

**MANAGEMENT CONTROL SYSTEM, TRAINING MODEL AND
INSTITUTIONAL PERFORMANCE OF TECHNICAL TRAINING
INSTITUTIONS IN KENYA**

BY

CLEMENT KARANI MBORE

**RESEARCH THESIS SUBMITTED TO THE SCHOOL OF BUSINESS AND
ECONOMICS, DEPARTMENT OF MANAGEMENT SCIENCE AND
ENTREPRENEURSHIP IN PARTIAL FULFILMENT OF REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN
BUSINESS MANAGEMENT (STRATEGIC MANAGEMENT)**

MOI UNIVERSITY

2021

DECLARATION

Declaration by Candidate

This thesis is my own work and has not been presented for the award of a degree in any university. No part of this research may be reproduced without prior written permission of the author and or that of Moi University

Sign: _____ Date: _____

Clement Karani Mbore

SBE/PHD/026/15

Declaration by the Supervisors

This thesis has been submitted with our approval as university supervisors.

Sign: _____ Date: _____

Dr. Jane Sang

School of Business and Economics

Moi University, Kenya

Sign: _____ Date: _____

Dr. Joyce Komen

School of Business and Economics

Moi University, Kenya

DEDICATION

To my wife Beth and my children Joy and Mbore for their inspiration and support. I pray that God continues to pour His grace and blessings upon you.

ACKNOWLEDGEMENT

I would like to express my sincere appreciation and thanks to my supervisors, Dr. Joyce Komen and Dr. Jane Sang for their guidance, advice and support throughout the completion of this thesis. Their wisdom and expertise helped me to come up with this document. My overwhelming debt goes to my wife Beth and my two children, Joy and Mbore, for their patience, inspiration, prayer and encouragement during the busy period. May God bless you all.

ABSTRACT

Training models are structures and methods that are applied as tools for enhancing institutional performance in Technical Training Institutions (TTIs). Management Control System (MCS) and Firm Performance have received substantial conceptual and empirical attention mainly in for-profit organisations. In countries such as Singapore and Malaysia, substantial growth in the economy has been realised mainly as a result of establishing a competent workforce. Despite the importance of a Training Model as an instrument of Institution Performance in Technical Training Institutions (TTIs), it does not yield anticipated results of providing competent graduates in Kenya. The purpose of this study therefore was to investigate the moderating effect of Management Control Systems (MCS) on the Training Model and Institutional Performance in Technical Training Institutions. The specific objectives were to establish the effect of Institutional Leadership, Organisation Processes and Human Resources Management on Institutional Performance. Further, the moderating effect of MCS in the relationships above was established. The study was anchored on the Institutional Theory and positivism research philosophy. Explanatory research design was adopted for this study. A questionnaire was used to collect data from a sample of 194 heads of academic departments from 59 TTIs by employing stratified random sampling. Hierarchical multiple regression was carried out to test the hypotheses and the study revealed that: Institutional Leadership ($\beta=0.367$, $P<0.05$), Organisation Processes ($\beta=0.194$, $P<0.05$) and Human Resources Management ($\beta=0.268$, $P<0.05$) significantly affect Institutional Performance. Additionally, Management Control System (MCS) was found to moderate on institutional leadership ($\beta=0.147$, $P<0.05$), Organisation Processes ($\beta=0.119$, $P<0.05$) but not on Human Resource Management ($\beta=0.047$, $P=0.490$) and Institutional Performance. Further, the moderator variable enhanced the predictive power of the model as indicated by the significant change of 0.103 in R^2 with an F-statistic of 35.396. Thus it can be observed that introducing MCS as a moderator enhances the three components of the Training Model. The study therefore recommends that TTIs should adopt MCS as a strategic tool to enhance the Training Model which will result in superior performance due to the introduction of the evaluation and feedback component. This will contribute immensely to the quality of trainees graduating from TTIs which should have a considerable impact to the industry and the economy in general. The study further contributes additional literature to the scanty empirical evidence on moderating effect of MCS on the relationship between the Training Model and Institutional Performance. The study findings are also expected to improve the ability of the government in policy formulation and decision making, controlling, signaling for TTIs.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
ABBREVIATIONS AND ACRONYMS	xii
OPERATIONAL DEFINITION OF TERMS	xiii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 International Context of TVET	4
1.1.2 Kenya Perspective of TVET	6
1.2 Statement of the Problem.....	8
1.3 Research Objectives.....	10
1.3.1 General Objective	10
1.3.2 Specific Objectives	11
1.4 Research Hypotheses	11
1.5 Significance of the Study	12
1.6 Scope of the Study	13
CHAPTER TWO	14
LITERATURE REVIEW	14
2.1 Introduction.....	14
2.2 Key Concepts.....	14
2.2.1 Institutional Performance.....	14
2.2.2 The Training Model	19
2.2.2.1 Institutional Leadership	23
2.2.2.2 Organisation Processes	25
2.2.2.3 Human Resources Management (HRM).....	29
2.2.3 Management Control System (MCS).....	34
2.3 Control Variables.....	39

2.4 Theoretical Review	40
2.4.1 The BSC model.....	40
2.4.2 Institutional Theory.....	45
2.4.3 Systems Theory.....	46
2.4.4 The Harvard map of HRM.....	47
2.5 Empirical Review	48
2.5.1 Institutional Performance.....	48
2.5.2 Training Model	50
2.5.3 Management Control Systems	56
2.6 The moderating effect of Management Control System (MCS)	57
2.6.1 Institutional Leadership and Institutional Performance.....	60
2.6.2 Organisation Processes and Institutional Performance.....	61
2.6.3 Human Resources Management and Institutional Performance	62
2.7 Gaps in Literature	63
2.8 Conceptual Framework.....	64
CHAPTER THREE.....	67
RESEARCH METHODOLOGY	67
3.1 Introduction.....	67
3.2 The Research Philosophy	67
3.3 Research Design	68
3.4 Target Population.....	69
3.5 Sampling	70
3.6 Data Collection Procedures and Research Instrument.....	71
3.7 Measurement of Variables.....	74
3.7.1 Independent Variable	76
3.7.2 Moderating Variable	79
3.7.3 Dependent Variable	80
3.7.4 Control Variables	81
3.8 Data Analysis and Presentation	82
3.8.1 Multivariate Regression Testing.....	84
3.8.2 Moderated hierarchical multiple regression.....	85
3.9 Correlation Analysis	86
3.10 Diagnostic Tests.....	88
3.10.1 Pilot Test.....	88

3.10.2 Instrument Reliability	88
3.10.3 Instrument Validity	89
3.10.4 Factor Analysis	89
3.10.5 Exploratory Factor Analysis (EFA)	91
3.10.6 Assumptions in Regression Analysis	92
3.11 Ethical Considerations	95
CHAPTER FOUR	96
DATA ANALYSIS, FINDINGS AND INTERPRETATION OF RESULTS	96
4.1 Introduction.....	96
4.2 Response Rate.....	96
4.3 Demographic Information	97
4.4 Descriptive Analysis	100
4.5 Test of Assumptions	102
4.5.1 Normality, Linearity and Outliers Test	103
4.5.2 Linearity	106
4.5.3 Homoscedasticity	108
4.5.4 Non-autocorrelation	109
4.5.5 Non-Multicollinearity	110
4.6 Instrument Reliability	110
4.7 Instrument Validity	111
4.7.1 KMO and Bartlett's test of sampling adequacy	112
4.7.2 Exploratory Factor Analysis (EFA)	112
4.7.3 Confirmatory Factor Analysis (CFA)	115
4.8 Correlation Analysis	118
4.9 Regression Analysis.....	122
4.9.1 Multiple Regression Analysis	122
4.9.2 Multiple Regression Results of Direct Effects.....	124
4.9.3 Moderated Regression Results.....	129
CHAPTER FIVE	137
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	137
5.0 Introduction.....	137
5.1 Summary of Findings	137

5.1.1 To establish the effect of institutional leadership on institutional performance of TTIs in Kenya	137
5.1.2 To examine the effect of Organisation Processes on Institutional Performance of TTIs in Kenya	138
5.1.3 To determine the effect of Human Resources Management on Institutional Performance of TTIs in Kenya	139
5.2 Moderating effect of MCS on Training Model and Institutional Performance ...	140
5.2.1 Moderating effect of MCS on Institutional Leadership and Institutional Performance.....	141
5.2.2 Moderating effect of MCS on Organisation Processes and Institutional Performance.....	141
5.2.3 Moderating effect of MCS on Human Resources Management and Institutional Performance.....	142
5.2.4 Mediation effect of MCS on Human Resources Management and Institutional Performance.....	142
5.3 Conclusion	143
5.4 Recommendations of the study.....	145
5.4.1 Policy Recommendations.....	145
5.4.2 Extension of Theory and Practice	147
5.5 Limitations of the Study	147
5.6 Suggestions for Further Research.....	148
REFERENCES	150
APPENDICES	170
Appendix 1: Introduction letter.....	170
Appendix 2: Letter of Authorization.....	171
Appendix 3: Questionnaire	172
Appendix 4: List of Approved Technical Training Institutes in Kenya by TVETA	176
Appendix 5: EFA factor loadings matrix.....	178
Appendix 6 Reliability Statistics	180
Appendix 7 CFA: Test for Construct Validity.....	182
Appendix 8: Durbin Watson tables.....	184
Appendix 9: Theories and Models summary	185
Appendix 10: Regression Models	186

LIST OF TABLES

Table 2.1: The Balance Score Card Perspectives	41
Table 2.2: Theories and Models summary	48
Table 3.1: Target Population Summary	69
Table 3.2 Measurement of Variables	74
Table 4.1: Demographic Information	97
Table 4.2: Descriptive Statistics	101
Table 4.3: Test for Normality	104
Table 4.4: Homoscedasticity test	108
Table 4.5: Durbin -Watson test for Autocorrelation	109
Table 4.6: Test for Multicollinearity	110
Table 4.7: Instrument reliability	111
Table 4.8: KMO and Bartlett's Test of Sampling Adequacy	112
Table 4.9: Exploratory Factor Analysis (EFA)	112
Table 4.10: CFA Test for Validity	115
Table 4.11: Correlation matrix	119
Table 4.12: Multiple Regression Coefficients	125
Table 4.13: Model Summary: Moderated Multiple Regression Coefficients	130
Table 4.14: Summary of hypothesis	136

LIST OF FIGURES

Figure 2.1a Conceptual Framework (Source: Survey Study, 2019)	65
Figure 2.1b: Moderation Effects(Source: Survey Study, 2019)	66
Figure 4.1: Normality exploratory charts: Box Plot, Q-Q Plot and the Histogram ...	103
Figure 4.2: Q-Q Plot for Linearity (Source: Survey Study, 2019).....	106
Figure 4.3: MMR slopes; Institutional Leadership and Institutional Performance ...	133
Figure 4.4: MMR slopes; Organisation Processes and Institutional Performance...	134

ABBREVIATIONS AND ACRONYMS

BCS	–	Balance Score Card
CBC	-	Competency Based Curriculum
CBET	–	Competency Based Education and Training
GOK	–	Government of Kenya
MBNQA-		Malcolm Bridge National Quality Awards
MCS	–	Management Control Systems
MOEST	–	Ministry of Education Science and Technology
TTIs	–	Technical Training Institutes
TVET	–	Technical Vocational Entrepreneurship Education and Training
TVETA	-	Technical Vocational Entrepreneurship Education and Training Authority
UNESCO-		United Nations Education Science and Cultural Organisation

OPERATIONAL DEFINITION OF TERMS

Benchmarking

The search for industry best practices that lead to superior performance (Camp & Camp Robert, 1989). In this study benchmarking shall mean the deliberate attempt by the institution to visit another similar institution with the aim of comparing their operations and processes with operations and processes of this other institution

Budget

A budgeting the study is a financial plan for a defined period, often one year. It may also include planned sales volumes and revenues, resource quantities, costs and expenses, assets, liabilities and cash flows. It expresses strategic plans of activities or events in measurable terms

Curriculum

This is the totality of student experiences that occur in the educational process. The term often refers specifically to a planned sequence of instruction, or to a view of the student's experiences in terms of the educator's or schools' instructional goals.

Cybernetic

Cybernetics is the scientific study of how humans, animals and machines control and communicate with each other. The essential goal of the broad field of cybernetics is to understand and define the functions and processes of systems that have goals and that participate in circular, causal chains that move from action to sensing to comparison with desired goal, and again to action (Clarke 2012).

Human Resources Management

Human resources management comprises human resource flows which consider issues of recruitment, selection, placement, promotion, appraisal and assessment and termination (Hahn & Gold, 2014); Truong, 2010).

Institutional Leadership

Institutional Leadership is the ability of an institution's management to make sound decisions and inspire others to improve performance. Institutional leadership comprises of policies that guide the decisions, instructions, rules and regulations which are aimed at propelling the institution towards its designed goals, aims and objectives (Althaus et al. 2007).

Institutional Performance

Institutional Performance (IP) is the ability of the institution to consistently train well rounded graduates with practical, theoretical and soft skills for the sake of key stakeholders who include students, parents, the community, the Government, employers and industry at large (Hannula, 2018; Glassman & Opengart, 2016).

Kaizen

Kaizen refers to activities that continuously improve all functions and involve all employees from the CEO to the assembly line workers. By improving standardized programmes and processes, kaizen aims to eliminate waste (Taylor et al., 2014)

Management Control System (MCS)

This study applies the MCS definition of Malmi and Brown(2008)which defines management control system as a system that includes all the devices and systems managers use to collect and process information that ensures that the behavior and

decisions of their employees are consistent with the organisation's aims and objectives.

Organisation Processes

Strier (2016) avers that Organisation Processes has an activity structure that comprises of services that learning institutions provide to customers, and the activities that they perform to deliver those services. The creation of components in the whole makes it easy to govern by decentralising power; enhances communication and supervision; prevents bottle-necks and buck passing.

Training Model

A Training Model or better still an education model or system forms the structure and method for maximizing the quality of training and it is the most important organising tools that is used in training institutions (McBain 2004).

Technical Training Institutions (TTIs)

Technical Training Institutes (TTIs) in this study will mean Technical Training Institutes that were registered with The Ministry of Education Science and Technology (MOEST) both public and private by 2015.

Vocational Training

Vocational training is a kind of Training that emphasizes skills and knowledge required for a particular job function (such as typing or data entry) or a trade such as carpentry or welding.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Existing literature (Johanson & Adams 2004) indicates that more than 80 percent of the youth are engaged in the informal sector. Further, King and McGrath (2004) emphasize the important role played by Technical Training Institutions (TTIs) that are normally under the umbrella of Technical Vocational Education and Training (TVET) in producing skilled labour for the industry. They have argued that with TTIs being more diverse because of the changes in the labour market, they should be able to integrate the youth efficiently into the working world. Given the prevailing economic trend, United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2014) has identified two major objectives of TTIs as the urgent need to train the workforce for self-employment and the necessity to raise the productivity of the private sector by engaging the TTI graduates. Considering the expensive nature of TTIs as a form of education, it is imperative that an expanded system which may include partnering with stake holders to provide adequate facilities and equipment will be required to create an effective system. Gleeson (2010) illustrates, social partnership agreement between the key stakeholders is an absolute central factor in finding a lasting solution to the quality issues to improve performance of institutions.

Institutional Performance (IP) is the ability of the institution to consistently train well rounded graduates with practical, theoretical and soft skills for the sake of key stakeholders who include students, parents, the community, the Government, employers and industry at large (Hannula, 2018; Glassman & Opengart, 2016). Unfortunately, the Technical Training Institutions (TTIs) in Kenya characterized by existence of training programs that lack relevance to the world of work; unregulated

Technical Training Institutions (TTIs; lack of quality assurance through outcome-focused assessment and certification systems resulting in graduates that are half-baked (Francis, Diana-Abasi & Ibanga, 2015). These performance gaps are well conceptualized in the Balance Score Card (BSC) (2001) which comprises of the customer, internal business, learning and growth and the financial perspectives.

Traditional financial accounting measures like return-on-investment and earnings-per-share are not suitable measures for learning institutions because they give misleading signals for continuous improvement and innovation (Kaplan and Norton, 2001). Moreover, the traditional financial performance measures worked well for the industrial era, but they are out of step with the skills and competencies companies and institutions are trying to master today. The Balanced Scorecard links performance measures to how customers see the institution (customer perspective), what must be done to excel (internal perspective), sustenance and competitiveness by value creation (innovation and learning perspective) and how the institution appears to the stakeholders (usage of funds to create value).

The scorecard brings together, in a single management report, many of the seemingly disparate elements of an institution's competitive agenda: becoming customer oriented, shortening response time, improving quality, emphasizing teamwork, reducing new product launch times, and managing for the long term. The scorecard guards against sub-optimization. By forcing institution managers to consider all the important operational measures together, the balanced scorecard lets them see whether improvement in one area may have been achieved at the expense of another. Even the best objective can be achieved badly which may lead to gradual failure of the institution.

A Training Model forms the structure and method for maximizing the quality of training and it is one of the most important organising tools that have been used in training institutions and organisations since time immemorial (McBain 2004). Training is very important for developing human resources and the main parties to this process are the trainer(s) and trainee(s) and the two must possess a homogeneous relationship for any substantial benefit to be realized which is considered to contribute to the ultimate performance of the institution.

Mintrom, (2014) in the study on 'creating cultures of excellence: strategies and outcomes' concluded that it is difficult to separate learner's outcomes and institutional performance. Further, Total Quality Management (TQM) conceptualizes the training model through three internal interlocking non-monetary assumptions of organisation processes, human resources management and institutional leadership (Muhammad A. et al 2011). Egesi et al (2014) studied the Technical and Vocational Education and Training (TVET) For Sustainable Future in Nigeria and Arfo, (2015) studied A Comparative Analysis of Technical and Vocational Education and Training Policy in Selected African Countries where both studies recommended the need for a review of the evaluation and training tools since the training model appeared not to be working.

A management control system (MCS) is a formal feedback systems used to monitor organisational outcomes and correct deviations from preset standards of performance in the organisation, thus implicitly linking MCS measurement to the notion of diagnostic control systems (Tessier & Otley, 2012). Training Institutions' MCS tools come in form of periodic departmental reports, ISO and performance contract results, exam and internship reports, appraisals and supervision reports, infrastructure and methods assessment reports. Moreover other components such as benchmarking,

budgeting, curriculum and continuous improvement or ‘Kaizen’ as explained by Chalmers, Lee, and Walker (2008) in the study on ‘international and national quality teaching and learning performance models currently in use’ have been used to define management control system (MCS). These use of MCS as a strategic tool is expected to have a significant impact on the training model and consequent performance of the institution.

1.1.1 International Context of TVET

The quality of graduates of the TVET institutions is of world-wide concern and several studies carried out by scholars such as Islam et al (2007) in Bangladesh reveal that both formal and non-formal TVET lack an effective linkage between training and the world of work. The study further noted lack of coherent mode of practical skills training and therefore did not produce the requisite skills for the job market. Additionally, the trainees also lacked training experience, initiative and motivation to discharge their duties effectively.

TVET training models adopted in UK, Germany and France and which are widely used throughout the world include: the liberal market economy model found in Great Britain and Australia; the dual system found in Germany; the bureaucratic system in South Korea, Malaysia, and Singapore and the Japan and USA vocational schools and industry partnership. The liberal market economy model reflects the demands of the private market led by industries and firms (Fawcett et al 2014). In this approach, industry skills sector decide the types of occupational qualifications that industry and support firms need to train their workers

Germany’s dual system is one model of public private engagement that mandates a particular governance structure for vocational education and training. At the heart of

the German system is a delegation of responsibility for curriculum and assessment to a coalition of labour representatives, businesses, and educators. The business associations play a particularly complex role, managing the system by monitoring the quality of training provided by firms and training institutions in the dual system (Yang et al., 2012). The firms are expected to engage the trainee for 80% of the training period in practical training while the institutions only take up about 20% in theory. The core of each partnership agreement is a consensus that resources need to be focused on providing a wide range of education and training activities.

A third model for Japan is the private industry involvement in vocational education and training which maintains a model completely different from that used by Germany, but one that is relevant in the US and other nations with strong social networks (Kariya & Rosenbaum, 2003; Rosenbaum, 2002). Historically, labour for Japan's manufacturing system has come from high schools, which have a network of relationships with hiring managers that allow them to place their most accomplished students preferentially. This system is based on a local relationship, and depends on high school staff correctly analyzing the skills of potential graduates and their fit with the academic and vocational needs of employers. The Japanese system is similar to an extent to what happens in US vocational schools, but only in those schools that provide very high quality education. High-quality vocational schools are built of strong relationships between educators and employers.

A fourth model focuses on encouraging firm level training through government policy and it is referred to as the Human Resource Development (HRD) Model, Workforce Development system or simply as the bureaucratic model. Countries that have this kind of program include South Korea, Malaysia, and Singapore. They evolved in East

Asia largely as governments in the 1960s-1980s tried to strengthen economic growth through spending on both initial and further vocational training (Frankel & Wei, 2019). The core of this HRD strategy is a taxation policy that allows the government to collect revenue (training levy usually set at some percentage of the firm's labour costs) from firms and then persuades them to train within their own companies or in recognized training institutions after which they are reimbursed the training expenses for each trainee. Recent studies from Gill et al. (2000) and Johanson and Adams (2004) support this policy and add that governments have increasingly used incentives, such as tax levies, to promote training (Johanson & Adams 2004).

1.1.2 Kenya Perspective of TVET

The technical and vocational training model in Kenya is expected to transit from the current bureaucratic model as adapted from South Korea, Malaysia and Singapore to the Germany's dual system with emphasis on hands-on skills through Competency Based Education and Training (CBET) and Competency Based curriculum (CBC). Kenya Vision 2030 and the Government's Big Four Agendas are important development blue prints that place great emphasis on science, technology and innovation (STI) and science, technology, engineering and mathematics (STEM). They consider TVET in particular as the vehicle for socio-economic and technological transformation. They place special demands on TVET to produce adequate middle level human capital that is needed to drive the economy towards the attainment of the Kenya vision 2030. The Constitution of Kenya (2010) has mandated the education and training sector to develop policies and strategies to facilitate faster economic growth (GOK 2005).

TVET graduates are expected to provide the personnel at the operational levels of organizations. Technical, Vocational, Education and Training Authority (TVETA) has been created by the Kenya Government to work with Ministry of Education, Science and Technology (MOEST) as a regulator in ensuring that suitable internal control systems are in place in all TVET institutions. Some of the issues to be addressed by TVETA include provision of relevant curriculum; coordinated assessment, examination and certification; mechanism for promoting access and equity in training; maintaining of high standards, quality and relevance and for collaborative purposes (GOK, (2013).

In 2009, two national polytechnics; Kenya National Polytechnic and Mombasa National Polytechnics were upgraded to University colleges not only to offer degrees in TVET disciplines but also to continue offering certificate and diploma programmes. This was interpreted to be the government's way of luring more youth to enroll in the technical institutions (Wairimu 2009) and thus increase youth participation in TVET. The success and growth of TVET in Kenya depends on how swiftly the sector responds to prevailing and emerging challenges that are inherent in a developing economy(UNDP 2009).Kenya Vision 2030 identifies TVET as critical element in creation of a globally competitive and adaptive human resource capital.

To improve the levels of access and participation in TVET, Kenya has identified youth employment as a priority and has taken a number of measures to curb youth unemployment. To enhance these, the Kenya 2013 TVET Act, aims to strengthen the relevance and quality of TVET. It also aims to create linkages with the industry, oversee assessments and the accreditation of TVET institutions and incorporate them with the private sector. The Kenya strategy paper, according to African Development

Bank Group (2014-2018), outlines the major challenges to youth employment in the country. This is due to skill gap compounded by weak linkages between the private sector and TVET curriculum. This has resulted in a mismatch between the supply of and the demand for skills which in turn influences the participation of trainees.

The African Bank under its Pillar II (2014-2018) also commits itself to support the government of Kenya to develop a National Sustainability Strategy with a special focus on preventive maintenance of education facilities and continued training of existing TVET instructors. This will increase internal efficiency where utilization of the limited resources available to the TVET system is carefully deployed and efficiently utilized to realize intended outcomes. Efficiency is influenced by the extent of public support for education and training, the clarity of goals, and the quality of management. Grade-to-grade transition rates, dropout rates, repeater rates, retention rates, completion rates, transition rates analysis is critical in order for TVET institutions to be considered efficient in operation.

1.2 Statement of the Problem

The quality of graduates of the Technical Training Institutions (TTIs) is of world-wide concern for continuous improvement of the economy of any country (UNESCO2014). The graduates are mostly affected by the quality of training and thus the study on Training Models is an important topic for strategic management research because Training Models affect institution's possibilities for value creation and value capture (Amit & Zott 2001). Kenya and other emerging market States such as South Korea, Malaysia and Singapore have mainly adopted the bureaucratic Training Model. The Training Models in the three countries apart from Kenya seem to be working and consequently the economies of those countries have grown tremendously

mainly due to the contribution of a competent workforce (UNESCO 2014). For example, between 1970 and 2017, Malaysia and South Korea recorded an average cumulative economic growth of 6.1% and 7.3% respectively per year which was higher than the economic growth of some advanced nations for example, USA (2.192%) and Great Britain (2.158%). In comparison, Kenya had an average cumulative growth of 3.5% per year during the same period (Organisation for Economic Co-operation and Development (OECD) 2018). Malaysia had also maintained full employment of her graduates since the 1990s as compared to Kenya whose unemployment rate was at 40% and could be rising steadily (Human Development Index of Kenya (HDI) 2017). Graduates that do not exhibit the requisite skills for the industry make the TTIs unpopular, escalate the cost of living, lead to low living standards and consequently makes technical education less competitive (Murgor 2014).

Management Control System (MCS) studies have been done extensively on for-profit firms in such studies as *Management Control Systems and strategy: a critical review, Accounting, Organizations and Society* by Langfield-Smith (1997) and *Management Control Systems as package-Opportunities, challenges and research directions* by Miami and Brown (2008). However, existing literature hardly indicates to what extent the MCS influences the Training Model for learning institutions. Little is known about how the MCS can impact on organizational capabilities that trigger performance in learning institutions. Management Control System and the Training Model have not received substantial conceptual empirical attention, representing one of the few areas in Technical Vocational Education and Training (TVET) research where accumulative body of knowledge has not developed.

