilities are inadequate.

On availability of funds, majority of the respondents 43.4% (82) agreed that institutions did not have sufficient funds to run the institution and another 33.3% (63) disagreed. On the other hand, 47.7% (90) agreed that management team is able to mobilize funds for the smooth running of the institution while 33.9% (64) disagreed. It was further found that 43.9% (83) agreed that institutions have stagnated projects due to lack of finances while another 31.7% disagreed on the same. The results clearly showed that availability of funds in TVET institutions is insufficient.

On human resource, it was established that majority of the respondents 73.6% (136) agreed that the institutions have highly qualified professionals in various fields and another 17.9% (34) disagreed. 51.9% (98) further agreed that the number of staff serving the institution is adequate while 32.3% (61) disagreed. On staff turnover, 45% (85) agreed that the turnover is low and another 37.1% (70) disagreed on the same. This clearly implies that human resource in TVET institutions are highly qualified professionals in various fields and the number too is adequate since staff turnover is not very high.

5.2.2 Employee training

The aim here was to establish how employee training influences implementation of QMS in public TVET institutions.

It is established that majority of the respondents 42.9% (81) agreed that staffs are well trained on record keeping system and another 37.5% (71) disagreed. Further, 42.8% (81) agreed that record keeping system is excellent while 39.6% (75) disagreed. On retrieval of personal records, 45.5% (86) agreed that records can be easily retrieved and another 40.2% (76) disagreed. 47.6% (90) of the respondents further disagreed that retrieving missing marks takes a short time while 37.6% (71) agreed. On payment, 56.7% (107) agreed that data are properly captured and updated while 27.5% (52) disagreed. The results clearly showed that training on record keeping as well as retrieval of records and missing marks is still not adequate.

On filing system, majority of the respondents with a mean value of 3.2368 agreed that every staff had basic filing skills. However, a few disagreed that the institution has training program on electronic filing system for all staff as well as every office having trained personnel in office records filing with a mean value of 2.1842 and 3.0526 respectively. Further, they agreed that there is need for everyone to be trained on filing with a mean value of 4.2632. From the findings, it is clear staffs still lacked filing skills.

Findings also indicate that majority of the respondents with a mean value of 3.9868 agreed that the institution follows ISO standards in all operations. They also agreed that staffs are trained to operationalize ISO standards in their roles and at the same time every staff understands what ISO certification means in regard to the institution operations with a mean value of 3.8947. However,

some disagreed that every staff in the institution had undergone ISO certification training with a mean value of 3.4474. The results clearly showed that employees have not undergone ISO certification training even though they are conversant with ISO standards.

5.2.3 Top management skills

The aim here was to establish how top management skills influences implementation of QMS in public TVET institutions.

Results show that top management team does not have adequate knowledge on data analysis using various statistical tools with a mean value of 3.2632. It also established that they lacked analytical skills and does not use statistical data analysis in decision making both with a mean value of 3.3553. However, it was noted that they are able to interpret statistical data with a mean value of 3.4737. This implies top management in public TVET institutions might not able to analyze and interpret statistical data.

Regarding continuous monitoring and evaluation of ISO, the respondents agreed that it is the top management's duty to monitor and evaluate ISO standards and that the top management was trained on monitoring and evaluation in regards to ISO standards with a mean value of 3.9605 and 4.0000 respectively. However, they were found not to observe ISO standards keenly with a mean value of 3.8026.

Findings also indicate that top management team did not have financial management skills and at the same time were not able to handle all financial related issues with a mean value of 3.6053 and 3.5526 respectively. However, they are able to interpret financial statements and prepare and implement financial budgets accordingly with a mean value of 3.7368.

On ISO auditing skills, top management were not adequately trained whose mean value stood at 3.8816, though they audit ISO standards from time to time with a mean value of 3.9474.

5.2.4 Information technology

The aim here was to establish how information technology influences implementation of QMS in public TVET institutions.