Existing literature indicates that more than 80 percent of the youth are engaged in the informal sector (International Labour Organisation (ILO) 2015). The Training Model is a popular management concept for institution performance, but there is growing evidence that it is unable to prepare graduates for the marketplace where they are eventually absorbed in Kenya. Despite the prevailing situation, little evidence of improvement has been realized on quality of skills in graduates of Technical Training Institutions in Kenya. Local studies that support this view include Mwaniki (2015), Nyerere (2009), Kerre (2010, 1999), Simiyu (2010), Murgor (2013) and Kanyoro (2015).

In an attempt to contribute to workable solutions of this problem, the local studies have dealt mostly with thematic areas such as skill levels of graduates, the relationships between the colleges and the industry, the entry behaviour, the resources and facilities and the role of TVET in a growing economy in Kenya. Thus, the thematic area on MCS, Training Model and Institutional Performance remains largely unexplored and where studies exist, the link between MCS, Training Model and Institutional Performance is not evident. The intention of this study therefore, is to provide more insight in this area which is in the field of strategic management and to investigate why there seems to be a failure in the Training Model since the anticipated results are not being realised.

1.3 Research Objectives

1.3.1 General Objective

The general objective of the study was to investigate the moderating effect of management control system (MCS) on the training model and institutional performance of TTIs in Kenya.

1.3.2 Specific Objectives

The specific objectives include:

1. To establish the effect of Institutional Leadership on Institutional Performance
2. To examine the effect of Organisation Processes on Institutional Performance
3. To determine the effect of Human Resources Management on Institutional Performance
4. To establish the moderating effect of MCS on the relationship between the Training Model and Institutional Performance
- 4 a) To establish the moderating effect of MCS on the relationship between Institutional Leadership and Institutional Performance
- b) To establish the moderating effect of MCS on the relationship between Organisation Processes and Institutional Performance
- c) To establish the moderating effect of MCS on the relationship between Human Resources Management and Institutional Performance

1.4 Research Hypotheses

The study was guided by the following hypotheses:

- H₀₁** There is no significant effect of Institutional Leadership on Institutional Performance
- H₀₂** There is no significant effect of Organisation Processes on Institutional Performance
- H₀₃** There is no significant effect of Human Resources Management on Institutional Performance.
- H₀₄** MCS does not moderate on the relationship between The Training Model and Institutional Performance

H_{4a} MCS does not moderate on the relationship between Institutional Leadership and Institutional Performance.

H_{4b} MCS does not moderate on the relationship between Organisation Processes and Institutional Performance.

H_{4c} MCS does not moderate on the relationship Between Human Resources Management and Institutional Performance.

1.5 Significance of the Study

The study provided literature on the moderating effect of MCS on the Training Model and Institutional Performance and also expected to contribute knowledge in the area of strategic management in relation to Technical Training Institutions (TTIs) which are public in context. The study findings are also expected to be applied by the government for policy formulation and decision making, controlling, signalling in education and learning institutions. Specifically, the government will use the findings of this study in understanding the problems facing TTIs and will make informed decisions on how to support them through a well-informed network of operations.

The stakeholders who include financial institutions, Semi-Autonomous Government Agencies (SAGAS) and Non-Governmental Organizations (NGOs), parents, management boards of TTIs and manufacturing sector will understand the operations and dynamism of TTIs in Kenya which may need improvement in such areas as innovation, operations, levels of customer satisfaction, timely delivery of service, reliable delivery of service, dependable production activities, quality of service or goods, efficient monitoring of operations and motivation among others through this study. The findings will further provide valuable insights to academic researchers and practitioners through an additional body of knowledge to enrich future research. The managers in TTIs will also use the findings to review those factors that are most likely

to have an impact upon the implementation of training models and management control systems (MCS) in TVET learning institutions in Kenya.

1.6 Scope of the Study

The study was designed to investigate the moderating effect of the MCS on the Training Model on Institutional Performance of Technical Training Institutions (TTIs) in Kenya. The study was expected to contribute literature and theory in the area of strategic management by adopting the variables mentioned. This study was cross-sectional in nature and covered all TTIs spread throughout the country. The study used positivism philosophy and explanatory research design. The data was collected by use of a questionnaire and analysis of the data was done using both descriptive and inferential statistical methods.

The unit of analysis was the 59 Technical Training Institutions (TTIs) in Kenya that were registered with MOEST by 2015 and the target population comprised of 379 heads of academic departments deployed in those institutions (Appendix 4). Institutional Performance adopted non-financial perspective of customer satisfaction, learning and growth, internal business operations and financial cost indicators in accordance with the BSC model. The study investigated the problem of the training model of the TTIs through the constructs of Institutional Leadership, Organisational Processes and Human Resources Management (HRM) as conceptualized in TQM (Tennant, 2017).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed existing literature, theoretical and empirical studies on the training model, management control systems and institutional performance which were the variables of the study. A conceptual framework was developed to clearly demonstrate the relationships of the study variables.

2.2 Key Concepts

2.2.1 Institutional Performance

Institutional performance (IP) is important for cumulative outcomes of learning institutions to be realized (Zigan & Zeglat, 2010). Institutional Performance is the ability of the institution to consistently train well rounded graduates with practical, theoretical and soft skills for the sake of key stakeholders who include students, parents, the community, the Government, employers and industry at large (Hannula, 2018); Glassman & Opengart, 2016). The major purpose of higher education institutions is to contribute to the growth of the country's economy by providing skilled human capital (Akareem & Hossain, 2016; Fortino, 2013) and not for specific commercial objectives. This scenario makes it quite difficult to quantitatively and monetarily evaluate performance of training institutions which do not encompass objective evaluation of organization's products and services and overall financial and market performance (Mose, 2014). Non-financial measures are therefore the performance measurements proposed for training institutions considering that their context is of non-profit generating organisations (Hoque, 2014; Grigoroudis, Orfanoudaki, & Zopounidis, 2012).

Institutional Performance is about the comparison of achievement against some pre-determined standard (Richard et al., 2009) set by the institution to evaluate the training model and can be measured at two levels, at a certain period along the way otherwise referred to as monitoring/formative evaluation or at the end-stage also referred to as end stage/summative evaluation (Tessmer, 2013; Black, Harrison, Lee, Marshall, & William, 2003). The information generated from the evaluation process at the mid-way stage or at the end-stage is used for corrective decisions and reward system.

In TVET institutions, continuous self-examination by institutions focuses on the institution's contribution to students' intellectual and personal development. Furthermore, in order to achieve this new service development, areas such as quality assurance (distribution of grades awarded, exit exam or student competency evaluation), internship program (number of internships available, number of companies available, student evaluation), cost efficiency (faculty-to-student ratio, educational expenses per student and unique or specialized curriculum) should be closely monitored (Amadi, 2014).

Education is a process of transformation, enhancement and empowerment of the participant (Amadi, 2014) and institutional performance is concerned with the quality of graduates that exit periodically from colleges, TVET training institutes and universities. Institutional performance is the ability of the training model which encompasses the training programs to be effective and impact on the trainees in three major aspects: attitudes, skills and knowledge (UNESCO 2015) for them to fit comfortably into the job-market. The focus is to ensure that these graduates can easily employ themselves or make them employable. Recent developments have made the

role of TVET even more decisive due to the globalization process, technological change and increased competition. As a result of trade liberalization which necessitates requirements of higher skills and productivity among workers in both modern sector firms and Small and Medium Enterprises (SMEs), skills development should encompass a broad range of core skills (entrepreneurial, communication, financial and leadership) so that individuals are equipped for productive activities and employment opportunities (wage employment, self-employment and income generation activities).

Mintrom, (2014) and Rahman, Voon and Firdaus, (2016) explain that learning outcomes are among the aspects of organizational excellence in higher education. The excellence that emanates from improvements in learning outcomes is often associated with internal effectiveness, which is more about what is learnt in the institution (Oluwale, Jegede, & Olamide, 2013; Helmy, 2014) as designed in the training models. More specifically, a training system which encompasses the contents of a programme is effective if it succeeds according to plan in imparting skills of a certain quantity and quality. Amadi, (2014) noted that training models are the most pervasive methods for enhancing the productivity of individuals and communicating organizational goals to new personnel. Further, consistent training is rare and many organizations do not know how their training programmes impact on performance.

In the Indian TVET education scenario largely based on the models of the findings presented by Mishra, (2017) and Singh, (2013), students have highly valued program, quality academic advising, flexible course scheduling, quality instruction and effective student placement while faculty/staff have growth opportunities and learning opportunities. Institutional Performance measurement is also important for signalling,

both in the internal and external environment. By electing key performance measurements, the organization signals to employees the importance of these strategic aspects in the internal environment. In the external front, they signal to the stakeholders who are part of the organizational environment, with the disclosure of non-financial information regarding performance, such as innovation, operations, levels of customer satisfaction, timely delivery of service, reliable delivery of service, dependable production activities, quality of service or goods, efficient monitoring of operations and motivation among others (Augusto de Matos et al. 2009).

In contrast, objective evaluation otherwise referred to as traditional performance evaluation technique measures performance in quantifiable terms such as financial or profitability with variables such as Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS), and Return on Investment (ROI) (Taticchi, Tonelli, & Cagnazzo, 2010). Bititci, Garengo Dörfler and Nudurupati, (2012) in their study on 'Performance measurement: Challenges for tomorrow' disputed the findings that accounting data was the most reliable evaluation measure for organisational performance and proposed the need for further research in the evaluation of other organisation types, environments, norms and values since performance is multidimensional. Thus a single variable about organisation performance may not be able to provide a satisfactory measure or indicator and therefore performance measures may include non-financial terms (Mose 2014). Some of the performance and quality models that support this view are the seventh criteria of the Malcolm Baldrige National Quality Awards (MBNQA) and BSC (Kaplan and Norton 2001).

Issues such as customer satisfaction and human relations are thus brought to the fore for good reasons: financial performance will not improve on the basis of quality

criteria alone if there is no value for customers; an innovation strategy may fail unless it is initiated in an environment that values renewal and realised by a company that it is fit to do so; creativity and knowledge sharing among workers and managers can only be achieved in an atmosphere of trust and commitment (Grigoroudis, Orfanoudaki, & Zopounidis, 2012). Hence other evaluation techniques apart from accounting tools are required for assessing performance. This principle was supported by Blackmore and Nesbitt, (2013) in their research on 'Verifying the Miles and Snow strategy types in Australian small and medium-size enterprises' which indicated that there is no specific measurement with the ability to measure every performance aspect proposed to-date. What is important is to identify what is to be measured and how it will be measured and interpreted.

In the recent past, Technical Training Institutions (TTIs) have tried to progressively implement more systematic, formalised quality assurance processes, recognising this as a way to achieve greater efficiency and accountability within their institutions. These Training Institutions have only applied non-financial measures in evaluating their performance and since one of the purposes of performance evaluation of training is monitoring, measurement without tangibility of output is equally important (Burke & Minassians 2001). Institutional performance in this study has been conceptualized through the components of BSC which are customer perspective, internal business perspective, learning and growth perspective and the financial perspective. BSC is a convenient mechanism to communicate strategy and strategic objectives to all levels of management. According to Kaplan and Norton (2001) the most important potential benefit is that BSC aligns with strategy leading to better communication and motivation which causes better performance. Thus if Higher education institutions

apply the BSC to their organization they will be able to position their students and programs positively in the minds of local and international audience.

2.2.2 The Training Model

Training model is the structure and methods for maximizing the value of teaching service in the Technical Training Institutes (TTIs)(McBain 2004). Learning institutions are cybernetic organisations and teaching and learning which is facilitated by the training model in place is the core purpose for which these institutions were created. Therefore, all the activities related to Leadership, Processes or Human Resources Management as stipulated in the training model concerning the area of teaching and learning contribute to its ultimate performance and therefore need to be treated with a lot of caution to prevent any lapses since inadequate dissemination of knowledge is construed as absolute system failure (Carlton, 2018).

A model is about the value that an institution offers to its customers, the segment of customers it targets to offer the value to, the scope of products/services it offers to which segment of customers, the profit site it chooses, its sources of revenue, the prices it puts on the value offered to its customers, the activities it must perform in offering that value, the capabilities these activities rest on, what an institution must do to sustain any advantages it has, and how well it can implement these elements of the model (Chesbrough 2007). It is a system, and how well the system works is not only a function of the type of components, but also a function of the relationships among the components (Afuah&Tucci2000). Thus, if the value that a firm offers its customers is low cost, then the activities that it performs should reflect that. The TTIs should concentrate on ensuring that the training model provided by the Government is functioning to its best in order to produce the expected results.

Training is commonly used in a wide variety of connotations depending on one's experience and background. Some define it as a purposeful, systematic approach to helping individuals to improve their performance (Wulnye, Alkins & Abdul-Fatamu, 2018; Amadi, 2014). In general, Amadi, (2014) observed that research into training models effectiveness was limited both in terms of the types of training interventions and the evaluation methodologies. Industry is a very vital component of vocational training. Training in the industry endeavours to impart knowledge, skills and attitudes necessary to perform job-related tasks with the aim of improving job performance in a direct way (Wulnye, Alkins & Abdul-Fatamu, 2018). The training model for TTIs has already been formulated by the government for all institutions and thus it is independent of competition and competitors among government Technical Training institutions (TTIs). The study on training models is an important topic for strategic management research because training models affect institution's possibilities for value creation and value capture (Amit & Zott 2001).

Each step involved in the training process is important towards the success and the future of the entire process. Training should not be done for training sake and it should not be an administrative mayhem but must be integrated with the human resource (HR) activities. It should be used as a strategic weapon by the organization for its future prosperity. We must distinguish between training as an activity and training for impact. When we say training for impact we mean that training and development programmes are linked to the business needs. It is based on the identified needs of the organization and the individuals; there is a proper assessment of the performance - job analysis and assessment of the effectiveness of the course; there is proper creation of work environment to support training and development - an

environment which supports innovation and change and there is a proper procedure to measure the impact of training and development (Amadi2014).

Organisations cannot ignore training and development if they want to grow and compete effectively. Apart from the workers, supervisors equally require training in specific areas of training and development which is essential for the growth of the individual as well as the organization. It is an established fact that training and development has an impact on the behaviour; work out-put, and attitude of supervisors. Further research studies suggest that the training does have a positive effect on supervisor's performance ratings (Amadi 2014).

Accelerating rates of change and global competition has meant that training and development have become important organizational and national issues. It is now recognized as critical to competitive success. It is not only desirable but powerful contributors to the achievement of the organisation's strategic business objectives. Kenya has adopted the state-regulated bureaucratic model for her TTIs in which the Government dictates the curriculum, the human resources recruitment and deployment, the mode of study and examinations, the infrastructure, the training materials and guidelines on management (GOK 2005; 2013) and only uses other stakeholders at the consultative level. This means that the trainer is fully aware of what to do despite the problems arising due to inadequate needs assessment. Every organisation has a model whether they articulate it or not, which ensures internal effectiveness by performing two important functions: value creation and value capture (Chesbrough 2007).

The characteristics of training activities are different from those of a traditional control concept. Training takes a long time to achieve the ends that cause feedback

information for corrective action to be weak. Further the learning process that is expected to produce knowledge is qualitative in nature and can only be used for direction of action (Dillenberger, 2011). Thus learning process is uncertain and the direction of the field being studied changes rapidly and the resulting benefit takes a long time to be realised. This indicates that setting standards of assessment of management and accounting form such as those applied in business firms is an uphill task if not impossible and thus making the adoption of non-financial measures more appropriate.

The complexities of works, technical innovations, and specialization of jobs have made training model even more important since it outlines clearly the contents of the programme and the requisite methods and techniques to be used. The training programs have also gone through several changes (From on the job training to apprenticeship to job support which deals with mind transformation) because of the complexities of the nature of jobs. Today the mind which is more important than the hands is going through change by encompassing a whole nature of training and development programs. Martin, Kolomitro and Lam, (2013) aver that a model defines a series of activities, which will yield a new product or service in such a way that there is net value created throughout the various activities. This is crucial because if there is no net creation of value, the other departments involved in the set of activities will not participate. Second, a model captures value from a portion of those activities for the organisation developing and operating it. This is equally critical for an organisation that cannot earn value from some portion of its activities and cannot sustain those activities over time. Further, Total Quality Management (TQM) is about the three internal interlocking non-monetary assumptions of organisation processes, human resources management and institutional leadership.

2.2.2.1 Institutional Leadership

Institutional Leadership is the ability of an institution's management to make sound decisions and inspire others to improve performance. Institutional leadership comprises of policies that guide the decisions, instructions, rules and regulations which are aimed at propelling the institution towards its designed goals, aims and objectives (Emery, 2016). Institutions are organizations infused with value and leadership is the purposive action of individuals and organizations aimed at creating, maintaining and disrupting/changing institutions (Lawrence & Suddaby, 2006). Technical Training Institutes (TTIs) exist within an institutional environment in which external stakeholders determine in part the expectations for organizational behaviour and practices. Institutional theory is a theory on the deeper and more resilient aspects of social structure. It considers the processes by which structures (schemes, rules, norms and routines), policies and leadership styles become established as authoritative guidelines for social behaviour (Scott, 2004). As a result, institutional theory argues that the environment determines organizational options and limits discretion in the choices available for campus leaders.

Technical, Vocational Education and Training (TVET) institutions that display high performance levels have policies that comprise of a deliberate system of principles to guide decisions and achieve rational outcomes and a statement of intent designed by the government, and is implemented as a procedure or protocol. Policies can assist the leaders in both subjective and objective decision making and in subjective decision making they usually assist senior management with decisions that must be based on the relative merits of a number of factors, and as a result are often hard to test objectively. A good example is work-life balance policy which requires subjective evaluation. In contrast policies to assist in objective decision making are usually

operational in nature and can be objectively tested. One such policy would relate to password policy where the probability of hacking would be considered (Emery 2016 ;Althaus et al. 2007).

The institutional leadership styles practiced by the institutional leaders play a crucial role in shaping the ultimate performance of the institution. Most institutions today endeavour to embrace transformational institutional leadership which borrows heavily from democratic principles (Rattana 2012) and is most suitable for changing global environment. Its main aim is to create an environment that allows the individual worker or group to excel in their operations not because the boss said so but because it feels right to do so; the followers are leaders by themselves. The worker is able to offer contingency decisions with minimal consultation because today's environment is volatile and fast decisions are needed at all times.

Policies and institutional leadership styles generally dictate the kind of social structure (institutional culture) expected in the institution. Schein (2004) defines an institutional culture as the proper way to behave within the institution. This culture consists of shared beliefs and values established by institutional leaders and then communicated and reinforced through various methods, ultimately shaping employee perceptions, behaviours and understanding. Institutional culture sets the context for everything an enterprise does. Because industries and situations vary significantly, there is not a one-size-fits-all culture template that meets the needs of all organizations.

A strong culture is a common denominator among the most successful institutions. All have consensus at the top regarding cultural priorities, and those values focus not on individuals but on the institution and its goals. According to Astawa and Sudika, (2015), leaders in successful institutions live their cultures every day and go out of

their way to communicate their cultural identities to employees as well as prospective new hires. They are clear about their values and how those values define their institutions and determine how the institutions run. Conversely, an ineffective culture can bring down the institution and its leadership. Disengaged employees, high turnover, poor customer relations and lower profits are examples of how the wrong culture can negatively impact the bottom line.

Mergers and acquisitions are fraught with culture issues. Even institutional cultures that have worked well may develop into a dysfunctional culture after a merger. Research has shown that two out of three mergers fail because of cultural problems. Blending and redefining the cultures, and reconciling the differences between them, build a common platform for the future. In recent years, the fast pace of mergers and acquisitions has changed the way businesses now meld. The focus in mergers has shifted away from blending cultures and has moved toward meeting specific business objectives. Some experts believe that if the right business plan and agenda are in place during a merger, a strong corporate culture will develop naturally (Essawi & Tilchin, 2012).

2.2.2.2 Organisation Processes

Organisation Processes are guided by the systems theory which is an interdisciplinary study of systems. A system is an entity with interrelated and interdependent parts; it is defined by its boundaries and it is more than the sum of its parts (subsystem are synergistic)(Stichweh, 2011). Changing one part of the system affects other parts and the whole system, with predictable patterns of behavior. Positive growth and adaptation of a system depend upon how well the system is adjusted with its environment, and systems often exist to accomplish a common purpose (a work

function) that also aids in the maintenance of the system or the operations may result in system failure.

Eisenhardt and Sull (2001) claim that in the rapidly changing and ambiguous markets, the focus is more towards processes and most importantly, the 'simple rules' that guide the key processes. The robustness that comes with a strategy based on resources and positions makes it difficult to act rapidly since growth, rather than profit, is the ultimate objective of institutions. Organisation Processes are concerned with the activity/operation system which is the heart of any business especially in the service industry (Harrison, 2002). It involves creating a functioning organisation structure that is not excessively blotted, management of meagre resources and supply and use of infrastructure (Afuah & Tucci 2000). Further, an activity structure system indicates how an institution performs the selected activities, and when it performs them and addresses the 'how' of providing customers and end-users with products and services thereby addressing the underlying logic of how the institution delivers value to its customers at an appropriate cost.

Strier (2016) avers that an activity structure refers to the nature of the services that learning institutions provide to customers, and the activities that they perform to deliver those services. Such principles and activities may relate to the organisation structure, funding and infrastructure (Chalmers et al (2008). Borrowing from the systems theory, a system is a set of distinct parts that form a complex whole (Montuori 2011). Such is the context of this study where the institution is sub-divided into administrative parts which include: management boards, research and development, administration, finance and planning, teaching and learning (Ho et al., 2014). The creation of components in the whole makes it easy to govern by

decentralising power; enhancing communication and supervision and preventing bottle-necks and buck passing (Massa et al., 2017).

Martin, Kolomitra and Lam (2013) further argue that the processes that must earn value in the training and development programs are mainly: the process of identification of training needs based on the needs of the organization or the needs of the professionals, designing and developing the training programs accordingly, conducting the training and development programme and evaluating the training programmes. Process indicators are those which include the means used to deliver quality educational programmes, activities and services within the institutional environment (Arora &Kaur, 2015;Sasongko, 2016). Process indicators allow the collection of qualitative information on aspects of teaching and learning quality; such as policies and practices related to learning and teaching: quality of curriculum and the assessment of student learning, and quality of facilities, funding, services and technology (Chalmers et al (2008).

Ruben(2004)states that students are affected not only by the teaching environment but also by the learning environment, which includes facilities, accommodation, physical environment, policies and procedures, and more importantly, interpersonal relations and communication and from every encounter and experience. Hence the faculty, staff and administrators have to set good examples by their deeds and recognize that everyone in an institution is a teacher who should set good examples by their deeds as stipulated in the system theory. Processes in an institution take up the bulk of the assigned budget and thus care should be taken to ensure a high degree of efficiency to prevent losses.

The funding of these processes is shared between the stakeholders: students are asked to pay a specified amount for their fees; Government grants and donations from well-wishers coupled with the training levy which takes the greater burden. Ziderman (2001) postulates that firms (especially small and medium sized firms) employ under-trained staff and governments need to play an increasingly active role in promoting their training. National training funds need to be carefully monitored for sustainability of financing and proper controls need to be in place to ensure that funds are spent on appropriate training activities. Further, training levies have become increasingly important in financing training within firms and steps to revamp this fund need to be taken (Mutai, 2018).

There are relatively few examples of strong fiscal management systems for training. The selected activities require funds to facilitate timely execution which calls for budgets and planning. The budgets need to be meticulously prepared to prevent errors which are always very expensive to correct (Lotich, 2016). Nevertheless, the programs in Hungary, the United States, and Malaysia are worth investigating further because they have succeeded where others have failed (Mutai, 2018).

Kaizen is the Japanese word for "continuous improvement" and in business, kaizen refers to activities that continuously improve all functions and involve all employees from the CEO to the assembly-line workers. It also applies to organisation processes, such as purchasing and logistics that cross organizational boundaries into the supply chain healthcare, universities and colleges of learning, psychotherapy, life-coaching, government, banking and other industries. By improving standardized programmes and processes, kaizen aims to eliminate inefficiency. As a feedback mechanism in the institution, repeated quality auditing enables the evaluation of the existing practices

and standards, which then opens up the opportunity for performing improvements (Macpherson et al., 2015). A major issue in this strategy is determining how to provide organizational effectiveness through internal improvement that also fulfils the requirements of external objectives.

In dealing with the high costs, declining profits and the sharpening of competition has resulted in companies looking for ways of re-engineering their organisation processes and gather more accurate data for decision-making purposes. Hence the idea of Just-in-Time (JIT) was born, where production is based on demand. The main purpose of JIT is to increase company profits and competitive position achieved through cost control efforts, improving quality, and improving delivery performance.

Just-in-Time (JIT) when designed for a learning institution is production system that is designed to get quality, reduce costs, and achieve delivery time as efficiently as possible. The system removes all types of waste present in the organisation processes so that institution is able to deliver services in accordance with the will of the consumer at the right time. To achieve the goals according to Mishra and Garg (2013), institutions should regulate the number of graduates in every field to prevent overproduction at the cost of quality.

2.2.2.3 Human Resources Management (HRM)

Hahn and Gold, (2014) and Truong, (2010) define resources as all assets, capabilities, organisational processes, firm attributes, information, knowledge and human resources controlled by the firm that enable the firm to conceive and implement strategies that improve efficiency and effectiveness. Individual resources work together to create organisation capabilities; capabilities are what the firm can do and are the sources of competitive advantage and superior performance.

Exploiting the knowledge economy within the globalized trade environment has become the current focus of attention for many countries, which aspire to remain competitive. Employment in the knowledge economy is characterized by increasing demand for more highly skilled workers who are also enjoying wage premiums (Ishak et al 2010); who will execute the activities laid out in the institution effectively (Hahn & Gold, 2014; Truong, 2010). With the current dynamic technological changes, the institution needs to continually review its human resources position in terms of quality, numbers and training and development (Yilmazer & Schrank, 2010).

Human-capital theory is a modern extension of Adam Smith's explanation of wage differentials by the so-called net (dis)advantages between different employments (Tan, 2014). The costs of learning the job are a very important component of net advantage and have led economists such as Becker(2013) to claim that, other things being equal, personal incomes vary according to the amount of investment in human capital; that is, the education and training undertaken by individuals or groups of workers.

Another expectation is that widespread investment in human capital creates in the labour-force the skill-base indispensable for economic growth. Further, the Harvard Model/The Harvard Map (Price 2012) outlines four Human Resource (HR) policy areas that require attention: human resource flows (recruitment, selection, placement, appraisal and assessment, promotion and termination), reward systems (pay systems, motivation); employee influence (delegated levels of authority, responsibility, power) and work systems (definition/design of work and alignment of people) which in turn lead to the 'four C's' (policies and outcomes) of Human Resource (HR):commitment, competence, congruence, cost-effectiveness.

For an institution to realise the four 'Cs' of HR (competence, commitment, congruence and cost effectiveness), a lot needs to be done in the HR policy front: human resource flows, reward systems, employee influence and work systems as outlined in the Harvard Map. The human resource flows considers issues of recruitment, selection, placement, promotion, appraisal and assessment, promotion and termination. That these issues are the main causes of failure in institutions is not a secret and therefore caution at each level is necessary. In the case of TTIs, the government controls these processes which cause the human resources engaged at various periods within the year to be inadequate in numbers and expertise. One of the underlying problems in TTIs is to get adequate numbers of technically qualified teachers who are willing to choose teaching rather join the better paying business (manufacturing production) bandwagon(Kumari, 2019).

Reward management deals with processes, policies and strategies which are required to guarantee that the contribution of each employee to the business goals is recognized by all means (Armstrong 2007). Reward and compensation programs are based on Agency Theory which suggests that control of agents is exercised through incentive payoffs tied to certain levels and measures of performance. Thus rewards must be viewed as being dependent upon performance and further they must correspond to the level of that performance (Evertson& Weinstein, 2013). Objective of reward management is to reward employees fairly, equitably and consistently in correlation to the value of these individuals to the organization (Black & Rosen, 2011). Reward system exists in order to motivate employees to work towards achieving strategic goals which are set by entities.

The reward also needs to be according to the employee's personality. For instance, a sports fan will be really happy to get some tickets for the next big match. However a mother who passes all her time with her children, may not use them and therefore they will be wasted. When rewarding one, the manager needs to choose if he wants to reward an Individual, a Team or a whole Organization. One will choose the reward scope in harmony with the work that has been achieved (Parker & Liz 2001). Reward administration can be characterized by organisation design and structure, governance structures within the firm, and the procedures and policies. Administrative controls are to specify and communicate processes and behaviour in the organisation. Governance structure is included in the administrative controls to ensure that all functions and organisation unit do co-ordinate. Therefore the variability of behaviour is reduced and predictability is eased. Organizational structure is a form of control which works through functional specialization.

Employee influence should never be taken for granted especially in institutions that embrace transformational leadership theory. This calls for employee participation and involvement in the activities of the institution through delegated levels of authority, responsibility and power. Employee involvement is not about joint regulation or power sharing. The decision to reject or accept an employee's views rests with the management (Colling & Terry, 2010). It is management who makes the final decision. According to McClean and Collins(2011), employee involvement concentrates on individual employees and is designed to produce a committed workforce more likely to contribute to the efficient operation of an organization. By introducing employee involvement mechanisms, management seeks to gain the consent of employees to its proposed actions on the basis of commitment rather than control (Gennard& Judge, 2005).

Increase in productivity is possible when there is complete cooperation between management and labour. Participation helps in increasing sense of satisfaction, gratification and belongingness to an organization forging increased degree of commitment towards the organization. Further participation helps in reducing the root cause of industrial conflict. Industrial conflict arises when two structured groups which are provoked by the idea that their interests are endangered by the self-interests of the other. Workers' involvement keeps such conflict to the minimum by increasing homogeneity and cooperation. Decisions are then made which are mutually beneficial keeping common organizational goals in mind. Participation leads to overall development of employees as the informal leaders amongst employees get an opportunity to actively participate and influence decisions by suggesting members of these groups to stand by them.

Another important aspect of worker' participation leads to less resistance on important changes. Structural and management changes are part of a growing business. Workers' first reaction to change is refutation. When employees are involved their fears and opinions get addressed, leading to less resistance in implementation of changes which in some cases may lead to industrial action through the trade unions. Trade unions are meant to compel the employer to stop and listen to the demands of the employee within the agreed guidelines (Harrison, 2018).

Work systems are about definition/design of work and alignment of people which leads to quality delivery of products or services. As an enhancement of the participant, quality involves value-addition to the participant, which is in terms of knowledge, abilities and skills of students (Afuah & Tucci, 2000). Training and development assists the institution to continually evaluate the human resources and to

update their skills on any new technology and techniques (Tan, 2014). For example in areas such as information computer technology and motor vehicle industry, technology is continually changing. Those teachers who do not acquaint themselves with new techniques will soon become obsolete.

2.2.3 Management Control System (MCS)

Management Control System (MCS)' mission is to communicate strategic milestones and to give feedback of the performance (Kaplan & Norton 2008) and thus contributes to the creation of value. Management Control System (MCS) means the systematic policy and control process that is used to influence the behavior and activities of management for the purpose of achieving the organization goal (Marginson 2002). It has been shown to be effective in informing further initiatives and policy decisions, leading to quality enhancement. Process measures are generally considered by institutions and their staff and students to provide better measures of the quality of teaching and learning, as they are contextualised in the institution.

According to Simons(2000), MCS is the formal, information-based routine and procedure managers use to maintain or alter patterns in organisational activities. In particular, what is ignored by much of the research is the potential for MCS to be used much more actively as a tool for formulating and implementing changes in strategic direction, or what Simons (2000) refers to as the interactive use of MCS. A good MCS should aim at achieving organisation success in attaining its purpose. This requires that the goals and objectives are well communicated and the employees are confident about performing the tasks as well. It is not possible to attain perfect control since employee behaviour is not stable however an organisation that is future oriented, has clear objectives and maintains minimum control losses is on the path to

success. In view of the dynamic nature of the business environment, it is the function of MCS to provide up-to-date information that helps the managers in making proper decisions and to motivate these managers to establish organisational change beneficial to the firm.

Another important role of MCS is signalling, both in the internal and external environment. By electing key performance measurements, the organization signals to employees the importance of these strategic aspects. In the external front, the signal to the stakeholders who are part of the organizational environment, with the disclosure of non-financial information regarding performance, such as innovation, operations, levels of customer satisfaction, timely delivery of service, reliable delivery of service, dependable production activities, quality of service or goods, efficient monitoring of operations and motivation among others (Vieira et al 2009).

MCS borrows heavily from the Total Quality Management (TQM) model which advocates for quality in all areas of the institution. The ultimate aims of TQM and MCS are similar: to improve processes, products, services and the culture of the organisation through total adherence to quality principles throughout the institution. Today, the TQM in various institutions is practiced through MCS tools such as ISO 9000 series and MBNQA (Duke & Russell 2013). Evaluation studies show that many attempts to introduce results-based management and input-process-output models in the public sector and learning institutions in African public sectors are still unsuccessful (Awortwi 2010; Brinkerhoff & Brinkerhoff 2015).

Process indicators provide an understanding of current practice and the quality of that practice (Hannula, 2018). Key process indicators (KPI) in MCS allow the collection of quantitative information on aspects of teaching and learning quality: such as policies

and practices related to learning and teaching, performance management and professional development of staff, quality of curriculum and the assessment of student learning, and quality of facilities, services and technology (Chalmers et al 2008).

According to Horngren et al (2005), management control system is an integrated technique for collecting and using information to motivate employee behavior and to evaluate performance. Management control systems use many techniques as dictated by various theories and models such as activity-based costing, BSC (Kaplan and Norton 2001), benchmarking and Bench-trending, systems theory, budgeting, capital budgeting, JIT, Kaizen(Continuous Improvement), program management techniques, target costing, Integrated systems approach by (Lowe, 1971). Dynamic model of personal control by Greenberger et al (1986), model for aligning organisation goals and strategies to attitudes, values, procedures and decision making behaviour by Middaugh (1998) and Total Quality Management (TQM). Other MCS designs include formal MCS like budget system or incentive compensation system based on financial perspective (Cravens et al., 2004; Román et al., 2005; Lin and Yahalom, 2009). Furthermore, MCS also involves multiple dimensions MCS, such as internal control system (Simon, 1995), multiple dimensions performance measurement system (Chen and Huang, 2006), and balanced scorecard (BSC) (Kaplan and Norton, 2001, Lee and Lai, 2007; Lages et al., 2008; Lin and Yahalom, 2009). Informal MCS includes behavioral control mechanism from the supervisors' monitoring or stress and team workers' binding effect. According to Marginson (2002), different MCS designs would have different impacts on the organization innovation and performance owing to specific concern of strategic uncertainty. Therefore, the design and planning of MCS has been an important research issue valued by industrial and academic circles

The National Performance Management Model (NPM) model introduced in the public sector in the 80s and 90s is based on Kaizen. For example, the ISO 9001:2008 is meant to evaluate all areas of the institution: finance, teaching and learning, exams quality, facilities and maintenance plans. An opportunity is allowed for improvements and corrections after every audit. The study considered benchmarking, curriculum, budgeting and Kaizen (Continuous Improvement) as conceptualized by Chalmers et al (2008) because the context was based on a non-profit generating organisation though it is cybernetic in nature.

Benchmarking is comparing one's business processes and performance metrics to industry bests and best practices from other companies. In project management benchmarking can also support the selection, planning and delivery of projects (Invernizzi et al 2017) in which the dimensions typically measured are quality, time and cost. In the case of institutions, the best practice of benchmarking is for the management to identify the best institutions in their category, or in another category where similar processes exist, and compare the results and processes of those studied (the targets) to one's own results and processes. In this way, they learn how well the targets perform and, more importantly, the institutional processes that explain why these institutions are successful. Benchmarking is used to measure performance using a specific indicator (cost per unit of measure, productivity per unit of measure, cycle time of x per unit of measure or defects per unit of measure) resulting in a metric of performance that is then compared to others (Vigo, Brown, & Conway, 2013; Wang, Gürsel, Shang, & Hessel, 2013)

Benchmark assessments also are known as interim assessments are short assessments used by teachers at various times throughout the school year to monitor student

progress in some area of the school curriculum (Fifer 1989). Technical Training Institution (TTI) interim measurement instruments come in form of periodic departmental reports, ISO and performance contract results, exam and internship reports, appraisals and supervision reports infrastructure and methods assessment reports. Information so collected is expected to have a significant impact on the training model and consequent performance of an institution. Lack of stakeholder involvement in curriculum planning and inadequate numbers of expert staff at curriculum development centres (CDC) has created mismatch in skills acquired and those skills required by the labour market.

Kaizen is the Japanese word for "improvement" and in business, kaizen refers to activities that continuously improve all functions and involve all employees from the Chief Executive Officer (CEO) to the assembly-line workers. It also applies to processes, such as purchasing and logistics that cross organizational boundaries into the supply chain (Coimbra, 2013) healthcare, universities and colleges of learning, psychotherapy life-coaching, government, banking and other industries. By improving standardized programmes and processes, kaizen aims to eliminate wastage of resources and remove inefficiency. As a feedback mechanism in the institution, repeated quality auditing enables the evaluation of the existing practices and standards, which then opens up the opportunity for performing improvements. A major issue in this strategy is determining how to provide organizational effectiveness through internal improvement that also fulfills the requirements of external objectives (Macpherson et al., 2015).

One way of implementing kaizen principles is through budget presentation and execution. A budget is a financial plan for a defined period of time, usually a year and

has three components: budget preparation process, budgetary control and behavioural dimensions of budgeting. It may also include planned sales volumes and revenues, resource quantities, costs and expenses, assets, liabilities and cash flows. Companies, governments, families and other organizations use it to express strategic plans of activities or events in measurable terms (Washe2011). A budget is the sum of money allocated for a particular purpose and the summary of intended expenditures along with proposals for how to meet them. It may include a budget surplus, providing money for use at a future time, or a deficit in which expenses exceed income. In the case of a learning institution, the funds are provided according to the approved budgets. Expenditure then will be continually checked against these budgets and a penalty will be imposed to deviations, over-spending as well as non-expenditure; non-expenditure is associated with non-provision of service.

2.3 Control Variables

Effect of control variables otherwise referred to as endogenous variables may not change the model but have a direct effect on the dependent variable. In research, these variables cannot be ignored since even a small effect may change the research results in a big way (Carlson, 2017). In this research, three control variables were considered: the age of institution, the location of institution from the county education office and the size of institution.

The age of the institution is measured in years and according to Navaretti et al. (2014) and Carr (2010), this is an indicator of experience, strong culture and productivity. It is always true, they argue that there is no institution that can survive for many years in an environment of making losses year after year and organisation culture plays a big part. Navaretti et al. (2014) and Carr (2010) further state that as an institution grows,

so do the number of departments and branches which may require even more human capital. Hence it is fair to measure the size of institution by considering the number of trainers and trainees.

The location of institution from the county office was expected to explain issues of diversity between institutions. Those institutions that were far from the county education office were likely to be difficult to visit frequently and thus information and scarcity of resources would take a longer time to sort out. Such institutions were also likely not to be inaccessible and therefore unattractive to new staff.

Brinkerhoff, Wetterberg and Wibbels (2018) in their research on 'Distance, services, and citizen perceptions of the state in rural Africa' were of the view that most poor countries, basic services in rural areas are less accessible and of lower quality than those in urban settings. In this study the size of institution was tested by considering the number of trainers and the students. This control variable was considered important since it was likely to dictate the style of leadership, the amount of funds needed, the required facilities and resources. The age of institution reflects the culture of the institution.

2.4 Theoretical Review

2.4.1 The BSC model

The major purpose of higher education institutions is to contribute to the growth of the country's economy by providing skilled human capital (Akareem & Hossain, 2016; Fortino, 2013) and not for specific commercial objectives. This scenario makes it quite difficult to quantitatively and monetarily evaluate performance of training institutions which do not encompass objective evaluation of organization's products and services and overall financial and market performance (Mose, 2014). Non-

financial measures are the performance measurements proposed for training institutions considering that their context is of non-profit generating organisations. Such non-financial measurement models include the Balance Score Card (BSC) and the Total Quality Management (TQM) among others.

The BSC model which is the measure adopted for institutional performance in this study has an internal system operations perspective which encompasses the technology, infrastructure and resources (human, plant, materials) dispensed for the purpose of accomplishing the activity set. Pandey (2005) indicates that a good aspect of BSC is that it is a simple, systematic, easy-to-understand approach for performance measurement, review and evaluation. The BSC comprises of the four perspectives.

Table 2.1: The Balance Score Card Perspectives

Perspective	Description
1. The customer perspective	The strategy for creating value and differentiation from the perspective of the customer
2. The internal business perspective	The strategic priorities for various business processes that create customer and shareholder satisfaction.
3. The learning and growth perspective	The priorities to create a climate that supports organizational change, innovation and growth
4. The financial perspective	The strategy for growth, profitability and risk from the shareholder's perspective.

Source: Kaplan and Norton (2001)

The Customer Perspective defines the value proposition that the organization will use in order to satisfy customers and generate more sales to the targeted customers segments(American Marketing Association 2006; Vargo & Lusch, 2004). The leading measures that are selected for the customer perspective should measure both the value

that is delivered to the customer (value proposition) which may involve time, quality, performance and service and cost and the outcomes that come as a result of this value proposition (e.g., customer satisfaction, market share).

The value proposition can be centred on one of the three: operational excellence, customer intimacy or product leadership, while maintaining threshold levels at the other two. The Balanced Scorecard (BSC) through customer perspective, define the strategies needed to select customers, acquire customers, retain customers and establish relationships that are the base of the nature and reason of the organization or company (Kaplan and Norton 2001). The focus here is on value generated by a company's product or service as perceived by the customer or the fulfilment of customer goals and desires by company products and/or services(Reinartz & Kumar, 2003; Rust et al 2004; Verhoef et al 2010).

The customer perspective is supposed to aim at the immediate needs and desires of the students, parents, faculty and staff, alumni, the corporate sector and the society at large. It is relevant here to state that looking at students solely as customers becomes a sort of a misnomer as they are also (if not only)the "throughput" that eventually gets processed in the institution and ends up accepted(or rejected) at the verge of graduation (Danjum & Rasli, 2012). Hence the corporation and society at large should be considered as the real customers. However, the efforts of the stake holders are measured more accurately when the students' performance is taken into account (Pascarella & Terenzini 2005; Kuh et al 2008).Nichols, (2017), Bahous and Nabhani, (2015) and Arjomandi (2009) explain that learning outcomes are among the aspects of organizational excellence in higher education. The excellence that emanates from improvements in learning outcomes is often associated with internal effectiveness,

which is more about what is learned in the institution (Lauglo, 2009) as designed in the training models.

The second component involves the internal business or operations perspective. This inherently focuses on the implementation and delivery of the academic, research and other programs by the institution and the degree of excellence achieved in the same. To realize the customer value propositions, internal processes must be created and delivered and the internal processes must be supported by an organization's learning and growth. As Kaplan and Norton (2004) explain that aligning objectives in these four perspectives is the key to value creation and hence, to a focused and internal consistent strategy.

In developing a structure that links from cause to effect, Kaplan and Norton (2001) created a tool called the strategy map. The strategy map is a visual representation of an organization's strategy that describes the logic of the strategy by representing the objectives for the critical internal processes that create value and the organizational learning and growth that support those processes. These objectives are then translated by the balanced scorecard into targets and measures. The internal processes most critical to creating the customer's value propositions are referred to as strategic themes.

The learning and internal growth perspectives therefore show how the organization creates these desired outcomes. The innovation and learning perspective of the organization looks at the development of faculty and staff as a precursor and foundation to excellence in program design and delivery. From the top of the chain on down, desired financial outcomes can only be accomplished if customers are satisfied.

In this way, managers can identify a causal chain from the performance drivers to financial outcomes.

Finally, the fourth component constitutes of the financial performance and its measure. It is clear in the Indian context especially, that the government although eschews the “profit” word for educational institutions, however is emphasizing more and more on self-sustaining programs and institutions as a desirable outcome of the strategies and models envisaged and pursued by universities and colleges. Surpluses are important as only then institutions can look for achieving greater autonomy in designing and delivering ever new courses and programs that are relevant to the population in context, but expensive to implement. It is also a convenient mechanism to communicate strategy and strategic objectives to all levels of management. According to Kaplan and Norton (2001) the most important potential benefit is that BSC aligns with strategy leading to better communication and motivation which causes better performance. Thus if Higher education institutions apply the BSC to their organization they will be able to position their students and programs positively in the minds of the international audience.

Therefore, the benefits of adopting BSC as proposed by Kaplan and Norton (2001) include: investments in faculty and staff training leading to improvements in service quality, better service quality leading to higher customer (stakeholder) satisfaction, higher customer satisfaction leading to increased customer loyalty and increased customer loyalty which generates positive word of mouth, increased grants/revenues and surpluses that can be ploughed into the system for further growth and development. However, it is agreed that performance indicators cannot be considered

‘facts’ but are goal, value and context laden, and utilised in different ways depending on the performance model being employed (Arora & Kaur, 2015; Sasongko, 2016)

2.4.2 Institutional Theory

Institutional theory is about the establishment of authoritative guidelines in an institution through the integration of certain structures which include schemes, rules, norms and routines (Scott, 2004). Institutional leadership according to Scott comprises of culture-cognitive, normative and regulative elements that together with the associated activities and resources provide stability and meaning to life. Institutional leadership plays a critical role in the success of the institutions and hence the need for effective leaders who understand the complexities of the rapidly changing global environment (Rorison, Jamey; Voight, Mamie, 2016). External pressure for conformity drives the range of decisions available for institutions. Effective leaders will influence their followers in a desired manner to achieve desired goals and motivates them to practice attributes such as risk taking, proactiveness and innovativeness and transformational management (O’Leary & Bingham, 2009).

Well performing institutions are said to have a ‘strong’ culture while those with ‘weak’ culture continue to use trial and error techniques. Research by Bell, (2009) and Evans, Bridson, and Rentschler, (2012) suggest that Corporate Culture and Performance, lay the groundwork for the study of corporate culture as a field of academic research obviously linking it to literatures on organizational development which demonstrates that organizations that foster strong cultures have exemplary leaders and clear values that give employees a reason to embrace the culture. A strong culture may be especially beneficial to firms operating in the service sector since members of these organizations are responsible for delivering the service such as learning institutions and for evaluations important constituents make about firms.

Organizations may derive the following benefits from developing strong and productive cultures: better aligning the company towards achieving its vision, mission, and goals; high employee motivation and loyalty; increased team cohesiveness among the company's various departments and divisions; promoting consistency and encouraging coordination and control within the company, shaping employee behavior at work, enabling the organization to be more efficient.

2.4.3 Systems Theory

The goal of systems theory as outlined by Rudolf, 2011, was used to evaluate organisation processes in this study. It is a systematic discovery of system's dynamics, constraints, conditions and elucidating principles which include funding, infrastructure, and organisation structure that can be discerned and applied to systems at every level of nesting, and in every field for achieving optimized results in every part of the organisation (Bevan, 2012). Process indicators are those which include the means used to deliver quality educational programmes, activities and services within the institutional environment (Arora &Kaur, 2015; Sasongko, 2016). Process indicators allow the collection of qualitative information on aspects of teaching and learning quality; such as policies and practices related to learning and teaching: quality of curriculum and the assessment of student learning, and quality of facilities, funding, services and technology (Chalmers et al (2008).

Systems Theory displays an institution as an entity which comprises of individual organizational elements or subsystems (herein referred to as processes) which should be studied carefully and examined in its environment to design a control system. Process indicators are those which include the means used to deliver educational programmes, activities and services within the institutional environment (Arora

&Kaur, 2015; Sasongko, 2016). These measurements look at how the system operates within its particular context, accounting for institutional diversity, a common confounding factor in intra-institutional comparison. There are frameworks showing that companies are reacting in a changing competitive environment (Peljhan, 2007) by making serious change decisions. When influencing the decision making, the system supports the process of planning and control (Vieira et al 2009). Also, it influences behavior to ensure that it is congruent with the organization's goals.

2.4.4 The Harvard map of HRM

This is probably the most seminal model of human resources management (HRM) which was developed by Beer et al (1984) and cited by Yvonne et al (2011), sees employees as resources that are fundamentally different from other resources and therefore they cannot be managed in the same way. The Harvard approach recognizes an element of mutuality in all businesses and employees as significant stakeholders in an organization. They have their own needs and concerns along with other groups such as shareholders and customers. The Harvard Map or model (Price 2012) outlines four HR policy areas: human resource flows (recruitment, selection, placement, appraisal and assessment, promotion, termination), reward systems (pay systems, motivation), employee influence (delegated levels of authority, responsibility) and power and work systems (definition/design of work and alignment of people) which in turn lead to the 'four C's' or HR policies and outcomes: commitment, competence, congruence, cost-effectiveness.

Table 2.2: Theories and Models summary

Theory/model	Description	Application
1. Balance score card (Kaplan & Norton 2001)	It is based on four strategies: the customer perspective; the internal business perspective; the learning and growth perspective and the financial perspective.	Institutional performance
2. Total quality management (TQM) system (Hackman and Wageman 1995),	Comprises of four interlocking assumptions about processes, employees, organizations (as systems) and leadership. TQM consists of organization-wide efforts to install and make permanent a climate in which an organization continuously improves its ability to deliver high-quality products and services to customers.	Training Model
3. Human capital theory (Adams 1776; Schultz, 1971)	Human Capital Theory refers to the aggregate stock of competencies, knowledge, social, and personal attributes embodied in the ability to create intrinsic and measurable economic value. Human Capital Theory views humans and individuals as economic units acting as their own economy	Human resources
4. Institutional theory (Scott 2004)	Institutional theory is about the establishment of authoritative guidelines in an institution through the integration of certain structures which include schemes, rules, norms and routines	Leadership
5. The Harvard Map or model	The Harvard approach recognizes an element of mutuality in all businesses and employees are significant stakeholders in an organization	Human resources
6. Systems theory	Systems theory is the interdisciplinary study of systems and a system is an entity with interrelated and interdependent parts;	Processes

Source: Survey Study, 2019

2.5 Empirical Review

2.5.1 Institutional Performance

According to UNESCO (2014), TVET in most of the developing countries is expected to fulfil two crucial roles in national sustainable development (social, economic and environmental development). The first role is to provide training opportunities and career advancement avenues for the increased school leavers while the second role is to provide skilled manpower that is needed at all levels of the economy. The skills so

developed should be able to lead to self-reliance in the absence of salaried employment and enhance the industrialization process (GOK 2005).

Kaplan and Norton (2001) aver that managers and academic researchers have tried to remedy the inadequacies of current performance measurement systems; some have focused on making financial measures more relevant. Others have suggested that financial measures should not be used and by improving operational measures like cycle time and defect rates, the financial results can follow. Managers should not have to choose between financial and operational measures. In observing and working with many companies, it has been found that senior executives do not rely on one set of measures to the exclusion of the other. They have realized that no single measure can provide a clear performance target or focus attention on the critical areas of the business. Managers want a balanced presentation of both financial and operational measures.

Although TVET has been used by several developing countries as an instrument of sustainable development, it has still been left to the periphery and its significance has not really been embraced. Grigoroudis, Orfanoudaki, and Zopounidis, (2012) have supported the argument in their research on 'Strategic performance measurement in A Healthcare Organisation: A Multiple Criteria Approach based on Balanced Scorecard' and suggested that managers perceiving themselves as dealing with environmental uncertainty should adopt other measures rather than accounting data for performance evaluation. They also recommended more studies on the use of non-accounting related measures. Accounting systems do not provide an ex-ante statement on organisation goals and an in-put of future decisions in their study on ambiguous organisations and recommended further study on role of accounting systems. Dunk,

(2005) also suggested the need for further studies related to the combination of various organisation elements that can be used to define an integrative approach which is more comprehensive compared to the accounting systems.