Findings indicate that institutions did not have enough computers and internet connectivity was insufficient with a mean value of 2.5000. Few respondents 16.9% (32) agreed that internet

connectivity was sufficient, lecturers use different technologies during class instruction and lectures 23.8% (45) and access to wifi as well as internet service by students 14.8% (28). They however agreed that computers in TVET institutions use the most recent technology with a mean value of 2.7895 and this has made work easy. Majority of the students 68.8% (130) agreed that they are able to use technology to get important information during training. However, not all staff had access to LAN as well as internet with a mean value of 2.7763. Staffs are also not trained on system and new technology from time to time with a mean value of 2.6447. It was clear that IT infrastructure is yet to be integrated in most operations.

On computerization of services, majority of the respondents 67.2% (127) disagreed that students are able register and book units online, access various services such as fees statements and examination results online 60.3% (114). Another 68.3% (129) disagreed that students get regular updates regarding institutions schedule of events through internet, 57.7% (109) disagreed that the website is attractive and updated regularly 55% (104). From the findings, it implies that TVET institutions are not fully computerized.

5.3 Discussion of the Findings

The findings show that most of the respondents indicated that for a successful implementation of QMS in public TVET institutions in Nairobi County, Kenya, resource availability, employee training, top management skills and information technology

5.3.1 Resource availability

Physical facilities like lecture halls/ classrooms and also recreational facilities for students were found to be inadequate, though there was enough laboratories/ workshop rooms in TVET institutions. This concurs with Sang *et al.*, (2012), who observed that there are no enough physical resources in the institution to implement QMS.

Furthermore, institutions were also found to lack sufficient funds to run the institution and this led to stagnation of projects. However, the management was able to mobilize funds for smooth running of the institution. This concurs with Amar and Zain (2002) who observed that insufficient funds and lack of financial support as some of the difficulties encountered in implementation of QMS.

On human resource, it was established that the institution had highly qualified professionals in various fields and the number is adequate. This clearly indicates that for implementation of ISO standards, organizations need to consider the availability of the required resources (Bhuiyan and Alam, 2005).

5.3.2 Employee training

On employee training, findings indicate that staff had basic filing skills and not all offices had trained personnel on office records filing, hence there need for all staff to be trained on filing. This shows that staff lack filing skills which is a clear indication that the institution do not see filing training programs as an investment in human resource (Ashire *et al.*, 1996).

On record keeping, the system was found to be excellent and staff well trained, though personal records and missing marks were not easy to retrieve. This concurs with Zakuan et al., (2012) where they observed that staffs also need broader range of skills to be able to participate in quality improvements. Payment data was properly captured and updated. Though offices had qualified personnel managing records, there is still need of training staff on electronic record keeping as well as training new staff. This implies that institutions are likely to face some challenges associated with implementation of QMS due to lack of training employees on record keeping (Ater, 2013).

On employee training on ISO, it was also noted that institutions were able to follow ISO standards in all their operations and staff were trained to operationalize ISO standards in their roles. Every staff understood what ISO certification meant and had undergone ISO certification training. This finding concurs with Bell (2010) who recommends educating the workforce about the benefits of implementing the QMS prior to and during implementation process.

5.3.3 Top management skills

The findings indicated that top management was not able to analyze and interpret statistical data as well as analytical skill. Though they are able to interpret statistical data, they do not use it in decision making, thus likely to influence the institutions performance with respect to their internal procedures (Kasongo and Moono, 2010).

On continuous monitoring and evaluation of ISO, it was the top management's duty to monitor and evaluate ISO standards. Though they were trained on monitoring and evaluation in regards to ISO standards, no training was done prior to implementation and thus they did not observe ISO standards keenly. Hence to benefit from implementing QMS, it is important that the workforce be trained prior to and during implementation process (Bell, 2010).

On financial skills, top management lacked financial management skills, hence not able to handle all financial related issues.

Top management also lacked training on ISO auditing, though conversant with with ISO auditing skills. Thus management skills can influence implementation of QMS (Simiyu, 2009).

5.3.4 Information technology

Findings indicated that the institution did not have enough computers and that internet connectivity was insufficient, though adaptability of most recent technology made work easier hence students were able to use technology in their training. This clearly indicates that internet connectivity was confined to ICT workshops, staff rooms and administrative offices while being constantly overstretched by growing numbers (Macharia, 2013). Majority of the staff could also not access LAN as well wifi and thus did not use different technologies during class instructions and lectures.