2.5.2 Training Model

In their study, Odumeru and Ogbonna, (2013) examined the application of transformational leadership theory in 89 schools in Singapore using a split sample technique ($N = 846$ teachers). The study sought to examine the influence of transformational leader behavior by school principals as it related to organizational commitment, organizational citizenship behavior, teacher satisfaction with leader, and student academic performance. Attitudinal and behavioural data were collected from both teachers and principals; student academic performance was collected from school records.

School level analyses showed that transformational leadership had significant add-on effects to transactional leadership in the prediction of organizational commitment, organizational citizenship behavior, and teacher satisfaction. Moreover, transformational leadership was found to have indirect effects on student academic achievement. Transactional leadership was found to have little add-on effect on transformational leadership in predicting outcomes (Antonakis & Robert, 2013).

In their study on 'Internet business models and strategies: text and cases', Afuah and Tucci (2000) suggested that a model is a system, and how well the system works is not only a function of the type of components, but also a function of the relationships among the components (Afuah & Tucci 2000). Thus, if the value that a firm offers its customers is low cost, then the activities that it performs should reflect that. The TTIs should concentrate on ensuring that the training model provided by the Government is

functioning to its best in order to produce the expected results. The concern in this study therefore is to investigate why there seems to be a failure in the model since the anticipated results are not being realised.

The German training model has proven difficult to replicate internationally though some countries, such as Thailand or Korea, have managed to put into place a small number of dual system places (Yang et al., 2012). However, even the former Eastern Germany has had challenges in extending the dual system. Tyler (2013) provides a detailed examination of the reasons that the dual system can or cannot be expanded. There are also several lessons, for example that unless companies see participation in TVET in their best interest they will not participate and will not ultimately pay for training and hiring of vocational education graduates. The reality is that as labour markets have become liberalized, and the cost of doing business in Germany itself has increased relative to other manufacturing intensive countries like China. Thus the dual system has become less important as a critical part of the TVET structure. The need to lower labour costs and maintain flexibility in the hiring and assignment of labour among nations means that firms are less interested in participating in a dual system.

The liberal system is often referred to as *a volunteer model*, in which private industries and firms volunteer to pay for workers' training and apprenticeships (Fawcett et al 2014). As a rule, state subsidies support "at-risk" youth to increase access and opportunities for them to obtain workforce education and training. In this model, governments fund necessary research on occupational and industry demands for skills and establish skills councils and national qualifications frameworks (Sellin, 2002). Training depends on the demands of private companies and in some instances can lead to a narrow interpretation of certain professions.

Related studies for example, Eisenhardt and Sull(2001)claimed that in the rapidly changing, ambiguous markets, the focus is more towards processes and most importantly, the ‘simple rules’ that guide the key processes. The robustness that comes with a strategy based on resources and positions makes it difficult to act rapidly. Growth, rather than profit, is the ultimate objective of institutions. Organisations cannot ignore training and development if they want to grow and compete effectively. It is essential for the growth of the individual as well as the organization. Apart from the workers, supervisors equally require training in specific areas of training and development. It is an established fact that training and development has an impact on the behaviour; work out-put, and attitude of supervisors (Amadi 2014).

Powell, Lovallo, and Fox (2011) examined the reasons given by chief executive officers (CEOs) to explain their firms’ performance and compared stable and unstable firms. They concluded that management will often display strong tendencies to credit themselves for positive outcomes and then blame the environment for the negative effects. In order to counter these two-faced tendencies and considering the linkages in service management profit chain, cultivating potential benefits of BSC for institutions could be the cure (Brown & Anthony, 2011).

Kim and Mauborgne (2014) in their study on Blue ocean strategy, ‘How to create uncontested market space and make the competition irrelevant’ evaluates the attitudes which can make or break a company. The study acknowledged that only a few companies are committed to staff and management development and even fewer have structure on how to structure jobs so that there is time for learning and development. The commonly used procedure is to job rotation where individuals are moved from

one function to the other. The following dangers are highlighted: those organisations get damaged when rotated workers make mistakes and that the learner may not realise the impact of their mistakes.

According to Organization for Economic, Cooperation and Development [OECD] (2006), China, Germany, Mauritius, South Korea, the UK and USA ensured adequate linkage between industry needs and the training offered by projecting future skills requirements through conducting continuous needs analysis (OECD 2006). South Korea and India, have maintained a comprehensive skills inventory which led to demand-driven training that addresses skill gaps in the industry.

Huhtala, Kangas, Lämsä, and Feldt, (2013) examined the leadership-culture connection between managers and indicated that the orientation of ethic programs is most strongly linked to high level of commitment to ethics rather than to external influences. Further, policy efforts might be more successful if the focus was directed more on the managers' commitment rather than on the programs. The study outlined the following elements of an ethical program: formal ethics codes, ethics committees charged with developing ethics policies, ethics communication systems, ethics officers, ethics training programs and disciplinary processes to address unethical behaviour.

Monden (2011) in the study "Toyota production system: An integrated approach to just-in-time" describes a Kanban system as a means to achieve Just-in-time (JIT) production. It works on the basis that each process on a production line pulls just the number and type of components the process requires, at just the right time. The mechanism used is a Kanban card. This is usually a physical card but other devices can be used. Two kinds of Kanban cards are mainly used: a Withdrawal

Kanban which specifies the kind and quantity of product which a manufacturing process should withdraw from a preceding process and a Production-ordering Kanban which specifies the kind and quantity of product which the preceding process must produce.

In a single-card Kanban system, parts are produced and bought according to a daily schedule, and deliveries to the user are controlled by conveyancing (withdrawal) Kanban. In effect, the single-card system is a push system for production coupled with a pull system for delivery to the point of use. Single-card Kanban controls deliveries very tightly, so that the work centre never has more than a container or two of parts and the stock point serving the work centre is eliminated. Single-card systems work well in companies in which it is relatively easy to associate the required quantity and timing of component parts with the schedule of end products. These are usually companies with a relatively small range of end products, or products which are not subject to rapid, unexpected changes in demand levels(Yasuhiro 2011).

Reitzig and Maciejovsky (2015) attempted to re-define the use and perception of the term 'control' by proposing a dynamic model of personal control. The model comprises of five elements as proposed earlier by Milliken, Morrison, and Hewlin (2003)which explain and predict employees' reactions to situations. The model concluded that perceptions are either consistent or less than, greater than their desired levels of personal control. The elements are: antecedents of activation, salience, cognitive appraisal, reaction and learned helplessness and individual and situational differences.

On matters of human capital, Young and Poon(2013)suggested that the management has failed to oversee the systems-planning process. The researchers proposed ten

issues that require attention: managers must be well versed with the organisation objectives in order for them to be able to set appropriate system goals and assign resources, develop appropriate measures to effectively deal with environmental pressures for new systems or modification of old systems which include government regulations, customer demands, impact of new technology and competitors, avoid the piecemeal approach to development and adopt a system planning methodology which is able to deal with inconsistencies and inefficiency with potential effect on all areas of the organisation, information system needs must be well identified before specifications, target dates and costs are designed, correct hardware requirements ensure that delays in serving customers and inefficiency are avoided. This also impacts on the organisation's competitive ability, underestimated labour requirements may result in missed target dates and budgets, faulty project justification may lead to inaccurate conceptual development; cost and benefits are not properly articulated, shifting of priorities due to changing business conditions and lack of confidence in the use of information technology by management, response to disaster especially loss of information and use of information technology to predict future impact in order to accurately respond to critical issues in system planning

Middaugh (2001) developed a model for aligning organisation to attitudes, values, procedures and decision making behaviour. The elements of the model include: control and budgets, profit centres, transfer pricing and compensation. The model answers the following questions: the reason for widespread change in the financial industry; the cause of dysfunction in the industry; the effect on the organisation structure and the adaptation of the control systems.

Camillus (2002) in his model on managing the future suggested that whatever approach and techniques are chosen, it is imperative that the executives should pay attention to the linkages between strategic planning and management if the organisation is to succeed. The model has three elements: the first element deals with consistency of strategic objectives and performance measures focusing on objectives such as profitability, growth, technological ascendancy or logistic efficiency and related performance measures; the second emphasizes the participation of the lower-level managers in the strategy development process to provide an in-depth understanding and commitment to implement; the third element touches on Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis which underlines the specific programs of action that constitute the business/operational plan.

2.5.3 Management Control Systems

Orozco (2016) in his research on 'Understanding the impact of Management Control Systems over capabilities and organizational performance, under the influence of perceived environmental uncertainty' avers that Management Control Systems (MCS) helps to deliver value by facilitating strategy implementation and enhancing organizational performance. Orozco (2016) also observed that research into training models effectiveness was limited, both in terms of the types of training interventions and the evaluation methodologies. McBain (2004) noted that consistent training was rare and many organizations did not know how their training models impacted on performance.

The findings are closely related to the study by Ditillo (2004) in his research on The Role of MCS as Knowledge Integrated Mechanisms in Knowledge Intensive Firms and found that MCS can only be effective if used to coordinate individuals as a

support tool rather than an evaluation for organisation performance. The study recommended further studies on MCS application as an evaluation instrument. Egesi et al (2014) studied the Technical and Vocational Education and Training (TVET) For Sustainable Future in Nigeria and Arfo, (2015) studied 'A Comparative Analysis of Technical and Vocational Education and Training Policy in Selected African Countries' where both studies recommended the need for a review of the evaluation and training tools.

Other related MCS models include an integrated systems approach by Lowe (Cooper, 2014) who laid emphasis on ideas to management control which require a great deal of development before they become operational. The researcher highlights the following characteristics which help to generate a healthy planning and control system: organisation objectives which are differentiated from individual goals, examine compulsive goals generated by sub-unit managers, exploring the situations in business that are uncertain, insist on Economical processes, financial accounting techniques as used to judge the quality of management accounting systems and minimize the dominance of accounting as business control systems.

2.6 The moderating effect of Management Control System (MCS)

According to Baines and Langfield-Smith (2003) there exists stiff rivalry between firms in the business environment which has necessitated the focus on differentiated strategies, related to organisation design, manufacturing technologies and improved MCS practices. The success of this new strategy requires critical observation of non-financial accounting information in order to improve firm performance. MCS is a multi-dimensional construct indicating that each of its dimensions can have an individual influence on institutional performance despite the level or existence of the

other dimensions. MCS is a very important system to training model implementation and institutional performance as it takes organizational characters into account in communicating strategic milestones and to give feedback of the performance (Kaplan & Norton 2008). Accordingly, MCS implementation can only be observed at a midway point towards the end-state through specific performance measurement models such as ISO.9001.2015, performance contracting and other key process indicators (KPIs) which are actually derived from strategies meant to ensure minimum performance standards (Marginson 2002).

There is no standard way to deliver a well-functioning management control system (Malmi & Brown 2008) and thus there is need to match an organisation's MCS with its model (Kober et al 2007). Marginson (2002) suggests that the increased complexity of organisation requires adaptation of new techniques oriented towards motivational factors in order to persuade organisation members to cease passive attitudes and behaviours hence reinforcing the need for informal controls. Pérez et al. (2008) in their study reveal that there are several trends aligned to informal controls that share common traits: the organisation and its employees' behaviour is majorly dependent on formal control systems; man is limitedly rational and does not attempt to completely maximise, but rather is satisfied with a lower level; the organisations' objectives are not always clear and furthermore can create conflicts with the individual objectives; control of the individual is conditioned by both extrinsic and intrinsic factors which not only focus on financial needs but also pursue his own personal satisfaction in the organisation which involves the appearance of the manager-leader who will provide the impetus necessary for the employees to improve their performances and their satisfaction. By extension, the contingency framework suggested that when the model changes, the MCS also changes and therefore there is

no universally appropriate control system applicable to all situations. As such, the appropriateness of different MCS mechanisms is contingent on the circumstances surrounding the organization (Obinozie 2016).

Elements of MCS are given different emphasis on different growth phases for example Marginson (2002) explains that the success of model execution is not about designing, planning and operating MCS in a specific way, rather it is how managers interpret operations for efficient implementation of the model. The process of implementation of MCS in organizations faces a range of difficulties and often fails to experience the expected benefits. Thus acquiring insights into the process of implementation is important, especially in finding an effective way of transforming the quality management concept and principles into strategies and practices throughout the organisation (Taticchi et al 2010).

Most of the research studies in respect to the relationship between MCS and models focuses on profit making firms (Bititci, Garengo, Dörfler, & Nudurupati, 2012). This clearly shows the need to carry out research concerning on-profit making organisations such as NGOs and learning institutions. The missions of such measurement in organisations is to examine and communicate strategic milestones and to give feedback on organization's performance and improvement in key business areas such as customer satisfaction, financial marketplace, internal operational performance and learning and growth (Kaplan & Norton 2001). The relationship is an indication of anticipated improvement in internal aspects of the institution through management control systems implementation which leads to improved performance in such areas as operational, managerial capabilities and authentic relationships between disciplines.

Since institutions' environment is characterized by fast changes in customers, technology and competition then there is need to continuously renew themselves to survive and prosper (Danneels 2002). This makes the adaptation of MCS inevitable to control any adverse effects on performance indicators. Merchant and Otley (2007) suggests that MCS is meant to help organisations adapt easily to the environment in which they are set and deliver the key results to the stakeholders.

2.6.1 Institutional Leadership and Institutional Performance

AlifAiqal (2007) defines Institutional Leadership as the process by which managers influence other members of the organization to implement the organization's strategies. In TTIs, the administration is headed by the chief executive (principal) who is in charge of the daily running of the institution. Other members are the Deputy Principal/s and heads of department. Their main duties are to interpret and implement the policies as conceptualized by the Board of Management (BoM) (GOK 2013).

Institutional Leadership influences the way resources are focused to convert distinct competences into outcomes. Performance of the institution is significantly impacted by the leader and if the functions are appropriately established for the system, it attracts customers and helps in maximizing the institution's funds, reinforcing its pillars and this will result in the expected increase in performance. In other words, effective leadership protects against probable financial challenges and facilitates remarkable growth and therefore; plays a key role in the growth of the institutional performance (Ehikioya 2009).

Further, Feldman (2001) outlined the traditional relationship between the company directors and the strategic management process. The directors add value to the process by closely engaging in evaluating/monitoring the strategic planning implementation.

However, the roles of the directors have been expanded and shifted from outsiders who are in-charge of evaluation only to include: participation in the establishment of target markets, formulation of goals and objectives, strategic decision making, acting as cooperative and supportive entities.

2.6.2 Organisation Processes and Institutional Performance

Eisenhardt and Sull (2001) suggest that in the rapidly changing and ambiguous markets, the focus is more towards processes and most importantly, the 'simple rules' that guide the key processes. The robustness that comes with a strategy based on resources and positions makes it difficult to act rapidly since growth, rather than profit, is the ultimate objective of institutions. Organisation Processes are concerned with the activity/operation system which is the heart of any business especially in the service industry (Harrison, 2002). It involves creating a functioning organisation structure that is not excessively bloated, management of meagre resources and supply and use of infrastructure (Afuah & Tucci 2000). Further, an activity structure system indicates how an institution performs the selected activities, and when it performs them and addresses the 'how' of providing customers and end-users with products and services, thereby addressing the underlying logic of how the institution delivers value to its customers at an appropriate cost.

According to Simons et al. (2000), Management Control Systems are the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities. The structure of an institution refers to the activities and their execution within the model and MCS has a significant impact on the execution of these activities. MCS therefore is not a stable system, rather a system that is dynamic and it's reassessed as the organisation grows and develops new training

models. Management control system (MCS) is adjusted at the same time as the model evolves (Kober et al., 2007) and the model's success depends on company's individual organizational elements or sub-systems and how well they work together in a control package. In a nutshell, MCS is a system that compiles information on specific aspects of the organisation's performance and releases them to organisation members. In order to successfully do this, attention is drawn to the systems an organisation uses and how it is applied.

2.6.3 Human Resources Management and Institutional Performance

The success of an institution and the success of its students are inseparable and thus Pascarella and Terenzini (2005) and Kuh, et al (2008) maintain that colleges and universities, irrespective of size and mission, have recognized this principle. In his study on 'The effect of training and development on employees Performance,' Amadi (2014) regards the teacher and the environment as two great contributors to the learner's performance and further explains that most early research addressed the teacher or the curriculum factor focusing on learning principles that enhanced the teacher. However, more recent studies of Sharon and Spencer (2004) point to the trainee and the organisational context as factors affecting learning.

Management control system (MCS) provides useful information for managers to deal with organisation problems. According to the Malmi and Brown (2008), management controls include all the devices and systems managers use to ensure that the behavior and decisions of their employees are consistent with the organisation's objectives and strategies. MCS influences the behavior of organisational resources to implement organizational model and essentially, the concept of MCS shares three principles which are customer focus, continuous improvement and the central role of people (Irianto 2005).

MCS is a valuable source of information on teaching and learning quality because it investigates the core of the student learning experience (quality of teaching, curriculum, assessment, services and facilities). Key process indicators (KPIs) provide information and context to facilitate interpretation of output and outcome indicators (Laguir et al., 2019). When combined with valid and reliable input measures to account for contextual diversity, output and outcome indicators provide the results of teaching and learning. These measures provide a comprehensive perspective for institutional strengths and weaknesses to be identified so that further improvement and enhancement can be undertaken.

Crutzen, Zvezdov, and Schaltegger, (2017) aver that MCS is concerned with resource allocation, motivation, performance management and coordination. These aspects portray MCS as multi-disciplinarian subject that draws emphasis on three main aspects of the organisation which include accounting, resource allocation and communication which may lead to motivation, drawing contributions from social psychology and organisation behaviour.

2.7 Gaps in Literature

Literature on the area of study was not fully exhaustive and thus the following areas were not fully considered: in Kenya, there is little evidence of formal research that has been conducted in relation to MCS practices in learning Institutions; it is quite difficult to quantitatively and monetarily evaluate performance of training institution models which do not encompass objective evaluation of organization's products and services and overall financial and market performance and thus suitable evaluation techniques need to be established; research on MCS practices for Kenyan public service is yet to be conducted; most research concentrates on application of MCS in

Large Scale Firms and very few Micro and Medium Enterprises; no research has been conducted on training models-MCS-Institutional performance and the question of how institutions use MCS to facilitate and support the strategic change process is largely unexplored.

2.8 Conceptual Framework

The conceptual framework comprises of independent variables, a moderator and a dependent variable. In this study, the conceptual framework was looked at as a theoretical structure of assumptions, principles and rules that hold together the ideas comprising a broad concept explained by the variables. The interconnection between the concepts completed the framework for certain expected outcomes. The conceptual framework suggests that there is effect of the moderating variable on the relationship between independent variables and the dependent variable (Baron and Kenny, 1986) and as shown in figure 2.1a. Further, the statistical diagram on conditional effects in accordance with Hayes (2013) model 1 on hierarchical moderation effects is shown in fig 2.1b.

In this research, the control variables fig 2.1a cannot be ignored since even a small effect may change the research results in a big way. Three control variables were considered: the age of institution, the location of institution from the county education office and the size of institution. The control variables are also indicated and their effect on the independent variables was also tested.

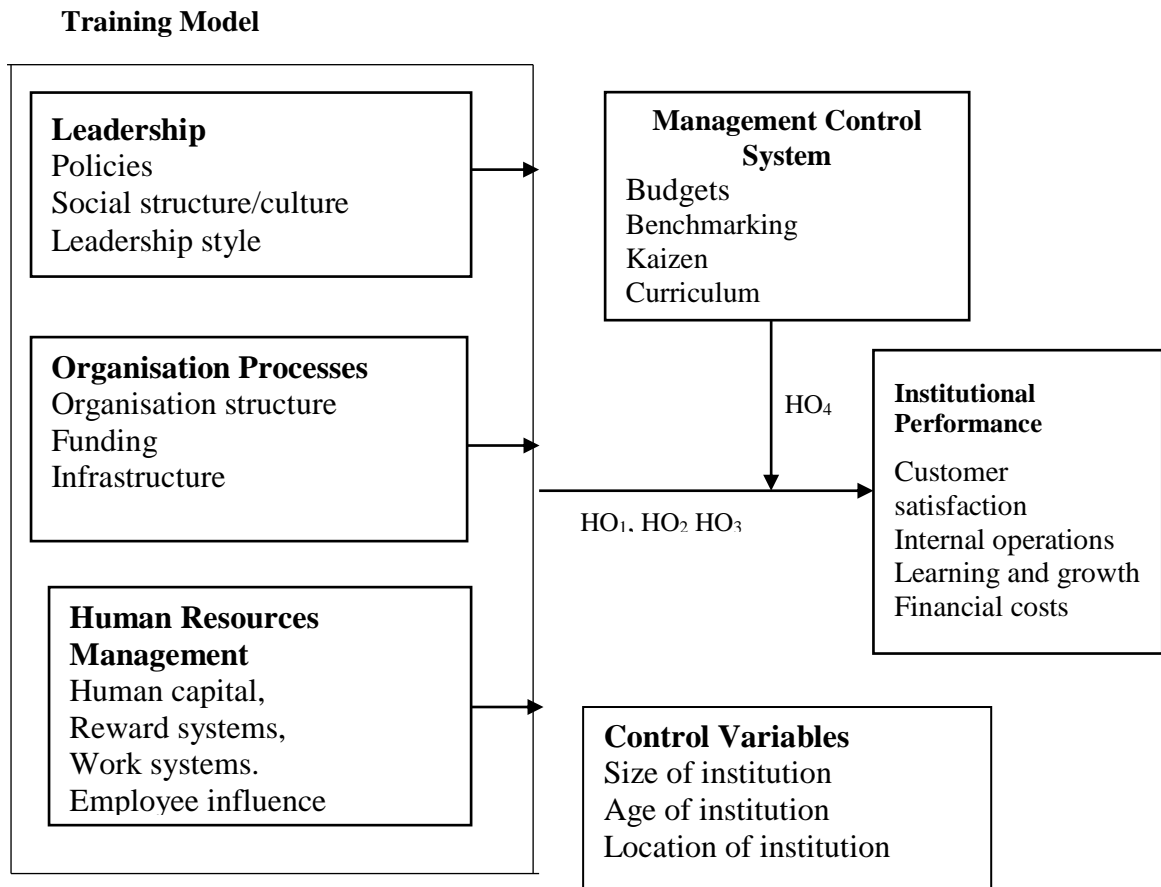


Fig 2.1a Conceptual Framework (Source: Survey Study, 2019)

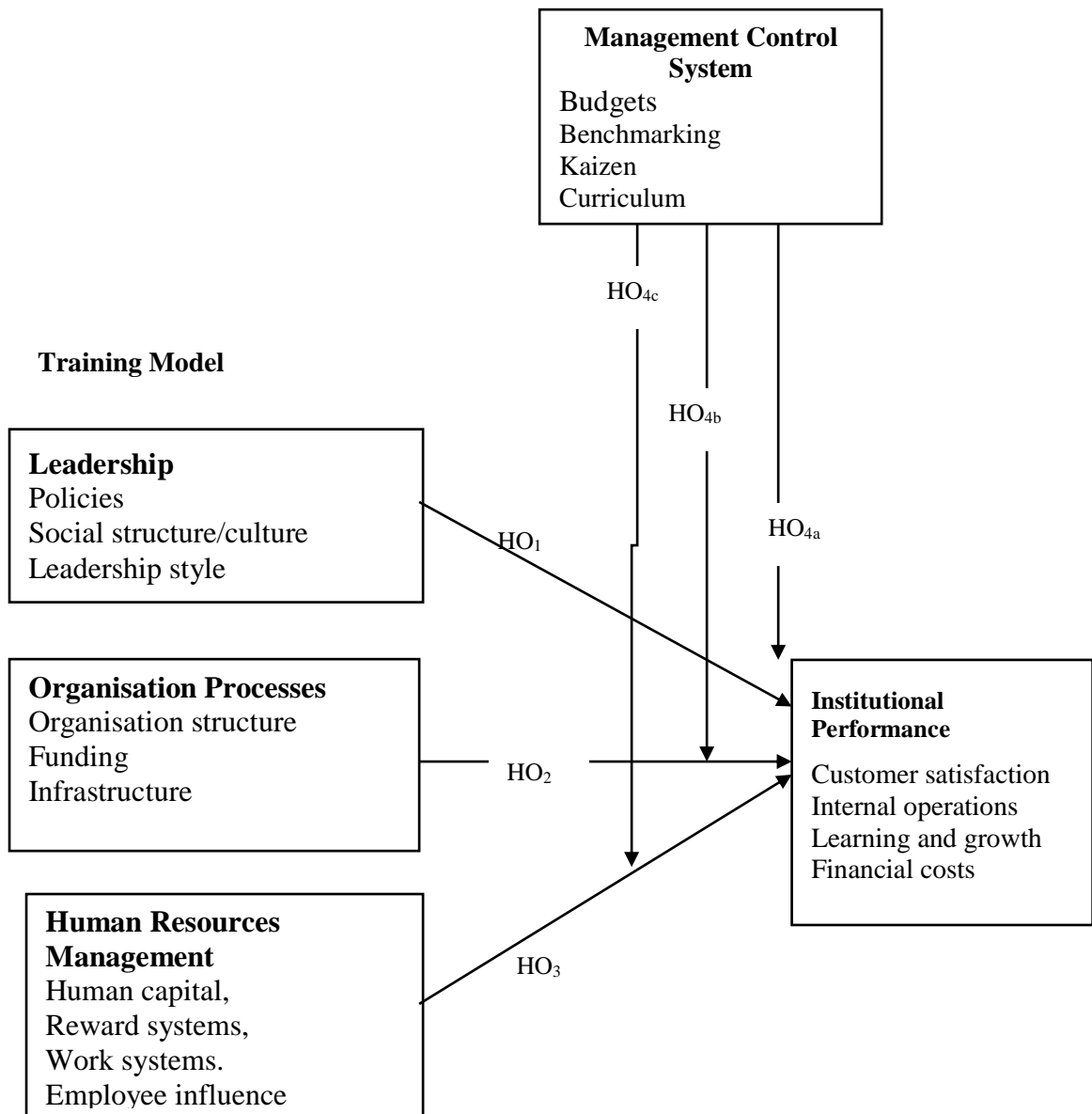


Fig 2.1b: Moderation Effects (Source: Survey Study, 2019)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the research methodology that was employed in the study. It entailed identifying the research philosophy, research design, the target population, sampling, Data Collection Procedures and Research Instrument, measurement of variables, data analysis, diagnostic tests and ethical considerations.

3.2 The Research Philosophy

Scientific research philosophy is a system of the researcher's thought, following which new, reliable knowledge about the research object is obtained Pranas et al (2018). In other words, it is the basis of the research, which involves the choice of research strategy, formulation of the problem, data collection, processing, and analysis. The paradigm of scientific research, in turn, consists of ontology, epistemology methodology, and methods. Methodological choice, according to Holden and Lynch (2018), should be related to the philosophical position of the researcher and the analysed social science phenomenon. In the field of research, several philosophical approaches are possible; however, according to the authors, more extreme approaches can be delimiting. Only intermediary philosophical approach allows the researcher to reconcile philosophy, methodology, and the problem of research.

There are four main trends of research philosophy that are distinguished and discussed in the works by many authors: the positivism research philosophy, interpretivism research philosophy, pragmatist research philosophy, and realistic research philosophy. Positivism research philosophy claims that the social world can be

understood in an objective way. The scientist is an objective analyst and, on the basis of it, dissociates himself from personal values and works independently. The opposite of the above-mentioned research philosophy is the interpretivism research philosophy, which states that on the basis of principles it is not easy to understand the social world. Interpretivism research philosophy claims that the social world can be interpreted in a subjective manner (Cohen et al, 2018).

Positivism research philosophy as applied in this study assisted to discover universal laws that can be used to predict human activity as proposed by Cavana et al (2001). This philosophy emphasizes a value-free (objective) view of science as explained by Bryman and Bell (2015). The positivism research philosophy is characterized by a belief in theory before research and statistical justification of conclusions from empirically testable hypothesis which is the core tenet of social science (Cooper & Schindler 2008). It is an epistemological concept frequently associated with quantitative methods that rely on the researchers' ability to gather numerical evidence of the phenomena under investigation and analyse it to answer the research question (Veal 2005). Positivism influences or advances the understanding of the relationship of various variables particularly independent and dependent variables.

3.3 Research Design

The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data. Note that the research problem determines the type of design you should use, not the other way around (De Vaus (2001); Trochim & William (2006)). The function of a research design is to ensure that

the evidence obtained enables you to effectively address the research problem logically and as unambiguously as possible. In social sciences research, obtaining information relevant to the research problem generally entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe and assess meaning related to an observable phenomenon.

This study used an explanatory research design which was suitable for this study because it focused on why questions. Similar questions could be raised on the training model: for example, why is there a disconnect between the skill levels of TTI graduates and the world of work? This research design involved collecting information that enabled the hunch that MCS moderates the relationship between the training model and institutional performance to have a causal explanation as suggested by Clark and Creswell (2011).

3.4 Target Population

Table 3.1: Target Population Summary

Number of Institutions	Target Population	Sample Size
59	379	194

Source: Teachers Service Commission (TSC), 2015

The target population comprised of 379 heads of academic departments (HODs) from the 59 TTIs in Kenya which were registered with both MOEST and TVETA by 2015. The 379 HODs were identified from a list of the 59 institutions as shown in table 3.1 above. Though the institutions have increased in number to date, the others were not considered since they were new and did not exist at the time of study. The support staffs were excluded from the population since some concepts of study were not familiar to them. The students were also not considered as they are external customers

and are considered recipients of the services generated from TTIs and may therefore lack objectivity.

3.5 Sampling

This study used simple random sampling technique as indicated in appendix 4 where a list of the 59 institutions and the total number of 379 HODs who were the unit of inquiry is shown. A sample of 194 was calculated from the target population of 379 HODs obtained from the 59 institutions which were the unit of analysis. Simple Random sampling method of sample selection was appropriate for getting a sample since the target population was heterogeneous (Blumberg & Luke 2010) due to location and challenges in different parts of the country as a result of diversity in geographical, social and economic conditions within the country. This ensured that the sample was representative.

Sample size calculation can be done by use of either Yamane or Cochran equations (Amugune, 2014). Cochran's model is suitable for a population greater than 10,000. Therefore the Yamane statistical technique provided by Amugune, (2014) was more simplified and was used to calculate the sample size for the target population of 379. This technique ensured that the sample was representative for the entire population. Yamane's model is as follows:

$$n = \frac{n}{1 + N^2}$$

Where:

n is the required sample size

N is the target population

e is the desired level of precision

Thus, $n = 379/1+379/0.05^2 = 194$; a significant level (α) of 95% was adopted

In this study therefore a sample of 194 was considered for the total population of 379 heads of academic departments from 59 TTIs.

3.6 Data Collection Procedures and Research Instrument

This study relied on primary data because it is widely used in research, straightforward and produces original and authentic results compared to secondary data which is second hand and may require modification to suit the study (Clark & Creswell 2011). In essence, the researcher collected the data using an adopted questionnaire. This is an acceptable technique apart from using surveys, interviews and direct observations (Rowe, 2009). The heads of academic departments (HODs) (unit of inquiry) from the 59 TTIs (unit of analysis) provided the requisite data for this study.

This study used a data collection questionnaire by various scholars Auzair (2011), Kruis(2008), Simiyu (2010) and Tsamenyi (2011). The non-financial forms of performance measurements operationalized in this study are intangible strategic assets (Omachonu et al 2008) as guided by the BSC (Kaplan & Norton, 2001) model. The questionnaire by Kemenade et al (2009) has been adopted for the MCS. Data was collected using a closed ended questionnaire. The questionnaire (appendix 3) was divided into six parts (A, B, C, D, E and F). Parts A to D were adopted from a modified version of a data collection instrument by Auzair (2011), Kruis (2008), Simiyu (2010) and Tsamenyi (2011). Part A of the questionnaire captured background information on the respondents and control variables while part B asked questions on institutional leadership, part C was on organisation processes while part D was on human resources management. Part E was on MCS was adopted from a questionnaire

by Kemenade et al (2009) while part F which focused on institutional performance was based on the BSC (Kaplan & Norton 2015) and was adopted from the non-financial forms of performance measurements operationalized in a study on intangible strategic assets by Omachonu et al (2008).

The questionnaire contained closed-ended questions which guided respondents and restricted them to only specified choices given as per the studies of Saunder et al (2007). The closed ended questions were in a 5 point Likert scale which was appropriate for this study as this minimized variability of response while pre-specifying a set of response alternatives to increase response rate (Jarvenpaa et al 2000). Secondly, all the components were checked and coded to ensure clarity of words and the accuracy of the statements in relation to specific research questions, then pre-tested in selected TTIs that were not part of the sample but were also registered by MOEST. The questionnaire was then refined using the obtained information from the pre-test data and thereafter used to collect data from TTIs all over Kenya.

The questionnaire was self-administered where the researcher visited each institution personally and after seeking permission from the administration and assuring the respondents of adherence to ethical obligations requested the respondent to complete the questionnaire. The researcher had also acquired an authorization letter from the Moi University for purposes of identification (appendix 2). In cases where the respondent could not fill the questionnaire immediately, a collection date and time was agreed upon. The researcher adopted the self-administration of the questionnaire because it is cheaper and quicker and it is above researcher's effect and variability. It was also highly convenient for the respondents as they filled them during free times or

when workloads were manageable (Rowe, 2009). Sharma (2013) adopted the self-administered questionnaire technique in his study on MCS practices and their impact on productivity in large scale organisations.

3.7 Measurement of Variables

Table 3: 2 Measurement of Variables

	VARIABLE	MEASUREMENT VARIABLES	CONSTRUCTS
1.	Training Model Institutional Leadership Organisation Processes Human Resources	Polices	Institutional policies and programs are effectively communicated Duties are clearly spelt out for each employee
		Social structure	Sanctions for undisciplined staff are fairly applied and communicated Duties are clearly spelt out for each employee There is collaboration with stakeholders
		Leadership Style	Leadership roles are availed for staff at every level Participative leadership is encouraged
		Funding	Teaching and learning materials are provided on time Funding for programs is adequate
		Infrastructure	Teaching facilities are adequate The institution has a maintenance program
		Organisation structure	The entire system (institution departments) is coordinated Roles are not duplicated
		Reward Systems	Reward mechanism of staff is available Remuneration is adequate
		Work Systems	Teachers are qualified for areas assigned Teacher evaluation process is clear and adequate
		Human capital	Training and development programs are available Work is fairly distributed taking teachers strong areas into account
		Employee Influence	Teachers influence decisions of the employer through trade unions Participative leadership motivates the employees
2.	Management Control System	Benchmarking	Benchmarking programs are carried out frequently
		Curriculum	The curriculum content is adequately covered Students are disciplined
		Budgeting	Budgets and plans are strictly adhered to in the institution
		Kaizen	Formulating and implementing change is encouraged Adequate management support is provided Monitoring of teaching and learning is achieved

3.	Institutional Performance	Internal Operations	Internal operations and processes of the TTI are efficient and effective Performance control techniques are simple, systematic, easy-to-understand approach
		Learning and growth	Evidence of institution growth in academic circles is available
		Financial Perspective	There is an Efficient and effective control mechanism of institutional funds (Adherence to budgets and plans)
		Customer Focus	Students and other stakeholders are satisfied with institutional services (adherence to the customer service charter) Student follow-up programs are integrated

Source: Survey Study, 2019

The measurement constructs used in this study have a solid backing of literature and a pool of items for each variable was obtained. The constructs which include institutional performance, training model and management control system were presented in a research conceptual model (figure 2.1). The constructs were measured using a five-point Likert scale to increase the variability and reliability of responses.

3.7.1 Independent Variable

The independent variable which was the training model was measured using the key dimensions of Institutional Leadership, Organisation Processes and Human Resources Management as conceptualized through TQM and data collected using a modified questionnaire by Auzair (2011), Kruis (2008), Simiyu (2010) and Tsamenyi (2011). The independent variable was conceptualized into three constructs of Institutional Leadership, Organisation Processes and Human Resources Management. These constructs were further divided into several study items which attempted to seek relevant information from the respondents.

In institutional leadership the researcher sought to investigate the kind of leaders deployed in TTIs, their capability and the kinds of leadership styles they adopted. To answer to these issues the item raised was ‘institutional policies and programs are effectively communicated’ where the researcher wanted to understand whether there was efficient mode of communication and that all the employees received such communication in a timely manner. In the construct, ‘information duties were clearly spelt out for each employee,’ the researcher was interested to illustrate whether the leaders made any attempt to ensure that instructions and orders were clearly communicated within the institutions. The next item was ‘leadership roles are availed for staff at every level,’ where the intention was to determine the extent to which the

leaders were practicing participative leadership and succession leadership. The researcher further wanted to understand the discipline procedures ‘sanctions for undisciplined staff are fairly applied and communicated,’ as applied by the institutions. The idea was to establish whether the methods applied were fair to all staff. Finally the researcher wanted to determine the degree of collaboration with stakeholders. This was meant to enhance sharing of innovations and general information on governance and management.

The second construct under study was organisation processes of the institutions where the researcher wanted to establish the degree of efficiency and contribution of the organisation processes to performance. Six items were used to study this construct where the first was ‘teaching and learning materials are provided on time,’ which was meant to elicit information on supply of key teaching and learning material. It is important to understand that materials are expensive and the managers are always operating on tight budgets.

In the item ‘funding for programs is adequate,’ the researcher was concerned about the supply of funds into the institutions mainly for recurrent expenditure such as salaries. It should be noted that when workers are not paid on time they are likely to become de-motivated and consequently display low morale. Facilities as mentioned in the literature have always been a big issue in learning institutions. The item ‘teaching facilities are adequate,’ was meant to draw light on this issue. Following supplies closely, there was the issue of an efficient maintenance program. This was expected to carry out both planned and unplanned maintenance on all equipment and facilities to enhance efficiency, timely delivery of services and prevent unwarranted work stoppages. The researcher wanted to investigate the level of coordination between the

departments of the institution through, 'the entire system (institution departments) is coordinated.' This was intended to facilitate success in pursuance of common goals. Finally, the researcher was interested in finding out whether there was conflict and buck-passing through 'roles are not duplicated'. This can cause serious management wars which will slow down performance in any organisation.

The last construct of the training model was human resources management. This was expected to provide insight of the adequacy and motivation levels of the employees. The items considered included: reward mechanism of staff which could take the form of either financial or non-financial. This was expected to boost the performance of every worker to a great extent. The researcher also wanted to determine whether work was fairly distributed taking trainers' strong areas into account. If this was ignored the workers would feel disoriented, de-motivated and have low morale. The trainers evaluation process was also investigated under, 'teacher evaluation process is clear and adequate'. This information helped to state whether there existed any evaluation mechanism and whether it was efficient and fair.

As to whether institutions had qualified trainers, the researcher used the item, 'teachers are qualified for areas assigned.' This was to help answer the question of trainers training in areas that they were not qualified in or having quarks as it were. Any growing institution must invest in the growth of its staff through training and development programs. Though such programs may be expensive the institution was expected to ensure that they existed for posterity and motivation. The remuneration had always been an issue because no worker would accept that they were paid enough. This was therefore expected to explain the general feeling of the staff. The study also examined the influence of workers on the system by statement 'Teachers

influence decisions of the employer through trade unions.’ Study was able to tell whether the workers were able to lobby successfully as one body on various issues such as working conditions and salaries. Such a forum was a sign of security, high morale and motivation.

3.7.2 Moderating Variable

Management Control System (MCS) which was the moderating variable was measured using four dimensions: budgets, benchmarking, Kaizen and curriculum as conceptualized by Chalmers et al. (2008). The aim was to investigate the extent to which each of these constructs affected the relationship between the training model and institutional performance. The items of study were adopted and modified from the questionnaire by Van Kemenade(2009)The constructs included: the methods used for monitoring of teaching and learning were adequate and whether they even existed in the institutions. For any meaningful performance then each activity needs not only to be evaluated at the end-stage but also at the mid-way stage so that the requisite corrective measures can be taken.

Adequate management support is necessary for any tasks to be completed. The researcher was therefore interested to determine the degree of support given to the staff. The staff and the organisation were able to grow by comparing themselves and learning from the best in the industry. The extent of benchmarking was accomplished by examining the construct, ‘benchmarking programs are carried out frequently.’ Similarly success of an institution is accomplished when the planned tasks are completed. This was investigated through the item, ‘the curriculum content is adequately covered.’

Further, discipline in management of funds ensures that there is no misuse and misappropriation. This was investigated through, 'budgets and plans are strictly adhered to in the institution.' To determine whether the institution was dynamic the researcher used the construct, 'Formulating and implementing change is encouraged.' This was meant to assess the extent to which the institution encouraged innovation and research. Finally the researcher was interested in students discipline because no meaningful performance can be achieved in an environment of indiscipline. The students were expected to be diligent and committed in the areas they had chosen to study.

3.7.3 Dependent Variable

This study measured institutional performance based on the BSC model with dimensions of customer satisfaction, learning and growth, operational performance and financial responsibility. The questionnaire for this construct was adopted and modified from a study on intangible strategic assets by Omachonu et al (2008). The suggested items that guided the study included: 'internal operations and processes of the TTI are efficient and effective' which was intended to determine whether operations were able to achieve the intended purpose at a reasonable cost and period.

The next important item was to seek any information on institutional growth and development using the item, 'Evidence of institution growth in academic circles is available.' Institutions without any growth patterns are likely to die or eventually disappear with time. Overall the study sought to establish whether there was an Efficient and effective control mechanism of institutional funds, budgets and plans which would lead to stakeholder satisfaction with institutional services. At the end of the day the stakeholders that include students, guardians, government and the industry

needed to acknowledge any accomplishments arising from the efforts the institution had displayed to satisfy their diverse needs as the ultimate goal of the institution.

3.7.4 Control Variables

In this study the control variables identified: size of institution (number of teachers and students), age of institution and location of institution from the county education office in Kilometers was measured by including the residuals in the regression model. A control variable is any factor that remains unchanged and strongly influences other variables (Fraenkel & Wallen 2000). These endogenous variables were held constant to test the relative impact of an independent variable on the outcome variable.

In this study, the control variables were measured using part A of the questionnaire on demographics and were also included in subsequent multiple regression models. The general form of the model was;

$$Y_c = \beta_{0c} + \beta_{1c}X_{1c} + \beta_{2c}X_{2c} + \beta_{3c}X_{3c} + \epsilon_c$$

Where, Y_c was the institutional performance of TTIs, X_{1c} was age of the institution, X_{2c} was size of the institution and X_{3c} was the distance of the institution from the county education office. Where β_{0c} is the constant, β_{1c} , β_{2c} and β_{3c} were the model coefficient of control variables which influence the model. The ϵ_c was the error term component and c was the control variable.

In this study the size of institution was tested by considering the number of trainers and the students. This control variable was considered important since it was likely to dictate the style of leadership, the amount of funds, the required facilities and resources. The age of institution reflects the culture of the institution. Older institutions are likely to have strong cultures which could influence the ultimate

performance. The location of institution from the county office was expected to explain issues of diversity between institutions. Those institutions that were far from the county education office were likely to be difficult to visit frequently and thus information and any scarcity of resources would take a longer time to sort out. Such institutions were also likely not to be inaccessible and therefore unattractive to new staff as stated by Brinkerhoff, Wetterberg and Wibbels (2018). These researchers in their research on 'Distance, services, and citizen perceptions of the state in rural Africa' were of the view that most poor countries, basic services in rural areas are less accessible and of lower quality than those in urban settings.

3.8 Data Analysis and Presentation

The analysis of data in this study was carried out using both descriptive and inferential statistics methods. According to Cohen et al (2018), descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way such that, for example, patterns might emerge from the data. Descriptive statistics do not, however, allow us to make conclusions beyond the data we have analysed or reach conclusions regarding any hypotheses we might have made. They are simply a way to describe our data.

Descriptive statistics are very important because if we simply presented our raw data it would be hard to visualize what the data was showing, especially if there was a lot of it. Descriptive statistics therefore enables us to present the data in a more meaningful way, which allows simpler interpretation of the data. For example, if we had the results of 100 pieces of students' coursework, we may be interested in the overall performance of those students. We would also be interested in the distribution

or spread of the marks. Descriptive statistics allow us to do this. Typically, there are two general types of statistic that are used to describe data:

Measures of central tendency: these are ways of describing the central position of a frequency distribution for a group of data. In this case, the frequency distribution is simply the distribution and pattern of marks scored by the 100 students from the lowest to the highest. We can describe this central position using a number of statistics, including the mode, median, and mean.

Measures of spread: these are ways of summarizing a group of data by describing how far the score are spread out. For example, the mean score of our 100 students may be 65 out of 100. However, not all students will have scored 65 marks. Rather, their scores will be spread out. Some will be lower and others higher. To describe this spread, a number of statistics are available to us, including the range, quartiles, absolute deviation, variance and standard deviation.

When we use descriptive statistics it is useful to summarize our group of data using a combination of tabulated description (i.e., tables), graphical description (i.e., graphs and charts) and statistical commentary (i.e., a discussion of the results).

The raw data collected in this study was systematically organized in a manner that facilitated analysis. Data analysis consisted of examining, categorizing, tabulation, and rearranging the data obtained from the study. The raw data was cleaned and edited to enable quantitative analysis which involved both descriptive and inferential statistics. The results of the analysis were categorized along each predetermined research objective. Descriptive statistics were analysed in the form of percentages, frequency distribution, mean scores and measures of dispersion for variables included in the study. Inferential statistics involved regression analysis where the data was

subjected to multivariate statistical method which was appropriate technique for this study due to the relatively broad range of associations tested. Multivariate statistical methods analyse multiple variables or even multiple sets of variables simultaneously (Tait et al. 2010). Multiple linear regression is the most common form of linear regression analysis and as a predictive analysis, the multiple linear regression is used to explain the relationship between one continuous dependent variable and two or more independent variables. The independent variables can be continuous or categorical (dummy coded as appropriate).

Multiple linear regression is used to identify the strength of the effect that the independent variables have on a dependent variable. To forecast effects or impacts of changes, multiple linear regression analysis helps to understand the magnitude by which the dependent variable changes when the independent variables are changed. For instance, a multiple linear regression gives the rate by which grade point aggregate (GPA) is expected to increase (or decrease) for every one point increase (or decrease) in intelligence quotient (IQ). Multiple linear regression analysis predicts trends and future values; analysis can be used to get point estimates. Multiple regression also attempts to determine whether a group of variables together predict a given dependent variable (Harter et al. 2002). The multiple regression model was adopted since the study had more than one variable.

3.8.1 Multivariate Regression Testing

The general form of the model was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_1 \dots \dots \dots \text{Equation 1}$$

Where, Y was the institutional performance of TTIs, X_1 was institutional leadership, X_2 was processes and organisation systems and X_3 was human resources management.

Where β_0 is the constant, β_1 , β_2 and β_3 were the model coefficient of independent variables which influence the model. The ε_1 was the error term component.

3.8.2 Moderated hierarchical multiple regression

Moderated hierarchical multiple regression statistical model was used to test whether MCS moderated on the relationship between: training model and institutional performance; institutional leadership and institutional performance; organisation processes and institutional performance and human resources management and institutional performance. The theory by Dyer, Gursoy, Sharma, and Carter (2007) was adopted in which moderated hierarchical multiple regression was used to examine the relationships between a set of independent variables on the dependent variable, after controlling for the effects of some other independent variables on the dependent variable. In moderated hierarchical multiple regression analysis, the study determined the order that variables were entered into the regression equation.

Moderated hierarchical multiple regression was suited for this study because it enabled the slope of one or more of the independent variables to vary across values of the moderator variable, thereby facilitating the investigation of an extensive range of relationships and functions as proposed by Harris and Goode (2004). Moderated hierarchical multiple regression model permits multiple relationship between the endogenous and exogenous variable to depend on the level of other exogenous variables in the study. Estimating interaction effects using moderated hierarchical multiple regression usually consists of creating two or more ordinary least squares (OLS) regression equations involving scores for continuous predictor variable X, and scores for second predictors variable Z hypothesized to be the moderator as suggested by Aguinis and Gottfredson (2010) in their study.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + Z + \varepsilon_2 \dots \dots \dots \text{Equation 2}$$

Where, Y was the institutional performance of TTIs, X_1 was institutional leadership, X_2 was organisation processes and X_3 was human resources management. Where β_0 is the constant, β_1 , β_2 and β_3 were the model coefficient of independent variables which influence the model. Z is the moderator included in the multiple regressions of direct effects. The ε_2 was the error term component.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_1 X_1 * Z + \beta_2 X_2 * Z + \beta_3 X_3 * Z + \varepsilon_3 \dots \dots \dots \text{Equation 3,}$$

The equations above show ordinary least squares (OLS) regression equation for models predicting Y scores from the first order effects of X and Z observed scores and the interaction equations between the independent variables (X) and moderator variable (Z) with an interaction ($X_1 * Z$, $X_2 * Z$, $X_3 * Z$) using moderated hierarchical multiple regression. ε_3 is the error component, while Y was the institutional performance of TTIs, X_1 was institutional leadership, X_2 was organisation processes, X_3 was human resources management, β_0 is the constant, β_1 , β_2 and β_3 were the model coefficient of independent variables which influence the model and * is the interaction.

3.9 Correlation Analysis

Correlation, as the name suggests, depicts a relationship between two or more variables under study. Chen and Haziza (2019) generally categorize correlation into two types, namely Bivariate and Partial. Bivariate is the one that shows an association between two variables. Partial is the one that shows the association between two variables while keeping control or adjusting the effect of one or more additional variables.

A Correlation is a degree of measure, which means that it can be negative, positive, or perfect (Best & Kahn, 2006). A positive Correlation is a type in which an increase

changes the other variable. In other words, if there is an increase (or decrease) in one variable, then there is a simultaneous increase (decrease) in the other variable. A negative Correlation is a type where if there is a decrease (or increase) in one variable, then there is a simultaneous increase (or decrease) in the other variables. A perfect Correlation is that type where a change in one variable affects an equivalent change in the other variable.

Karl Pearson developed a formula to measure the degree of the Correlation, called the Correlation Coefficient. This is generally depicted as 'r.' It is defined as the ratio between the covariance of the two variables and the product of the square root of their individual variances. The range generally lies between -1 to +1. If the value is '+1,' then the variable is said to be positively correlated. If, on the other hand, the value of the Correlation Coefficient is '-1,' then the variable is said to be negatively correlated.

The value of the Correlation Coefficient does not depend upon the change in origin and the change in the scale. If the value of the Correlation Coefficient is zero, then the variables are said to be uncorrelated. Thus, the variables would be regarded as independent. If there is no Correlation in the variables, then the change in one variable will not affect the change in the other variable at all, and therefore the variables will be independent. However, if the covariance of the two variables is zero, then it does not necessarily mean that the two variables are independent. For the cases where operating forces are entirely independent, then the value of the correlation coefficient must be zero. If the value is not zero, then in such cases, correlation is often termed as chance or spurious. For example, the correlation between the income of a person and the height of a person is a case of spurious correlation. Another example of spurious

correlation is the correlation between the size of the shoe and the intelligence of a certain group of people.

There are certain assumptions that come along with the Correlation Coefficient: It assumes that the variables under study should be linearly correlated. It assumes that a cause and effect relationship exists between different forces operating on the items of the two variable series. Such forces assumed by the correlation coefficient must be common to both series.

3.10 Diagnostic Tests

3.10.1 Pilot Test

A Pilot Test was conducted to preliminarily assess the proposed instruments and modify it to suit the context of this present study in areas such as the clarity of the research instruments; items that may confuse respondents and to identify sensitive or annoying items (Cordeiro & Lemonte, 2011). This study used the academic HODs from TTIs that were registered by MOEST but were not recognized by TVETA. Only 10% of the entire sample size (194 respondents) was used in the pilot study (Mugenda & Mugenda, 2003) which translated to nineteen (19) respondents who were obtained from institutions not registered with TVETA. The desirability of a pilot study was to ensure that the research instrument as a whole functioned well (Bryman, 2004).