Findings also show that computerization of services was found to totally lacking in TVET institutions and hence most services are still being carried out manually. This concurs with Hooker et al., (2011) baseline survey recommendation which stated that institutions need to implement ICT policy by integrating IT in both teaching and learning process.

5.4 Conclusions

The purpose of this research was to establish the factors that influence implementation of QMS in TVET institutions in Nairobi County, Kenya.

Based on the research findings, the following conclusions can be made. Resource availability, staff training, top management skills and information technology influence to a great extent implementation of QMS in public TVET institutions in Kenya

Resource availability at the public TVET institutions in Kenya was found to influence implementation of QMS. This is evident in the highly qualified professionals in various fields and adequate number of staff serving the institution. However, inadequate lecture halls/ class rooms and recreation facilities were not promising to ensure implementation of QMS in public TVET institutions in Kenya.

Employee training at the public TVET institutions in Kenya was found to be equally critical since staff had only basic filing skills and at the same time, there was no training program in place. However, record keeping system was found to be excellent and this influenced implementation of QMS in TVET institutions.

Top management skills influenced implementation of QMS in public TVET institutions in Kenya since they were highly committed and highly effective towards the implementation of QMS. However, it is noted that top management lacked essential skills like analyzing & interpreting statistical data, continuous monitoring & evaluation of ISO, financial skills and ISO auditing skills.

It was also established that information technology plays a key role in implementation of QMS in public TVET institutions in Kenya. Findings show that technology infrastructure was lacking in public TVET institutions in Kenya. It also shows that the institutions do not have adequate number of computers in the computer laboratories for students use, there is insufficient internet connectivity in the institution to facilitate student research, institutions do not have the most recent technology, and that students could not access wifi as well as internet services in the institution.

5.5 Recommendations

Based on the study findings, the following recommendations can be made;

- (i) The management to request the government to provide more funding to put additional facilities.
- (ii) The management to invest in staff development especially in filing system and ISO related matters.

- (iii) The top management to be trained on key skills like analyzing & interpreting statistical data, continuous monitoring & evaluation of ISO, financial skills and ISO auditing skills.
- (iv) Public TVET institutions in Kenya should invest in information technology infrastructure.

5.6 Suggestions for Further Research

The following suggestions have been made for further research;

- i) A research should be done to establish why public TVET institutions are still lagging behind in adopting IT in training.
- ii) A similar research related to this should be done in another county apart from Nairobi to enable further generalization of the findings.
- iii) Further research should also be done on other factors influencing implementation of QMS in public TVET institutions in Kenya apart from the ones dealt with in this research.

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APPENDICES

APPENDIX I: STUDENTS QUESTIONNAIRE (3RD YEARS/MODULE 3)

My name is Dinah A. Omony and I am a MA student at the University of Nairobi, department of extra-mural studies. I am conducting research on factors influencing implementation of quality management system in public technical vocational education and training institutes in Nairobi County, Kenya. I am kindly requesting you to respond to all the questions in this questionnaire. Your response will be kept confidential and will be used for the purpose of this study only.

Name (optional)

Name of Institution

Department.....

Instructions

- a) Tick (√) inside the box
- b) Fill in where applicable.....

Research questions

Section I: Quality management system

1. The statements in this section are about the various dimensions of **quality management system** among public technical vocational education and training institutes in Kenya. You are required to consider each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where: *1 = Strongly disagree 2 = Disagree 3 = Not sure 4 = Agree 5= Strongly Agree*

a) Customer satisfaction	1	2	3	4	5
Our institution offer customers quality service					
The top management strives to ensure that both internal and external customers are served satisfactorily					
The students are satisfied with the institutions customer service					
b) Corporate image					
Our institution is recognized national wide on good performance					
Our institution is a top player in the technical, vocational education & training (TVET) sector					
Our programs are highly competitive in the job market					
Our institution has a good corporate image.					
c) Quality of performance in examination					
Our graduates good performance in examination is reflected in their good					

performance in the job market					
Our students perform better than other institutions in the final exams					
The number of students failing the final exam have reduced close to zero					
d) Students completion rate					
Students completion rate is 100% from the enrolled register					
Students complete their course within the timelines projected in their curriculum					
Student dropout rate is low compared to other institutions					

2. State any areas that you think needs to be improved on to enable your institution offer better quality services to its customers

- i).....
- ii).....
- iii).....