3.10.2 Instrument Reliability

To ensure reliability, a pre-test of the questionnaire was done to check the clarity of items and consistency in the meaning of items to all respondents. This study also used the internal consistency technique to check on reliability of the questionnaire. The most common internal consistency measure which generates a coefficient value is known as Cronbach's alpha (α) (Waithaka & Ngugi, 2012). Waithaka and Ngugi

(2012) further aver that Internal consistency indicates the extent to which a set of items can be treated as measuring a single latent variable. Cronbach alpha value of 0.7 was recommended cut-off point of reliabilities for this study.

3.10.3 Instrument Validity

This study tested both construct validity and content validity. Validity of the research instrument is the accuracy and meaningfulness of inferences based on the results. Best and Kahn (2006) suggest that the validity of an instrument is asking the right questions framed from an ambiguous way. Construct validity is assessed by dividing the questionnaire into several sections according to the objectives of the study. Each section assesses information for a specific objective in relation to the conceptual framework and tested through Exploratory Factor Analysis (EFA). Convergent and discriminant validity can also be tested by use of Confirmatory Factor Analysis (CFA). Content validity test is done by use of opinion of the expert judges where the instrument is divided into two sets of constructs. In one set the constructs or concepts are assessed on the basis of what it is trying to measure while in the other set the items are examined as to whether they represent accurately the concepts that are measured.

In this study the questionnaire items were checked for clarity of words and the accuracy of statements in relation to research items through discussions with cohort members and colleagues who contributed a great deal in the ensuring validity of content. Further, pre-testing of questionnaires was also done to ensure that the items were clearly stated and have adequate content to ensure content validity.

3.10.4 Factor Analysis

Factor analysis is a term used to refer to statistical procedures used in summarizing relationships among variables in a parsimonious but accurate manner. It is a generic

term that includes several types of analyses, including (a) common factor analysis, (b) principal component analysis (PCA), and (c) confirmatory factor analysis (CFA). According to Merenda, (1997), common factor analysis may be used when a primary goal of the research is to investigate how well a new set of data fits a particular well-established model. Stevens (2002) noted that principal components analysis is usually used to identify the factor structure or model for a set of variables. In contrast; CFA is based on a strong theoretical foundation that allows the researcher to specify an exact model in advance. In this study, principal components analysis is of primary interest. Principal component analysis develops a small set of uncorrelated components based on the scores on the variables. Tabachnick and Fidell (2001) pointed that components empirically summarize the correlations among the variables. PCA is the more appropriate method than CFA if there are no hypotheses about components prior to data collection, that is, it is used for exploratory work. When one measures several variables, the correlation between each pair of variables can be arranged in a table of correlation coefficients between the variables. The diagonals in the matrix are all 1.0 because each variable theoretically has a perfect correlation with itself. The off-diagonal elements are the correlation coefficients between pairs of variables. The existence of clusters of large correlation coefficients between subsets of variables suggests that those variables are related and could be measuring the same underlying dimension or concept. These underlying dimensions are called components

Varimax rotation (also called Kaiser-Varimax rotation) maximizes the sum of the variance of the squared loadings, where loadings mean correlations between variables and factors. This usually results in high factor loadings for a smaller number of variables and low factor loadings for the rest. Remaining components all have eigenvalues of more than one (Stevens, 1996). In simple terms, the result is a small

number of important variables are highlighted, which makes it easier to interpret your results. Rotations can be orthogonal, like Varimax rotation, or oblique. With oblique factor rotations, the new factors are correlated; with orthogonal rotation, the factors are not correlated. Orthogonal rotations have the greatest scientific utility, consistency, and meaning (Gannon Cook, 2010). Varimax, along with quartimax, are two of the most common types of orthogonal rotations (Merenda, 1997)

KMO and Bartlett's tests were carried out to explore sampling adequacy and that the data was suitable for factor analysis (Laura & Stephanie 2011). This was meant to give an assurance that the item correlation matrix was not an identity matrix, and that the data was adequate and suitable for factor analysis. The Bartlett's test of sphericity was used to test the null hypothesis and to check that the variables in the population correlation matrix were uncorrelated

3.10.5 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) which uses Principal Component Analysis was used to test construct validity by assessing the underlying structure of the constructs studied because it is an unrestricted model which considers a simple structure where the latent factors are set to explain as much variance as possible for a set of observed variables/indicators (Kaplan and Norton 2015). Each section assessed information for a specific objective in relation to the conceptual framework.

The EFA results were also used to reduce the number of factors to make data analysis manageable and improve accuracy. This obtained the number of possible factors that can be explained by the indicators. A proposal by DeVellis (2016) and Jolliffe (2011) was to drop off factors with Eigenvalues less than 1, since they provide less information than is provided by a single observed variable. To prevent expunging of

such variables a more concise and accurate estimation of Eigen values can be obtained using Varimax orthogonal rotation carried out on the predictor, criterion and moderator variables.

Confirmatory Factor Analysis (CFA) results were used to assess construct validity by assessing convergent and discriminant validity. Confirmatory Factor Analysis (CFA) is a uni-dimensional or restricted analysis based on the hypothesised model. According to Kline (2011), observed variables (indicators) that measure the same construct show convergent validity if their inter-correlations are at least moderate in magnitude and a set of observed variables measuring different constructs show discriminant validity if their inter-correlations are not too high.

3.10.6 Assumptions in Regression Analysis

The possibility of Type I or type II errors, over and under estimation of significance that affect regression results are prevented by testing for violations of assumptions. According to Belsley et al., (2005), Pedhazur (1997) and Osborne et al(2001), violations of assumptions may leads to serious biases and though they are of little consequence, are essential to meaningful data analysis. Thus the assumptions of normality, linearity, Heteroscedasticity and autocorrelation, Multicollinearity, common method variance (CMV), Non-Response Bias (NRB) and outliers were tested.

Non-Response Bias (NRB) is sorted out by in-put method and extrapolation method guidelines are used in dealing with non-respondent bias which entails the comparison of the data of late respondents with early respondents. It is assumed that late respondents have similar characteristics to those of non-respondents. Normality is important in knowing the shape of the distribution and helps to predict dependent

variables scores (Hempel 2009). The histogram of the residuals of the estimated model was used to show a bell shaped curve that seems to imply a normal distribution of the residuals. To confirm normality and the presence of outliers, Shapiro wilk's test, the box-plot and the Q-Q plot were used.

Heteroscedasticity means a situation in which the variance of the dependent variable varies across the data, as opposed to a situation where Ordinary Least Squares, (OLS) makes the assumption that the variance of the error term is constant. Heteroscedasticity complicates analysis because many methods in regression analysis are based on an assumption of equal variance (Kim et al. 2013). The Breusch-Pagan test was carried out where the BP Lagrange multiplier (LM) statistic was computed for the residuals. The BP tested the hypothesis that H_0 : residuals are homoscedastic (residuals do not exhibit heteroscedasticity).

Multicollinearity is the undesirable situation where the correlations among the independent variables are strong. To test for Multicollinearity, correlation between all pairs of independent variables is computed. Those that are close to 1 or -1, i.e. one of the two correlated independent variables are removed from the model. Another method is by use of Variance Inflation Factor (VIF). This measures Multicollinearity in the model whereby if VIF for one of the variables is around or greater than 5 there is Multicollinearity associated with that variable. In this case none of the variables were removed from the regression model (Cohen, West, & Aiken, 2003).

Abbott and McKinney (2013) define outliers as observations or subsets of observations which appear to be inconsistent with the remainder of the data and cases in datasets that contribute the most to multivariate non-normal data distributions may be cases of multivariate outliers. Outliers are also noted to contribute to

homoscedasticity or heteroscedasticity (Kline, 2011). The detection of outliers is thus conducted by checking the frequency tables for the data outside the minimum and maximum value label due to entry errors. This study further uses an approach by Yuan & Bentler (2001) to examine the effects of the outliers on the overall measure of the variables to determine whether the outliers should be removed or retained. The assessment of multivariate outlier cases was done by assessing the Mahalanobis (Caballero et al. 2017) distances from the centroid.

Autocorrelation refers to the correlation of a variable with its own past and future values (Bercu et al., 2014) instead of correlation being between two different variables. The Durbin-Watson (D-W) test was used to check for existence of serial correlation (autocorrelation) of the residuals. Small values of the D-W statistic indicate successive error terms were correlated, i.e. whether there is a (linear) correlation between the error term for one observation and the next.

A comparison was done between the calculated Durbin-Watson statistic and the tabulated statistic from the D-W tables at 5% level of significance and used to draw conclusions on autocorrelation. The value of Durbin-Watson (D-W) statistic always lies between 0 and 4. If the Durbin-Watson statistic is substantially less than 2, there is evidence of positive serial correlation. As a rough rule of thumb, if Durbin-Watson is less than 1.0, there may be cause for alarm. Small values of D-W indicate successive error terms are positively correlated. If $D-W > 2$, successive error terms are negatively correlated. In regressions, this can imply an underestimation of the level of statistical significance.

Common method variance (CMV) refers to the amount of spurious covariance shared among variables because of the common method used in collecting data. Such method

biases are problematic because the actual phenomenon under investigation becomes hard to differentiate from measurement artefacts. The four categories of causes of CMV are common rater effects, item characteristic effects, item context effects and measurement context effects (Malhotra et al., 2006). According to Zhang and Chen, (2008) while considering the Harman's Single-Factor (HSF) test for common variance, if no single factor emerges and accounts for majority of the covariance, this means that CMV is not an issue with the study instrument.

3.11 Ethical Considerations

Ethical consideration in research is a significant concern involving data collection in natural settings where human subjects and ethical issues related to them are at stake (Manitaet al 2011). This study adhered to the ethical standards which included: consent of respondents to participate in the study was obtained; the respondents did not have to mention their names and the names of their organization they represented on the completed questionnaires; the respondents were assured of strict confidentiality and anonymity of the data they provided and the abstract of the completed study could be made available to them upon request at the end of the study..

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter presented the results from data analysis which included both descriptive and inferential statistics, the findings and interpretation of the results. The chapter was organized into sections based on analyses carried out and the study variables which were in line with the objectives.

4.2 Response Rate

A total of 194 questionnaires were used to collect data from 59 technical training institutions in Kenya targeting the heads of academic departments. The total number of questionnaires returned was 149 which translated to 76.8% response rate. This response rate was considered adequate and in line with proposal by Cohen (2008). A response rate of below 60% was considered poor while that between 60% and 80% was adequate by Cohen (2008). The non-responses in this study were ignored considering that there was no response bias and thus imputation which is replacement of values to fill in for a missing values (Chen & Haziza, 2019) was not required.

It was assumed that late respondents have similar characteristics to those of non-respondents as per the extrapolation method guidelines of Chen and Haziza (2019) and thus they were not considered for the study. A response rate of this magnitude is considered reasonable for this study and thus it will be possible to generalize the results based on the assumptions of multiple regression. Similar results were obtained by Velnampy and Nimalthasan (2013) in the study on 'Corporate Governance and Firm Performance which reported a response rate of 59%.

4.3 Demographic Information

This section of the analysis was aimed at developing an understanding of the demographic features of the population studied. The analysis was carried out on the demographic characteristics of the institution which were also considered as control variables in the study model and the characteristics of the respondents. The results were analysed using descriptive statistics which contained the aspects of frequency and percentages as well as tabulation.

Table 4.1: Demographic Information

Variable	Alternatives	Frequency	Percent	Valid Percent
Age of institution	3-6 years	4	7.4	7.4
	7-10 years	9	14.8	14.8
	Over 10 years	46	77.8	77.8
Number of teachers in the institution	1-20	1	1.3	1.3
	21-50	3	5.4	5.4
	51-100	23	38.9	38.9
	over 100	32	54.3	54.3
Number of students in the institution	1-50	1	2.0	2.0
	51-100	1	2.0	2.0
	101-200	2	2.7	2.7
	201-500	12	20.8	20.8
	over 500	43	72.5	72.5
Distance of county institution from education office in KM	1-10	18	30.2	30.2
	11-20	6	10.1	10.1
	21-50	14	25.5	25.5
	51-100	8	12.8	12.8
	over 100	13	21.5	21.5

Source: Survey study, 2019

The age of the institution was a demographic characteristic analysed at the institution level. This was also proposed as a control variable in the study model. Table 4.1 above shows the analysis on the age of the institutions in which most of the institutions (77.8%) were found to have been in existence for over 10 years. The

remaining 14.8% and 7.4% had been in operation for 7 to 10 and 3 to 6 years respectively.

The period that the institution has been operating is a good indicator of the strength of organisation culture. A strong culture in any institution is as a result of collectivism and teamwork in the institutions. An institution to succeed must bear in mind the teamwork is strength. Maes and Weldy (2018) in their study on 'Building Effective Virtual Teams: Expanding OD Research and Practice' concur that team works is a key item the business world today. With increasing need for quality graduates, the institutions must bear in mind that proper mechanisms that will retain the trainers will consequently lead to quality assurance systems that are pegged on strong cultural principles.

The other demographic feature also considered as a control variable in the study model was the size of the institution. This was analysed based on the number of teachers and the number of students in the institution. Table 4.1 above presents the analysis of the number of teachers in the institution. The analyses show that majority (54%) of the institutions were large with over 100 teachers and only 6.7% of the institutions had 50 teachers or less. Table 4.1 above is an analysis of the number of students in the institution. This was also considered as an indicator of size which was a control variable in the model. Majority (72.5%) of the institutions had over 500 students, 20.8% had between 201 and 500 students while only 4% had 100 students or less. The majority of institutions were large considering the high number of high school graduates in the country who join these institutions.

These study results are a good indicator of the hunger and need for quality training in order to produce skilled graduates. Apparently the increase in the number of trainers

is being surpassed by the high number of trainees joining the middle level colleges. This an indication of the importance placed on these institutions to shape the destiny of the youth. For that reason alone a suitable solution needs to be developed to make the training model more efficient in Kenya.

The size of the institutions calls for the deployment of more resources apart from the trainers. Since these are TTIs they require enough workshops, classrooms and laboratories that are well equipped with basic facilities. Navaretti, Castellani and Pieri (2014) and Carr (2010) further state that as an institution grows, so do the number of departments and branches which may require even more human capital. This calls on the government to set aside huge financial budgets to provide the needed resources. The staff may also require retraining frequently in order to cope with the new technological changes in machines and methods of working. Such training can be done in the industry, in the training institutions or in both the institutions and the industry. The institutions may train alone only if they have all the requisite equipment. However since this is not always possible, a hybrid system of both the industry and institution should be able to work as applied in the Germany TVET sector (Deissinger, 2014).

Table 4.1 above presents the analysis on the distance of the institution from the county education office. This was used as a measure of the location of the institution which was also considered as a control variable. The distance from the county office could be an indicator of diversity of culture and ease of resource distribution. Institutions located far away from the county office were likely to face scarcity of resources and also become unattractive to both teachers and students. The distribution of the responses across the respondents for this showed that majority (30.2%) of the

institutions were located close to the county education office by just 1 to 10 kilometres.

The results imply that most institutions encountered almost similar benefits and challenges during their day-to-day operations. Brinkerhoff, Wetterberg and Wibbels (2018) argue that if an institution is far interior it was likely not to be inaccessible and therefore unattractive to new staff. Such an institution then may not be endowed the privileges enjoyed by other similar institutions. Nevertheless, the government has a responsibility to ensure that requisite infrastructure including electricity, water and roads are provided. Since the role of TTIs is so vital, where the institutions are inaccessible, there should exist other means of transportation and communication such as helicopter, telephone or radio call.

4.4 Descriptive Analysis

The data collected on the study constructs using the questionnaire was based on indicators used as proxy measurement for each construct. The indicators of all the constructs were measured on a Likert scale which used a categorical ordinal scale measurement with responses ranging from strongly agree to strongly disagree. Descriptive statistics are used for analysis in the form of percentages, frequency distribution, mean scores and measures of dispersion for variables included in the study (Spröber et al., 2014). The results were presented in a table and percentages (table 4.2).

Table 4.2: Descriptive Statistics

	N	Mean	SD	Kurtosis	Skewness	Min	Max	Range
	149	3.59	1.289	-.389	-.601	-2.53	1.58	4.11
Institutional Leadership								
Organisation Processes	149	3.44	1.147	-.524	-.279	-2.78	1.93	4.70
Human Resources Management	149	3.45	1.267	-.614	-.405	-2.62	1.76	4.38
Management Control System	149	4.14	1.352	-.403	-.565	-2.92	1.76	4.68
Institutional Performance	149	3.49	1.158	-.658	-.563	-2.31	1.77	4.08

Source: Survey study, 2019

The descriptive analysis was presented in table 4.2 above which indicated the frequency and the mean as a measure of central tendency. From the statistics, the mean ranges from 3.44 for processes and organisation systems of institutions to 4.14 for management control system. Out of the five variables the largest variation was in management control system (1.352), whereas the smallest was in Processes and organisation systems of institutions (1.147). "Mean (or arithmetic mean) is a type of average which is computed by adding the values and dividing by the number of values as suggested by Cooper and Schindler(2008)Blumberg, Cooper and Schindler (2008). The standard deviation is simply the square root of the variance. The average deviation, also called the mean absolute deviation, is another measure of variability. However, average deviation utilizes absolute values instead of squares to circumvent the issue of negative differences between data and the mean(Chen &Haziza, 2019).A sample's standard deviation that is of greater magnitude than its mean can indicate different things depending on the data you're examining. A smaller standard deviation indicates that more of the data is clustered about the mean. A larger one indicates the data are more spread out. The low standard deviation, range and skewness in this study are an indication that the data was clustered around the mean making it more reliable.

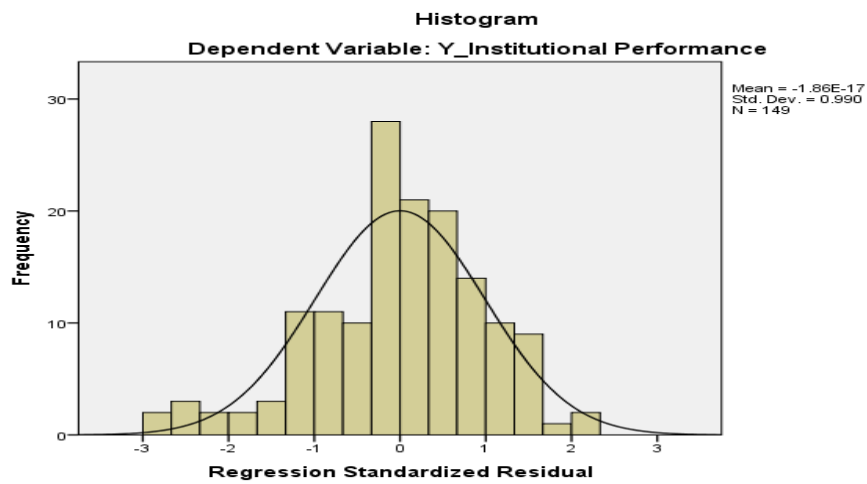
The value is often compared to the kurtosis of the normal distribution, which is equal to 3. If the kurtosis is greater than 3, then the dataset has heavier tails than a normal distribution (more in the tails). The Kurtosis for this study was between -0.389 and -0.658 which is below 3 and thus produces acceptable tails. There appears to be moderate skewness ranging between -0.279 for organisation processes and -0.601 for institutional leadership. The range is higher in organisation processes at 4.70 compared with institutional leadership at 4.08. Skewness is a measure of the symmetry in a distribution. It measures the amount of probability in the tails. It also indicated that institutional leadership elicited more variation than organisation processes of the institutions.

The implication of these descriptive analysis results is that they suggest a study with variables that are closely correlated without degenerating to multicollinearity. In the case of the mean which happens to have a small variation of less than 1 it means that all the variables have the same mean more or less. Consequently, this indicates that institutional leadership, organisational processes and human resources management do not vary too much within their datasets. When it comes to matters dispersion, it is observed that the values are close to the mean since kurtosis is less than 3, skewness is less than 1 and standard deviation (SD) is less than 2. It also confirms that the study data is normally distributed.

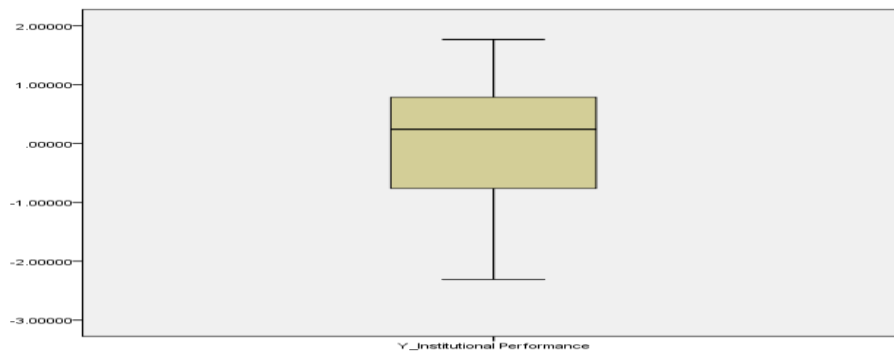
4.5 Test of Assumptions

The assumptions of Normality, Linearity, Heteroscedasticity, autocorrelation, Multicollinearity and outliers were tested.

4.5.1 Normality, Linearity and Outliers Test



Histogram of model residuals



Box Plot

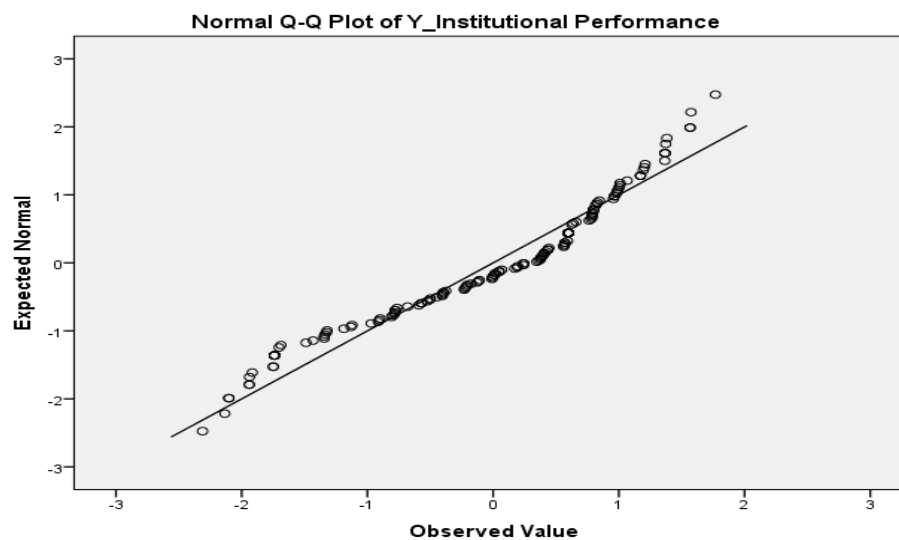


Figure 4.1: Normality exploratory charts: Box Plot, Q-Q Plot and the Histogram
(Source: Survey Study, 2019)

Table 4.3: Test for Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Standardized Residual	.974	149	.061

a. Lilliefors Significance Correction

Source: Survey Study, 2019

Gaussian distribution (after Johann Karl Gauss, 1777–1855) is based on the assumption that statistical procedures including correlation, regression, t-tests, and analysis of variance, namely parametric tests, are based on the assumption that the data follows a normal distribution (Ghasemi, Syedmoradi, Zahediasl & Azizi, 2010). To test for Normality in the study, the residuals were fitted in a linear regression model based on the assumption that the model residuals followed a normal distribution. The residuals assumed to follow a normal distribution if the continuous outcome variables also follow a normal distribution considering ordinary least squares (OLS) estimation used in linear regression analysis (Kine, 2014). From table 4.3 above, p-value of the Shapiro Wilk's statistic is greater than 0.05 implying that the residuals follow a normal distribution. The null-hypothesis of this test is that the population is normally distributed. Thus, on the one hand, if the p value is less than the chosen alpha level, then the null hypothesis is rejected and there is evidence that the data tested are not normally distributed. On the other hand, if the p value is greater than the chosen alpha level, then the null hypothesis that the data came from a normally distributed population cannot be rejected (e.g., for an alpha level of .05, a data set with a p value of less than .05 rejects the null hypothesis that the data are from a normally distributed population). Like most statistical significance tests, if the sample size is sufficiently large this test may detect even trivial departures from the null hypothesis (i.e., although there may be some statistically significant effect, it may

be too small to be of any practical significance); thus, additional investigation of the effect size is typically advisable, e.g., a Q–Q plot in this case.

The histogram of the residuals of the estimated model as shown in figure 4.1 above was used to test for normality and it displayed a bell shaped curve that implied a normal distribution of the residuals. Further tests using the Q–Q plots and Box plot depict the latent dependent variables in figure 4.1 above confirmed the prediction of the histogram on a normal distribution. The Box plot shows that there are no outliers for this variable and that majority of the observations lie above the average. The scatter plots are along the line though some of them tend to lie slightly away from the line. The assumption of normality is especially critical when constructing reference intervals for variables. Normality and other assumptions should be taken seriously, for when these assumptions do not hold, it is not impossible to draw accurate and reliable conclusions about reality.

With large enough sample sizes (> 30 or 40), the violation of the normality assumption should not cause major problems implying that we can use parametric procedures even when the data are not normally distributed. If we have samples consisting of hundreds of observations, we can ignore the distribution of the data. According to the central limit theorem, if the sample data are approximately normal then the sampling distribution too will be normal; in large samples (> 30 or 40), the sampling distribution tends to be normal, regardless of the shape of the data; and means of random samples from any distribution will themselves have normal distribution(Field 2009). Although true normality is considered to be a myth, we can look for normality visually by using normal plots or by significance tests that is,

comparing the sample distribution to a normal one. It is important to ascertain whether data show a serious deviation from normality (Asl et al 2009).

4.5.2 Linearity

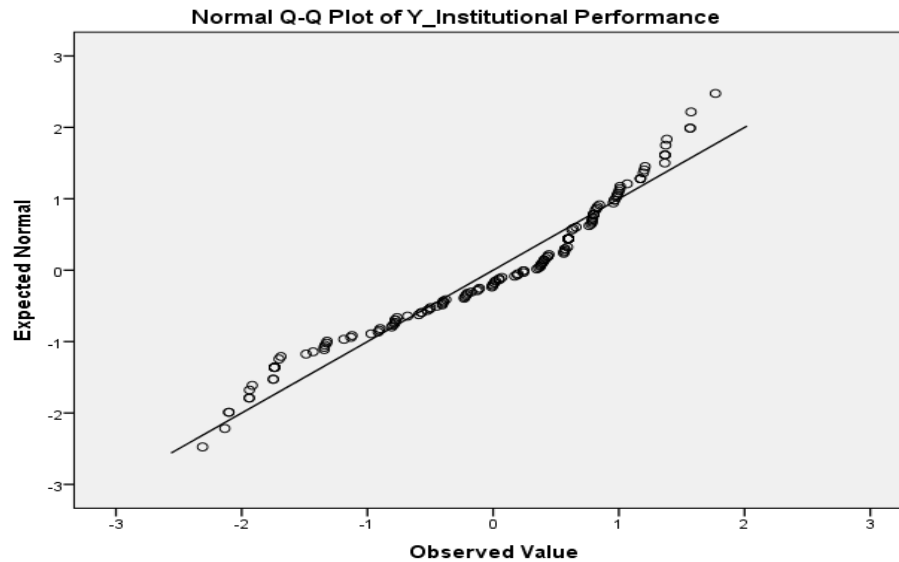


Figure 4.2: Q-Q Plot for Linearity (Source: Survey Study, 2019)

Linearity refers to the consistent slope of change that represents the relationship between an independent variable and dependent variable. A relationship between independent and dependent variable is said to be linear if there is consistent change in the slope (gradient). In most cases, this relationship can be visualized using a scatter plot (Q-Q plot) of residues between the two variables. Linearity was tested using the Q-Q plot in figure 4.2 above which is attributed to scatter plots along the line.

Standard multiple regression can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature. If the relationship between independent variables (IV) and the dependent variable (DV) is not linear, the results of the regression analysis will under-estimate the true relationship. This under-estimation carries two risks: increased chance of a Type II

error for that IV, and in the case of multiple regression, an increased risk of Type I errors (over-estimation) for other IVs that share variance with that IV (Osborne, 2001).

From observed results of the study statistics, the line of best fit that explains the slope of the line can be modeled in the formula:

$Y = a + bX + e$, where:

Y is the outcome variable

a is the y-intercept

b is the gradient of the line

X is the predictor variable

e is the error term

This is called the regression line and it's drawn (using a statistics program like SPSS or STATA or even Excel) to show the line that best fits the data. In other words, the line is the best explanation of the relationship between the independent variable and dependent variable. A regression line always has an error term because, in real life, independent variables are never perfect predictors of the dependent variables. Rather the line is an estimate based on the available data. So the error term tells you how certain you can be about the formula. The larger it is, the less certain the regression line.

Another method of checking for linearity was by use of the multiple regression results (Ndungu & Njeru, 2014). By observation the results in model 2 in table 4.11 on Multiple Regression Results of Direct Effects indicate that there was linearity between independent variable and dependent variable since the probability value (p-value) was significant. Ndungu and Njeru (2014) also state that issues of linearity can be fixed by imputation technique or having a large sample (greater than 30); large

samples will always seem to pass test for linearity irrespective of the data. In this research, correction was not required since the study data passed the test of linearity.

4.5.3 Homoscedasticity

Heteroscedasticity means a situation in which the variance of the dependent variable varies across the data, as opposed to a situation where Ordinary Least Squares, (OLS) makes the assumption that the variance of the error term is constant.

Table 4.4: Homoscedasticity test

	LM	Sig
BP	2.38	0.497
Koenker	1.943	0.584

Source: Survey Study, 2019

A test for heteroscedasticity was performed to confirm that the residuals of the model fitted did not exhibit heteroscedasticity and whether the regression model had the ability to predict the outcome variable. The Breusch-Pagan test was carried out where the BP Lagrange multiplier (LM) statistic was computed for the residuals. The BP tested the hypothesis that H_0 : residuals are homoscedastic (residuals do not exhibit heteroscedasticity). As presented in table 4.4 above, the P-value of the BP-LM Chi-square statistic was found to be 0.497 which was greater than 0.05. The null hypothesis for this test was thus not rejected implying that the residuals did not exhibit heteroscedasticity and thus met the homoscedasticity assumption.

Hamsiciand Martinez, (2007) in their study on "Spherical-Homoscedastic Distributions: The Equivalency of Spherical and Normal Distributions in Classification", postulate that heteroscedasticity complicates analysis because many methods in regression analysis are based on an assumption of equal variance. The assumption of homoscedasticity simplifies mathematical and computational treatment. Serious violations in homoscedasticity (assuming a distribution of data is

homoscedastic when in reality it is Heteroscedasticity may result in overestimating the goodness of fit as measured by the Pearson coefficient.

4.5.4 Non-autocorrelation

The test for autocorrelation was a confirmation of independence of the residual term. OLS estimation assumed that the residuals were not autocorrelated.

Table 4.5: Durbin -Watson test for Autocorrelation

Durbin-Watson	Lower limit	Upper limit
1.807	1.693	1.774

Source: Survey Study, 2019

The Durbin-Watson (D-W) test was used to check for existence of serial correlation of residuals. Table 4.5 above (extract of appendix 8) shows the tabulated statistics for 3 predictors for a sample size of 149. The value of Durbin–Watson (D-W) statistic always lies between 0 and 4. If the Durbin–Watson statistic is substantially less than 2, there is evidence of positive serial correlation. As a rough rule of thumb, if Durbin–Watson is less than 1.0, there may be cause for alarm. Small values of D-W indicate successive error terms are positively correlated. If $D-W > 2$, successive error terms are negatively correlated in regressions, this can imply an underestimation of the level of statistical significance.

In this study, a comparison was done between the calculated Durbin-Watson statistic and the tabulated statistic from the D-W tables at 5% level of significance and used to draw conclusions on autocorrelation. The calculated D-W statistic was larger than the upper tabulated value and it was close to 2 which was an indication that the residuals were not serially related thus the non-autocorrelation assumption was met. Krone, Albers, and Timmerman, (2017) in their study on a comparative simulation study of auto regression (AR) estimators in short time series outline the implications of

autocorrelation that if it is detected the model is miss-specified (i.e., in some sense wrong). A cause is that some key variable or variables are missing from the model. Where the data has been collected across space or time, and the model does not explicitly account for this, autocorrelation is likely. The fix is to either include the missing variables, or explicitly model the autocorrelation. The existence of autocorrelation means that computed standard errors, and consequently p -values, are misleading.

4.5.5 Non-Multicollinearity

Multicollinearity in model estimation is referred to when one or more independent variables have a linear relationship with other independent variables.

Table 4.6: Test for Multicollinearity

	Tolerance	VIF
X1_Institutional Leadership	0.578	1.729
X2_ Organisation Processes	0.536	1.865
X3_Human Resources Management	0.563	1.776

Source: Survey Study, 2019

The assumption was tested using the Variance Inflation Factor (VIF). The results for the multicollinearity test carried out are as presented in table 4.6 above indicate that all the predictors were found to have VIFs less than 5 implying that the independent variables of the study did not exhibit multicollinearity and this implies that no independent variable is expressed as a function of any other independent variable.

4.6 Instrument Reliability

The most common internal consistency measure which generates a coefficient value is known as Cronbach's alpha (α) (Waithaka & Ngugi, 2012). Internal consistency indicates the extent to which a set of items can be treated as measuring a single latent

variable. Cronbach alpha value of 0.7 was recommended cut-off point of reliabilities for this study.

The study yielded the results shown in table 4.7 where all the study constructs had reliability measures above 0.7 (range between 0.778 for MCS and 0.844 for institutional leadership) from all the items used to measure them. This further supported the reliability of the hypothesised indicators to measure the constructs.

Table 4.7: Instrument reliability

Construct	Cronbach alpha	Number of Items
Institutional Leadership (X1)	0.844	6
Organisation Processes (X2)	0.793	6
Human Resources (X3)	0.782	8
Management Control System (Z)	0.778	7
Institutional Performance (Y)	0.834	6

Source: Survey Study, 2019

4.7 Instrument Validity

Factor analysis was used to test both content and construct validity. Validity of the research instrument is the accuracy and meaningfulness of inferences based on the results. Best and Kahn (2006) suggest that the validity of an instrument is asking the right questions framed from an ambiguous way. Factor analysis was conducted using principal component analysis method with the aim of understanding the variables. Multidimensional scale set was used to measure particular constructs and the dimensions were assumed to be well defined and validated to prevent any error. Before the Factor analysis test were done, the data was tested for adequacy using Kaiser Meyer Olkin and Bartlett's test.

Table 4.8: KMO and Bartlett's Test of Sampling Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	1714.317
	Df	300
	Sig.	.000

Source: Survey Study, 2019

4.7.1 KMO and Bartlett's test of sampling adequacy

KMO and Bartlett's tests were carried out to explore sampling adequacy and that the data was suitable for factor analysis (Laura & Stephanie 2011). Table 4.8 above shows the results obtained which were a KMO of 0.89 and a Bartlett's statistic of 1714.317 with a p-value of 0.000 which was less than 0.05 implying that the item correlation matrix was not an identity matrix, thus the data was adequate and suitable for factor analysis. The Bartlett's test of sphericity was used to test the null hypothesis and to check that the variables in the population correlation matrix were uncorrelated.

Table 4.9: Exploratory Factor Analysis (EFA)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.282	37.127	37.127	9.282	37.127	37.127	4.203	15.032	16.811
2	1.762	7.047	44.174	1.762	7.047	44.174	3.437	13.745	30.556
3	1.399	5.594	49.769	1.399	5.594	49.769	3.113	12.449	43.004
4	1.302	5.207	54.975	1.302	5.207	54.975	2.993	11.970	54.974
5	0.976	3.895	58.870						
6	0.943	3.763	62.633						
7	0.92	3.679	66.852						
8	0.85	3.398	70.25						
9	0.765	3.061	73.312						
10	0.835	2.928	76.239						

Extraction Method: Principal Component Analysis. **(Source: Survey Study, 2019)**

4.7.2 Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) assessed the underlying structure of the constructs studied. EFA is an unrestricted model which considers a simple structure where the latent factors are set to explain as much variance as possible for a set of observed

variables/ indicators (Kaplan & Norton, 2015). According to Merenda, (1997), common factor analysis may be used when a primary goal of the research is to investigate how well a new set of data fits a particular well-established model. Stevens (2002) noted that principal components analysis is usually used to identify the factor structure or model for a set of variables. Varimax rotation (also called Kaiser-Varimax rotation) maximizes the sum of the variance of the squared loadings, where loadings mean correlations between variables and factors. This usually results in high factor loadings for a smaller number of variables and low factor loadings for the rest. Appendix 5 shows factor loadings of data before transformation which is the transformed in table 4.10 above, latent factors retained explain 54.9% of the extracted variance from the indicators.

Form table 4.9, the un-rotated model shows that the first latent factor explains up to 37.127% of the explained variance while the other 3 factors explain less than 10% of the variance each. Rotation was carried out to explore other possible sets of estimates as EFA was not restricted to a single unique set of parameter estimates. The results now show that four factors have a factor loading of more than 1.0; in fact none was less than 2. These factors were the once adopted for further empirical testing. Validity was also not contravened because the factors indicated acceptable distribution of variance.

Factor Analysis of variables set was done in order to reduce the number of variables. As shown in table 4.9 above, only four factors had Eigenvalues greater than 1 following the EFA analysis of the independent factors in the study. This showed that there were four possible factors that could be explained by the indicators. A proposal by DeVellis (2016) and Jolliffe (2011) was to drop off factors with Eigenvalues less

than 1, since they provided less information than is provided by a single observed variable. In order to obtain a more concise and accurate estimation of Eigen values, Varimax orthogonal rotation was carried out on the predictor, criterion and moderator variables and showed that the rotated models had a more evenly distributed variance explained by each factor. Orthogonalization of the EFA results ensured that all the indicators considered at least load a construct by a loading more than 0.4 thus none was expunged. An observed variable is said to belong to the construct if it loads highest and above 0.4. Moreover, this was an indication that the data collection instrument did not exhibit common method variance (CMV).

Table 4.10: CFA Test for Validity

Construct	Factor Loading	Squared Multiple correlations	AVE
Institutional leadership	0.707	0.418	0.749
	0.764	0.501	
	0.768	0.512	
	0.703	0.439	
	0.794	0.481	
	0.759	0.108	
Organisation Processes	0.615	0.286	0.701
	0.732	0.401	
	0.742	0.453	
	0.801	0.58	
	0.66	0.354	
	0.657	0.331	
Human Resources	0.676	0.325	0.694
	0.721	0.407	
	0.677	0.374	
	0.68	0.422	
	0.696	0.334	
	0.715	0.401	
Management Control System	0.726	0.407	0.672
	0.505	0.154	
	0.686	0.322	
	0.712	0.453	
	0.675	0.395	
	0.711	0.392	
Performance	0.696	0.385	0.741
	0.774	0.502	
	0.761	0.47	
	0.741	0.465	
	0.769	0.498	
	0.706	0.447	

Source: Survey Study, 2019

4.7.3 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) is a restricted analysis based on the hypothesised model. The CFA results were used to assess construct validity by assessing convergent and discriminant validity. According to Kline (2011;

2014)observed variables (indicators) that measure the same construct show convergent validity if their inter-correlations are at least moderate in magnitude and a set of observed variables measuring different constructs show discriminant validity if their inter-correlations are not too high. This study used the Criterion by Fornell and Larcker of 1981(Hair et al., 2011)to assess convergent validity as per the average shared variances extracted (AVEs) for the constructs following a CFA.

The AVEs are measures of the level of variance captured by a construct against the level due to the measurement error and are said to be very good if above 0.7 and acceptable if above 0.5(Ab Hamid et al., 2017). As shown in table 4.10 above, all the AVEs for the study constructs are all above 0.5 with most of them above 0.7 implying acceptable convergent validity. For discriminant validity, this study explored the squared multiple correlations in comparison to the extracted AVEs as also proposed in the testing system. The squared multiple correlations reflect that the variance that the indicators belonging to a construct shared with other constructs should be low. All the AVEs are larger than the relative squared multiple correlations implying that the data and thus the instrument exhibited discriminant validity. Since both convergent and discriminant validity were found to be exhibited, it was concluded that the instrument exhibited construct validity and that the study constructs exhibited uni-dimensionality.

Further, the low shared variances between constructs indicate that Common method variance (CMV) threshold has been satisfied. Common method variance (CMV) refers to the amount of spurious covariance shared among variables because of the common method used in collecting data. Such method biases are problematic because the actual phenomenon under investigation becomes hard to differentiate from measurement artefacts. The four categories of causes of CMV are common rater

effects, item characteristic effects, item context effects and measurement context effects (Malhotra et al., 2006).

Aziz and Mahmood (2011) used KMO to measure sampling adequacy in the relationship and value of items. In their study on the relationship between business model and performance of manufacturing of SMEs in Malaysia the KMO was 0.942 indicating that the items were interrelated and they shared common factors. A cut-off of 0.7 was used for this study and none of the constructs obtained a KMO less than 0.70. It was therefore concluded that the data was suitable for factor analysis.

Kim, Kim and French (2014) assessed the reliability and validity of the measurement model by evaluating internal consistency (reliability), convergent validity, and discriminant validity in their study on What Increases Firms' Performance of Information Security Management and the Role of Regulatory Pressure. Bahl and Wali (2014) in their study on Perceived Significance of Information Security Governance to Predict the Information Security Service Quality in Software Service Industry: An empirical analysis also assessed the reliability and validity of the measurement model by evaluating internal consistency (reliability), convergent validity, and discriminant validity. Latip, Salleh, Omar, and Yaakub, (2013) too had all the constructs in their study tested for internal consistency reliability, convergent validity and discriminant validity, in their study on A Resource-based Perspective on Technological Competencies and Relationship Performance: An Empirical Analysis.

Hafiz and Shaari (2013) further evaluated reliability and validity (convergent and discriminant) in their study on Confirmatory Factor Analysis (CFA) of First Order Factor Measurement Model-ICT Empowerment in Nigeria. In all these studies, the

assessments of reliability, convergent validity, and discriminant validity met the respective thresholds.

4.8 Correlation Analysis

A correlation analysis was carried out between the dependent variable and the study independent variables to explore the relationships. A correlation analysis assesses the strength and direction of the bivariate relationship between any two variables. It is critical to remember that correlation is not causation. The regression may show as if they are indeed related but they are entirely different since in correlation there it is difficult to prove that there is cause and effect. Sometimes factors are correlated that are so obviously not connected by cause and effect but more often in business, it's not so obvious. When correlation is evident from a regression analysis, assumptions of causation cannot automatically be made (Gallo, 2015).

Table 4.11: Correlation matrix

Variable	X1_Leadership	X2_ Organisation Processes	X3_Human Resources management	Z_Management Control System	Y_Institutional Performance
X1_Leadership	1				
X2_ Organisation Processes	.596** .000	1			
X3_Human Resources	.568** .000	.610** .000	1		
Z_Management Control System	.721** .000	.702** .000	.733** .000	1	
Y_Institutional Performance	.625** .000	.555** .000	.577** .000	.755** 000	1
N	149	149	149	149	149

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

Source: Survey Study, 2019

The Pearson correlation coefficient statistics (table 4.11 above) were calculated between the constructs considering that the latent variables yielded from dimension reduction were on continuous scales making the Pearson correlation coefficient the appropriate measure of association. Each of the independent variables was found to have significant correlations with institutional performance and between the variables themselves. The correlation coefficients had p-values of 0.000 which were less than 0.01 implying significant relationships at a 0.01 level of significance.

The correlation between institutional performance and institutional leadership is 0.625 which signifies a moderate relationship. The implication is that the two work together hand in hand for the sake of achieving organisation goals. Institutional leadership is required at all levels considering that all the processes need strict supervision starting from the cleaners, teaching staff to the administration (Grissom & Loeb, 2011). Everyone needs a boss to guide and direct, consult and share successes with but even more important is for the organisation to devolve both responsibility and authority. Cheng (2013) in the study on school effectiveness and school-based management: A mechanism for development in current institutional reforms, suggested that decentralization of power from the central authority to the institutional level, institutional autonomy and self-management, and participation of institutional constituencies are strongly encouraged to facilitate the school-based initiative for institutional development and effectiveness.

Institutional performance had a moderate positive relationship with organisation processes and human resources management as shown by correlation coefficients 0.577 and 0.555 respectively. A process is a series of steps designed to produce a product or service. It should be seen as a value chain, that is, each step in the process

should add value to the proceeding steps. Zell, (2018) and Robinson, Phillips and Handshaw (2015) in their studies postulate that Process Level is considered as the pivotal link between organization processes and institutional performance. This level usually offers the greatest opportunity for improvement. Outstanding employees cannot improve their performance levels if poor processes are in place. To improve the way work gets done, and to manage the way work gets done, processes should be the focus of attention and actions.

The results for this study emphasize that human resources have become a key issue in relation to the strong competition between firms. McCleanand Collins (2011) in their study on High-performance human resource management and firm performance confirmed that the relationship between high-performance human resource management (HRM) within this field to firm performance is an important one for acceptable results to be realized in any firm.

A high correlation above 0.700 was registered between management control system and institutional performance, management control system (MCS) and institutional leadership, management control system and organisation processes and management control system and human resources management at a p-value of 0.01. The results confirm that MCS has a high correlation with the three variables which are the components of the independent variable (training model). Since this relationship is positive it follows that the influence of MCS has a positive contribution to performance and it's a good moderator between the training model and institutional performance. The results were corroborated by Bobe (2012) and Orozco (2016) in their studies on 'Management Control Systems, Strategy Implementation and Capabilities Development in University Academic Units: Impacts on Performance'

and ‘Understanding the Impact of Management Control Systems over Capabilities and Organizational Performance, Under The Influence of Perceived Environmental Uncertainty’ respectively when they applied MCS as a moderator.

Based on the p-values of the correlation coefficients between the independent variables and other independent variables, all the relationships were significant with p-values less than 0.01. A multicollinearity test (table 4.7 below) was carried out on the multiple regression model to confirm that regardless of the significant correlation coefficient between the independent variables, the linear relationships were not significantly close to lead to violation of the non-multicollinearity assumption of regression modelling.

4.9 Regression Analysis

Regression analysis formed an important part of this study which included each specific objective concerned with exploring the effect of each of the three independent variables on the performance of TTIs and a moderating effect of MCS on the relationship between each of the three independent variables and performance of TTIs. The three control variables were also included in the model to test whether they had any significant influence on institutional performance and with the study predictors.

4.9.1 Multiple Regression Analysis

Multivariate statistical method was used for this study since it is an appropriate technique for testing relatively broad range of associations. Multiple regression attempts to determine whether a group of variables together predict a given dependent variable. In this analysis the latent variables were used to fit statistical models and significance of the model estimates used for hypothesis testing. Considering the

continuous scale of the latent variables generated from factor scores in factor analysis, linear multiple regression models were fitted. The moderating effect of MCS was modeled through the moderated multiple regression model adopting the hierarchical approach.

Stufflebeam and Zhang (2017) outline some of the benefits of regression analysis. Regression analysis is the “go-to method” in analytics and smart companies use it to make decisions about all sorts of business issues. Managers want to figure out the impact of sales or employee retention or recruiting the best people in order to make informed decisions that helps in figuring the best action. Most companies use regression analysis to explain a phenomenon they want to understand (e.g. why did customer service calls drop last month?); predict things about the future (e.g. what will sales look like over the next six months?); or to decide what to do (e.g. should we go with this promotion or a different one?).

The multiple regression model for the study was fitted based on the classical assumptions of normality of the residuals, homoscedasticity and non-autocorrelation of the residuals, no outliers and non-multicollinearity of the model predictors. These are sufficient conditions for the least-squares estimator to possess desirable properties; in particular, these assumptions imply that the parameter estimates will be unbiased, consistent, and efficient in the class of linear unbiased estimators.

It is important to note that actual data rarely satisfies the assumptions (Room, 2018). That is, the method is used even though the assumptions are not true. Variation from the assumptions can sometimes be used as a measure of how far the model is from being useful. Many of these assumptions may be relaxed in more advanced treatments. Reports of statistical analyses usually include analyses of tests on the

sample data and methodology for the fit and usefulness of the model. Independent and dependent variables often refer to values measured at point locations and thus spatial trends and spatial autocorrelation in the variables that violate statistical assumptions of regression should be assessed. Geographic weighted regression (GWR) which includes non-stationary variables (climate, demographic factors physical environment factors) is one technique to deal with such data.

4.9.2 Multiple Regression Results of Direct Effects

In this analysis, only the first three hypotheses are considered which comprise of the conceptualized values of the training model which include institutional leadership, organisation processes and human resources management. Though the control endogenous variables are included in model 2 (table 4.13 below), they are of no consequence considering that they were tested and rendered insignificant. An endogenous variable is a variable whose value is determined by the model. The resulting equation from model 2 in table 4.12 cannot be formulated considering the all the values are insignificant.

Table 4.12: Multiple Regression Coefficients

Variables	Model 1	Sig	Model 2	Sig
(Constant)	-1.088	.152	-.597	.301
Age of institution	.062	.672	.033	.764
Number of teachers	.135	.244	.114	.187
Number of students in the institution	-.005	.964	.03	.659
Distance of institution from County education office	.142	.015	-.031	.505
X1_Leadership			.367	.000
X2_ Organisation Processes			.194	.021
X3_Human Resources			.268	.002
R	.243		.702	
R ²	.059		.492	
Adjusted R	.033		.467	
R ² change	.059		.433	
F-Statistic	2.252		40.092	

Values of unstandardized regression coefficients with standard errors: $p < 0.05$

Source: Survey Study, 2019

An endogenous change is a change in an endogenous variable in response to an exogenous change that is imposed upon the model. In contrast, an exogenous variable is one whose value is determined outside the model and is imposed on the model, and an exogenous change is a change in an exogenous variable (Mankiw, 2016).

Model 1 reflected in table 4.12 above presents the results for control variables which include age of institution, size of institution and distance of institution from the county office. These variables were entered and it was noted that R² change was 0.059 implying that the control variables contributed 5.9% to the models. The regression results show that only the distance of the institution from the county education office was significant with a p-value less than 0.05 ($p < 0.05$). Thus, this variable accounted for the small amount of variance of 5.9%. This meant that this endogenous variable

was likely to affect the results of the model and it was included in further regression tests.

It was also noted that the regression analysis on the number of students in the institution indicated an insignificant negative effect of -0.005 with a p-value greater than 0.05 ($\beta = -0.005$, $p = 0.964$) and therefore it was not considered in subsequent tests together with all other control variables.

The arising equation is $Y_c = 0.142X_{3c} + \varepsilon_c$ *Equation 1*

Where, Y_c was the institutional performance of TTIs and X_{3c} was the distance of the institution from the county education office. The ε_c was the error term component.

In this study, majority of institutions were less than 10Km away from the county and this rendered the variable insignificant in subsequent tests. These results were corroborated by Brinkerhoff, Wetterberg and Wibbels (2018) in their research on 'Distance, services, and citizen perceptions of the state in rural Africa' with the view that most poor countries, basic services in rural areas are less accessible and of lower quality than those in urban settings.

Model 2 results as presented in table 4.12 above relate to the direct effects of the exogenous variables and the control variables. The analysis done was hierarchical, also called sequential regression. The endogenous variables were entered followed by the exogenous variables into model 2 which indicated a significant F-statistic (40.092, $P < 0.05$), thus confirming the fitness of the model. This hierarchical model rendered all the control variables insignificant which meant that they had no significant effect on the result and consequently the training model.