Section II: Resource availability

3. The statements in this section are about the various dimensions of resource availability among public technical vocational education and training institutes in Kenya. You are required to consider each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where:

1 = Strongly Disagree 2 = Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree

	1	2	3	4	5
a) Physical facilities					
We have enough lecture/ class rooms in our institution					
We have enough laboratories/ workshop rooms in our institution					
There are enough recreation facilities for students in our institution					
b) Availability of funds					
There is sufficient funds to run our institution					
Our management team is able to mobilize funds for the smooth running of the institution.					
There are no stagnated projects due to lack of finances in our institution					
c) Human resource					
Our institution have highly qualified professionals in various fields					
We have adequate number of staff serving our institution					
There is very low staff turnover in our institution					

4. Give your suggestion on how your institution ensures effective utilization of the following available resources.

- i). Physical facilities
-
-
-

ii). Utilization of funds

.....

iii). Human Resource

.....

Section III: Employee training

5. The following statements regard the various dimensions of employee training for public technical vocational education and training institutes in Kenya. Rate each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where: *1 = Strongly Disagree 2 = Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree*

	1	2	3	4	5
a) Record keeping system					
Our staff are well trained on record keeping system					
Our record keeping system is excellent					
Our personal records can be easily retrieved					
It takes very short time to retrieve missing marks in our institution					
Our payment data are properly captured and updated					

6. Give any additional information in regard to record keeping management in your institution

.....

Section IV: Information technology

7. The following statements regard information technology within public technical vocational and entrepreneurship training institutes in Kenya. Rate each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where: *1 = Strongly Disagree 2 =Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree*

a).Availability of IT infrastructure	1	2	3	4	5
We have adequate number of computers in our computer laboratory for students use.					
There is sufficient internet connectivity in our institution to facilitate					

student research					
Our institution the most recent technology					
Our lecturers use different technologies during class instruction and lectures.					
All students can access wifi as well as internet services in our institution					
The students are trained on how to use technology to get important information such as exam results, fees statements etc					
b). Computerization of services					
Students are able to register and book course units online					
Students can access various services such as fees statements and examination results easily.					
Students get regular updates through internet regarding our institutions scheduled events					
Our website is attractive					
Our website is regularly updated					
Our online admission service is user friendly to students					

8. Discuss any aspect of technology in your institution that you think need improvement

.....
.....

THANK YOU!

APPENDIX II: LECTURERS QUESTIONNAIRE

My name is Dinah A. Ogony and I am a MA student at the University of Nairobi, department of extra-mural studies. I am conducting research on factors influencing implementation of quality management system in public technical vocational education and training institutes in Nairobi, Kenya. I am kindly requesting you to respond to all the questions in this questionnaire. Your response will be kept confidential and will be used for the purpose of this study only.

Name (optional)

Name of Institution

Department.....

Instructions

- a) Tick (√) inside the box
- b) Fill in where applicable.....

Research questions

Section I: Quality management system

1. The statements in this section are about the various dimensions of **quality management system** among public technical vocational education and training institutes in Kenya. You are required to consider each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where: *1 = Strongly Disagree 2 = Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree*

a) Customer satisfaction	1	2	3	4	5
We give our customers quality service					
The top management strives to ensure that all customers both internal and external are served satisfactorily					
Many of our new customers are referrals from previous & existing customers					
There are no complaints from our customers					
b) Corporate image					
Our institution is recognized national wide on good performance					
Our institution is a top player in the technical vocational education and training (TVET) sector					
Our programs are highly competitive in the market					
Our institution has a good corporate image.					
c) Quality of performance in examination					
Generally there has been improved exam performance over the last five					

years					
Our graduates are competitive in the labour market					
Our students perform better than other institutions in the final exams					
The number of students failing the final exam have reduced close to zero					
d) Completion rates					
Our students completion rate is 100% from the enrolled register					
All our students complete their courses within the time frame projected on their curriculum					
Our student dropout rate is low compared to other institutions					
All projects undertaken by the institution are completed within the expected timelines					

Section II: Resource availability

2. The statements in this section are about the various dimensions of resource availability among public technical vocational education and training institutes in Kenya. You are required to consider each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where:

1 = Strongly Disagree 2 = Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree

a) Physical facilities	1	2	3	4	5
We have enough lecture/ class rooms in our institution					
We have enough laboratories/ workshop rooms in our institution					
There are enough offices for the teaching and non-teaching staff in our institution					
There are enough facilities to support various activities in our institution.					
b) Availability of funds					
There is sufficient funds to run our institution					
Our management team is able to mobilize funds for the smooth running of the institution.					
There are no stagnated projects due to lack of finances in our institution					
c) Human resource					
Our institution have the best professionals in various fields					
All our staff are highly qualified in their area of specialization					
We have enough staff serving our institution					
There is very low staff turnover in our institution					
Our staff is highly motivated to serve our institution.					

3. Give your suggestion on how your institution ensures effective utilization of the following available resources.

i). Physical facilities

.....

.....

 ii)Utilization of funds

.....

 iii)Human Resource

Section III: Employee training

4. The following statements regard the various dimensions of employee training for public technical training institutes in Kenya. Rate each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where: *1 = Strongly Disagree 2 = Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree*

a) Filing system	1	2	3	4	5
Every staff in our institution have basic filing skills					
Our institution have training program on electronic filing system for all staff					
Every office have trained personnel on office records filing					
There is need for everyone to be trained on filing in our institution.					
b) Record keeping system					
Our record keeping system is excellent					
Every office has highly qualified personnel managing records.					
All staff are trained on electronic record keeping					
Our institution have record keeping training for all new staff					
c) Employees training on ISO					
Our institution follows ISO standards in all operations					
Every staff in our institution have undergone ISO certification training					
Staff are trained to operationalize ISO standards in their roles					
Every staff understands what ISO certification means in regard to our institution operations					

5. Give any additional information in regards to ISO training at your institution

.....

Section IV: Top Management Skills

6. The following statements regard top management skills among public technical vocational education and training institutes in Kenya. Rate each statement and indicate the actual state in your own assessment on a scale of 1 – 5 where: *1 = Strongly Disagree 2 = Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree*

a) Analyzing & Interpreting statistical data	1	2	3	4	5
Our top management team has adequate knowledge on data analysis using various statistical tools.					
Our top management have analytical skills					
Our top management are able to interpret statistical data					
Our top management uses statistical data analysis in decision making					
b) Continuous monitoring & Evaluation of ISO					
It is the duty of our top management team to monitor and evaluate ISO standards within our institution					
Our top management is trained on monitoring and evaluation in regards to ISO standards					
Our top management observes ISO standards keenly on their daily performance.					
c) Financial skills					
Our top management team have financial management skills					
The top management team is able to handle all financial related issues					
The top management team is able to interpret financial statements					
The top management team is able to prepare and implement financial budgets accordingly					
d) ISO auditing skills					
The top management team is adequately trained on ISO auditing					
Our top management audits our ISO standard from time to time					

7. How would you rate the top management skills exhibited in your institution

Section V: Information technology

8. The following statements regard information technology within public technical vocational and entrepreneurship training institutes in Kenya. Rate each statement and indicate the actual state in your own assessment in a scale of 1 – 5 where: *1 = Strongly Disagree 2 =Disagree 3 = Not Sure 4 = Agree 5= Strongly Agree*

a) Availability of IT infrastructure	1	2	3	4	5
We have enough computers in our offices					
There is sufficient internet connectivity in our offices					
Our computers use the most recent technology					
Our office work have been made easy by use of computers					
Every staff has access to our LAN as well as internet					
There are several staff trainings on system and new technology from time to time.					
b) Computerization of services					
There are efforts to go paperless in all services rendered at our offices					
Students have easy access to services eg fees statements and examination results can be accessed easily.					
Our students can get regular updates through internet regarding our institution eg opening dates, examination dates, closing dates, graduation list etc					
Our website is regularly updated					
Our admission online service is user friendly to students					

9. Discuss any other aspect of technology in your institution that you think need improvement

.....

.....

.....

THANK YOU!

APPENDIX III: KREJCIE AND MORGAN SAMPLE SIZE TABLE

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384