From the result, the control variables do not contribute any significant latitude to the success or failure of the institutions' training model. The institutions are however cautioned against complacency which could diminish any substantial milestones achieved. From the demographic results, the institutions have a high population which calls for a high degree of balancing between the scarce financial support from the government and the provision of quality services

Hypothesis 01 results presented in table 4.12above predicted that institutional leadership had no significant effect on institutional performance. The results indicated that there exists a positive and significant effect ($\beta=0.367$, $P<0.05$) and therefore the hypothesis (H_{01}) was rejected. The results suggested that institutional leadership if well conducted will immensely impact on institutional performance. Its main aim is to create an environment that allows the individual worker or group to excel in their operations not because the boss said so but because it feels right to do so; the followers are leaders by themselves.

Further, institutions that wish to succeed may require re-looking at their leadership techniques. Those that do not enhance a strong culture may have to be discarded since an institution with a strong culture is clear about their values and how those values define their organizations and determine how the organization is run. This strong culture is rooted in good policies and a progressive leader. Policies define the direction of the institution and thus they should be well communicated at all levels.

Hypothesis 02 postulated that organisation processes had a significant effect on institutional performance. The results in table 4.12above showed that there was a positive and significant effect ($\beta=0.194$, $P<0.05$) of organisation processes on institutional performance. The hypothesis (H_{02}) was thus rejected. The results

suggested that organisation processes enhance institutional performance a great deal. National training funds need to be carefully monitored for sustainability of financing and proper controls need to be in place to ensure that funds are spent on appropriate training activities. Further, training levies have become increasingly important as a source of additional funding for institutions.

There are relatively few examples of strong fiscal management systems for training. This is because the selected activities require funds to facilitate timely execution of services and provision of adequate infrastructure which calls for budgets and planning. The budgets need to be meticulously prepared to prevent errors which are always very expensive to correct (Lotich, 2016). Apart from funding and infrastructure, the issues related to organisation structure also need attention. Studies indicate that a well-balanced structure is a source of motivation, order and efficiency. Moreover communication is highly enhanced and thus timely decisions are possible.

The results for Hypothesis 03 presented in table 4.12 above found that there was a positive and significant effect ($\beta=0.268$, $P<0.05$) of human resources management on institutional performance. Thus again the hypothesis (H_{03}) was rejected suggesting that institutional performance can improve with proper human resources management.

The expectation of institutions is widespread investment in human capital to create an indispensable skill-based labour-force for economic growth. With the current dynamic technological changes, the institution needs to continually review its human resources position in terms of quality, numbers and training and development. One of the underlying problems in TTIs is to get adequate numbers of technically qualified teachers who are willing to choose teaching rather than join the better paying business bandwagon.

One area that needs attention is reward management. The institution should reward employees fairly, equitably and consistently in correlation to the value of these individuals to the organization. Closely related are issues of worker influence where the study shows that employees require to be heard in order to enhance harmony within the institutions. Methods of doing this include involving them in decision making and allowing them to join workers' unions. Participation helps in increasing sense of satisfaction, gratification and belongingness to an organization forging increased degree of commitment towards the organization. Further participation helps in reducing the root cause of industrial conflict.

The resulting equation:

$$Y=0.367X_1 + 0.194 X_2 + 0.268X_3 + \varepsilon_2 \dots \dots \dots \text{Equation 2}$$

Where, ε_2 was the error component, Y was the institutional performance of TTIs, X_1 was institutional leadership, X_2 was organisation processes, and X_3 was human resources management of the model.

4.9.3 Moderated Regression Results

The study also sought to establish the moderating effect of MCS on the relationship between the training model and institutional performance of TTIs in Kenya. Borrowing from Baron and Kenny's model of 1986, Hayes, (2009, 2017) and Sekaran and Bougie, (2016) in their researches on 'Introduction to mediation, moderation, and conditional process analysis: A regression-based approach and Research methods for business: A skill building approach' respectively, defined a moderator as a variable that affects the direction and strength between an exogenous variable and the outcome variable. Moderation suggests a causal relationship between two variables changes as a function of the moderator variable. This indicates that the statistical test of

moderation must measure the differential effect of the exogenous variable on the outcome variable as a function of the moderator. In general, the amount of change in R^2 is a measure of the increase in predictive power of a particular dependent variable or variables, given the dependent variable or variables already in the model (Stockburger, 2001).

Table 4.13: Model Summary: Moderated Multiple Regression Coefficients

Variables	Model 1	Sig p<0.05	Model 2	Sig p<0.05	Model 3	Sig p<0.05	Model 4	Sig p<0.05
(Constant)	.379	.464	-.271	.585	-.424	.394	-.435	.383
Age of institution	-.036	.719	-.045	.639	-.037	.699	-.025	.794
Number of teachers	.140	.073	.128	.087	.142	.056	.130	.088
Number of students in the institution	.018	.797	.016	.806	.012	.856	.013	.849
Distance of institution from County education office	-.023	.588	-.009	.823	.003	.946	.005	.894
X1_Institutional Leadership	.149	.066	.029	.731	.018	.829	.032	.707
X2_ Organisation Processes	.024	.765	.036	.642	.035	.645	.031	.689
X3_Human Resources Management	.048	.569	.028	.729	.033	.675	.010	.910
Z-Management Control System	.604	.000	.455	.000	.438	.000	.437	.000
X1 interaction Z			.142	.000	.182	.000	.147	.025
X2 interaction Z					.111	.047	.119	.037
X3 interaction Z							.047	.490
R	.771		.795		.801		.802	
R ²	.595		.631		.642		.643	
Adjusted R	.571		.608		.616		.615	
R ² change	.103		.037		.010		.001	
F-Statistic	35.396		13.897		4.035		.479	

a. Values of unstandardized regression coefficients with standard errors: p<0.05

Source: Survey Study, 2019

The effect of the moderator on the relationship between the exogenous and the outcome variable could increase (enhancing), reduce (buffer) or reverse (antagonise)

the effect of the exogenous variable on the outcome variable (Cohen, West, & Aiken, 2014). Moderation is said to exist if the following conditions are fulfilled: the amount of variance accounted for with interaction should be more than the variance accounted for without interaction. Secondly, the coefficient of the interaction term should be different from zero. Lastly, the overall model with or without the interaction should be significant.

This first part of the multiple regression process involved fitting a moderated multiple linear regression model with all the independent variables considered as the dimensions of training model/as predictors in the model. The second part comprised a moderated regression model fitted to reflect a hierarchical regression model where model 1 is a bivariate regression model with each independent variable as a predictor and management control system (MCS) was added to the model as a moderator. In models 2, 3, and 4, the interaction terms between the training model's constructs and MCS were added to the model. The effect of every addition on performance was assessed and the results indicated in table 4.13 above.

When the MCS was added in model 1, the model produced an F-statistic of 35.396 which was significant as the p-value is greater than 0.05 ($P > 0.05$) level of significance, hence confirming the fitness of the model. The entire group of variables accounted for 59.5% of the variance in performance of institutions. This indicated that the addition of a moderator variable significantly improved prediction of institutional performance as indicated in model 1 (table 4.13 above).

With the introduction of the interaction terms, an overall model fit of F-statistic of 0.479 was obtained which was significant as the p-value is greater than 0.05 ($P > 0.05$) level of significance. This was an indication that there existed a potential statistically

moderating effect of MCS on the relationship between the training model and institutional performance. Model 4 in table 4.13 above shows the contribution of variables which tested the three hypotheses on moderating effect. The variance explained increased from 49.2% in the multivariate regression of direct effects to 59.5% when a moderator is added.

Further tests on interaction effect increased the variance explained from 59.5% to 64.3%. This is a positive change which implies that MCS has high influence on institutional performance. Consequently, Technical Training Institutions are advised to embrace MCS at all levels in order to rip the attached benefits. For example the benchmarking is known to enhance the performance of the institution by creating awareness of new techniques, equipment and materials. An institution that does not find out what the neighbour is doing will find itself in 'deep sea without the capacity to navigate.' Further, the institutions need to embrace the aspect of continuous improvement which motivates them to maintain a high performance standard in all areas including budgeting, expenditure and curriculum implementation.

Hypothesis 4a (H_{4a}) refuted that 'MCS does not moderate on the relationship between the institutional leadership and institutional performance.' The results indicate that MCS has a positive significant moderating effect ($\beta=0.147$, $P=0.025$) on the relationship between institutional leadership and institutional performance and therefore hypothesis 4 (H_{04a}) is supported.

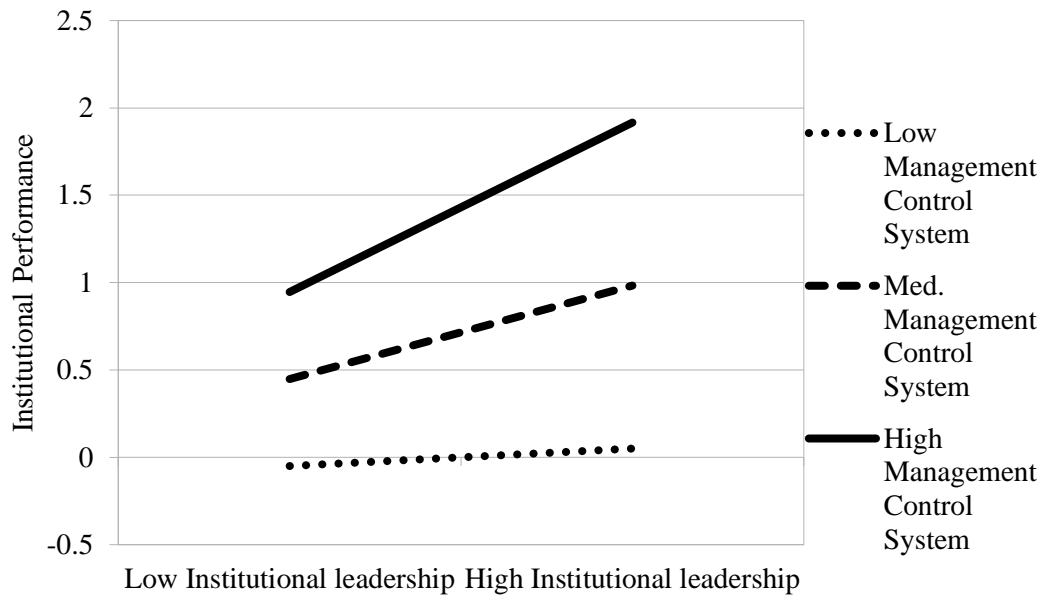


Figure 4.3: MMR slopes; Institutional Leadership and Institutional Performance (Source: Survey Study, 2019)

Figure 4.3 above shows a graphical presentation of the significant positive moderating effect. The lines showing the influence of institutional leadership on institutional performance are all increasing functions though with varying slopes at different levels of MCS. At low MCS, the institutional leadership has a very low influence on institutional performance as reflected by an almost horizontal line. Increasing the levels of MCS increases the slopes of the line implying that higher levels of MCS increases the level of influence that institutional leadership has on institutional performance.

The results imply that MCS enhances institutional leadership which consequently improves institutional performance. Therefore, institutions are advised to include MCS at all levels of their leadership. This will enhance their capacity to gather accurate information for decision making, policy formulation or for any corrective actions which help to form a formidable social structure of continuous performance.

Hypothesis 4b (H_{4b}) stated that ‘MCS does not moderate on the relationship between organisation processes and institutional performance.’ The results revealed that a positive and significant effect ($\beta=0.119$, $P=0.037$) existed thus depicting a supported interaction.

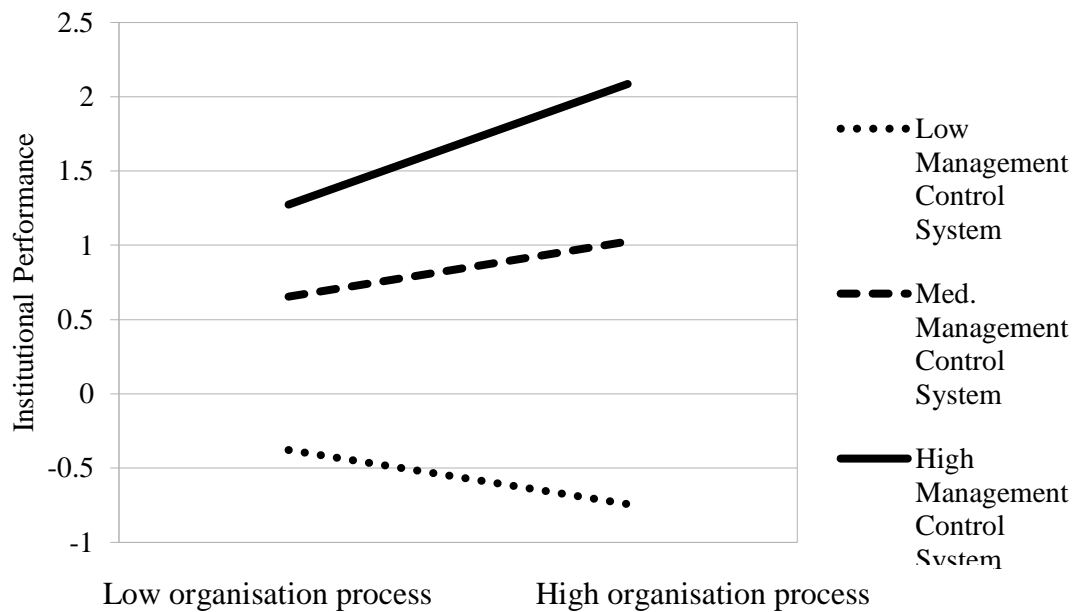


Figure 4.4: MMR slopes; Organisation Processes and Institutional Performance (Source: Survey Study, 2019)

Figure 4.4 above shows a graphical presentation of the significant positive moderating effect. The lines showing the influence of organisation processes on institutional performance have decreasing and increasing functions varying at different levels of MCS. At low MCS, the changes in organisation processes in fact have a negative influence on institutional performance reflected by the decreasing slope. Increasing the levels of MCS increases the slopes and in fact reverses the direction of the line implying that higher levels of MCS increases the level of influence that organisation

processes has on institutional performance. This suggested that organisation processes have an immense impact on institutional performance.

Further, organisation processes cannot be separated from MCS considering all processes should be evaluated both at the formative and the summative stages for any successful institutional performance of the institution. An organisation structure is formulated by considering the tasks, experience, qualifications, financial implications and workload of each officer in an institution. These items require a reliable feedback system so that the organisation structure will be efficient, free from duplication of roles and economical to manage.

Hypothesis 4c (H_{4c}) stated that ‘MCS does not moderate on the relationship between human resources management and institutional performance.’ The results indicate that there exists a positive but insignificant effect ($\beta=0.047$, $P=0.490$) indicating that the hypothesis is not supported or upheld. The arising equation is:

$$Y = 0.437Z + 0.147X_1 * Z + 0.119X_2 * Z + \epsilon_3 \dots \dots \dots \text{Equation 3}$$

Where, ϵ_3 was the error component, Y was the institutional performance, X₁ represented institutional leadership, X₂ was organisation processes, Z was the moderator (MCS), X₁ * Z and X₂ * Z represented the interaction between the variables and MCS in the model and * signifies the interaction effects. The moderation and interaction effect results are summarised in table 4.14 below:

Table 4.14: Summary of hypothesis

Hypothesis	Statistic	P-value	Conclusion
H ₀₁ There is no significant effect of institutional leadership on institutional performance of TTIs in Kenya	Coefficient estimate $\beta = 0.367$	0.000	H ₀₁ was rejected and a conclusion drawn that Institutional leadership had a significant effect on performance of TTIs in Kenya
H ₀₂ There is no significant effect of organisation processes on institutional performance of TTIs in	Coefficient estimate $\beta = 0.194$	0.021	H ₀₂ was rejected and a conclusion drawn that organisation processes significantly affect institutional performance
H ₀₃ There is no significant effect of human resources management on institutional performance of TTIs in Kenya	Coefficient estimate $\beta = 0.268$	0.002	H ₀₃ was rejected. Human resources management had a significant effect on institutional performance of TTIs in Kenya.
H ₀₄ MCS has no significant moderating effect on the relationship between the training model and institutional performance of TTIs in Kenya.	Coefficient estimate $\beta = 0.437$	0.000	H ₀₄ was rejected. MCS had a significant moderating effect on the relationship between the training model and institutional performance of TTIs in Kenya.
H ₀₅ MCS has no significant moderating effect on the relationship between institutional leadership and institutional performance of TTIs in Kenya.	Coefficient estimate $\beta = 0.147$	0.025	H _{4a} was rejected. MCS had a significant moderating effect on the relationship between institutional leadership and institutional performance of TTIs in Kenya.
H ₀₆ MCS has no significant moderating effect on the relationship between processes and organisation systems and institutional performance of TTIs in Kenya.	Coefficient estimate $\beta = 0.119$	0.037	H _{4b} was rejected. MCS had a significant moderating effect on the relationship between processes and organisation systems and institutional performance of TTIs in Kenya.
H ₀₇ MCS has no significant moderating effect on the relationship between human resources management and institutional performance of TTIs in	Coefficient estimate $\beta = 0.047$	0.490	The study failed to reject H _{4c} . MCS had no significant moderating effect on the relationship between human resources management and institutional performance of TTIs in Kenya.

Source: Survey Study, 2019

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a summary of findings, conclusions, limitations, recommendations of the study and suggested areas of further research.

5.1 Summary of Findings

The main purpose of this research is to determine the moderating effect of management control system (MCS) on the relationship between the training model and institutional performance in Technical Training Institutes (TTIs) in Kenya. The study tested a total of seven hypotheses of institutional performance of TTIs in Kenya. The first set of three hypotheses sought to examine the influence of institutional leadership, organisation processes and human resources management on institutional performance. The second set of four hypotheses tested the moderating effect of management control system (MCS) on the relationships established in the first set of hypotheses. Prior to the analysis, assumptions of normality, linearity, homoscedasticity, non-multicollinearity, non-autocorrelation and outliers were included in the statistical analysis of variables and tested. The study was found not to have violated any of these assumptions.

5.1.1 To establish the effect of institutional leadership on institutional performance of TTIs in Kenya

Institutional leadership was found to have a positive relationship (Coefficient estimate $\beta = 0.367$, $P < 0.05$) with institutional performance of TTIs and consequently the hypothesis was rejected. The model further suggested that improving the levels of

institutional leadership as perceived by the heads of departments in the institutions would increase institutional performance significantly.

These results are similar to those obtained by Murad and Gill (2016) in their study on Impact of Leadership on Organisational Performance in Pakistan Public Sector where the study indicated that there was a positive relationship between leadership and performance in the public university of Punjab. In their research, Zhu et al(2005) investigated the connection between the transformational leadership style and organizational performance and found that within 170 companies from Singapore, there was a positive relationship between the transformational leadership and organizational performance.

Studies by other scholars (Cummings et al. 2010; McColl-Kennedy & Anderson, 2002) found out that as certain variables change, so do the leadership styles. Jowi (2018) corroborates these observations in his study on ‘leadership styles and their impact on staff commitment’ and concluded that leadership affects significant organizational change and improvement in higher education institutions. Even in the challenging contexts in which higher institutions operate, the people-manager style had the best outcomes on the commitment of staff in the faculties.

5.1.2 To examine the effect of Organisation Processes on Institutional Performance of TTIs in Kenya

Organisation processes had a significant relationship with institutional performance. Organisation processes were found to have a positive relationship (Coefficient estimate $\beta = 0.194$, $P < 0.05$). This necessitated the rejection of the hypothesis that there was no significant effect of organisation processes on institutional performance of TTIs in Kenya. The study indicated that improving the organisation processes in

TTIs had a great impact on the performance of TTIs. Seher (2014) in his study on Business Processes Re-engineering and Organizational Structure – A Case Study of Indian Commercial Banks agrees that effective business processes results in a customer friendly organisation that meets its objectives, easily adopts to new technology and innovation and is able to achieve high performance.

5.1.3 To determine the effect of Human Resources Management on Institutional Performance of TTIs in Kenya

Human resources management was found to have a relationship with institutional performance (Coefficient estimate $\beta = 0.268$, $P < 0.05$) so that any change in the human resources in terms of numbers and skill level contributed to a significant change in institutional performance of TTIs in Kenya. The hypothesis that human resources did not have a significant effect on institutional performance was therefore rejected.

These results were corroborated by Hamid et al. (2017) in their study on ‘Impact of Human Resource Management on Organizational Performance’, who suggested that higher levels of compensation management practices, employees development and organizational citizenship behavior are key ingredients to institutional performance. Rana and Malik (2017) in their study on ‘Impact of human resource (HR) practices on organizational performance’ have found HR practices, including selection, training, compensation, performance appraisal and employee participation to be significantly and positively relate to organizational performance.

This corroborates the results of Dirks and Ferrin (2001) in their study on ‘How controls impact employee trust in the employer’ suggested that MCS enhances the organization’s predictability, fairness, and reliability and employees show greater

cooperation and commitment, engage in more knowledge sharing, and carry out less counterproductive work behaviours.

5.2 Moderating effect of MCS on Training Model and Institutional Performance

The findings revealed that there is evidence that management control system (MCS) moderates the relationship between the three variables of institutional leadership, organisation processes and human resources management and institutional performance. It was also noted that the p-value of the change in R-square is less than the 0.05 level of significance with a beta value 0.437 and a p-value of 0.00. This implies that the inclusion of the interaction terms between the training model dimensions and MCS has a significant change in the model thus a significant moderating effect. Irwin and McClelland (2001) argue that when an interaction effect is included in a model, all main effects of the variables that interact have to be introduced as well (even in cases where they would be theoretically irrelevant) in order to get meaningful estimates of the interaction effect. The hypothesis that MCS has no significant moderating effect on the relationship between the training model and institutional performance of TTIs in Kenya was therefore rejected. These findings are in tandem with the principles of Baron and Kenny (1986) in which the moderator is expected to have a moderating effect on the relationship between the dependent and predictor variable for it to qualify as a moderator. MCS was also adopted as a moderator by Bisbe and Malagueño (2009) in their research on the choice of interactive control systems under different innovation management modes and the findings indicated a significant moderation effect.

5.2.1 Moderating effect of MCS on Institutional Leadership and Institutional Performance

The findings of the study ($\beta = 0.147$, $P < 0.05$) indicated that MCS has a significant moderating effect on the relationship between the Institutional Leadership and Institutional Performance of TTIs in Kenya. This implies the inclusion of the interaction terms between the institutional leadership and MCS has a significant change in the model thus a significant moderating effect and therefore the null hypothesis was rejected.

5.2.2 Moderating effect of MCS on Organisation Processes and Institutional Performance

The findings ($\beta = 0.119$, $P < 0.05$) deduced that MCS had a significant moderating effect in the relationship between organisation processes and institutional performance. In the MMR model, the introduction of the moderator (MCS) into the relationship between organisation processes and institutional performance was also found to be significant. This means that the inclusion of the interaction terms between the organisation processes and MCS has a significant change in the model and hence a significant moderating effect. The study thus rejected the null hypothesis that MCS does not moderate on the relationship between organisation processes and organisation processes of TTIs in Kenya.

The findings are closely related to the study by Ditillo (2004) in his research on the role of MCS as knowledge integrated mechanisms in knowledge intensive firms and found that MCS can only be effective if used to coordinate individuals as a support tool rather than an evaluation for organisation performance. The study recommended further studies on MCS application as an evaluation instrument.

5.2.3 Moderating effect of MCS on Human Resources Management and Institutional Performance

The study results indicated that the moderating effect of MCS in the relationship between human resources management and institutional performance was insignificant ($\beta=0.047$, $P=0.490$). It was also noted that the change in R-square was only 0.001 implying that the inclusion of the interaction terms between the human resources management and MCS had no significant change in the model resulting in an insignificant moderating effect and therefore the null hypothesis was not rejected. However, the MMR model was found to have an F-statistic change of 0.479 and a P-value greater than 0.05 level of significance implying that the parameter estimates of the this model are not jointly equal to 0. These results contradict the findings of Liao(2006) and Davila (2005) whose studies found that MCS moderates in the relationship between human resources management and firm performance. Therefore this contradiction could be due to methodological, contextual and/or nature of TTIs in the study.

5.2.4 Mediation effect of MCS on Human Resources Management and Institutional Performance

The results in table 4.13 indicated that there was a relationship between X and Y variables. Thus the equation formed was $Y = 0.577X + e_1$ where X was HRM, Y was the outcome variable (Institutional Performance) and e_1 was the error term. There was a mediation effect between HRM and MCS with the equation $M = 0.733X + e_2$, where X was the HRM and e_2 is the error term. The mediator variable (M) which was the causal variable had an effect on Institutional Performance (Y) (0.717, $P < 0.05$). There was no effect of Y on M (0.052, $P = 0.518$), where X was used to control the model and e_3 was the error term. Thus the arising equation was $Y = 0.717M + e_3$

Full mediation was evident from the results and according to the studies by VanderWeele (2015), Hayes (2013); Jose (2012) and MacKinnon (2008) complete mediation is the case in which variable X no longer affects Y after M has been controlled, making path c equal to zero. Partial mediation is the case in which the path from X to Y is reduced in absolute size but is still different from zero when the mediator is introduced. These results indicate that MCS is a perfect mediator between HRM and Institutional Performance.

Earlier results indicated that MCS was not able to moderate on the relationship between HRM and Institutional Performance. The implication of these mediation results confirm the earlier deduction that the moderation results contradict results obtained from other studies on the moderation of MCS on HRM and Institutional Performance. The study therefore confirms that MCS is a vital component in an institution and enhances the relationship between HRM and Institutional Performance.

5.2 Conclusion

The endeavour of this research was to determine the moderating effect of management control system (MCS) on the relationship between the training model and institutional performance in Technical Training Institutions (TTIs) in Kenya. The Training Model was conceptualized into three components (institutional leadership organisation processes and human resources management) and further the moderation effect of MCS on the relationship with institutional performance was sought.

The study results have not only enriched literature on TTIs, but also have specifically indicated that MCS is important for institutional performance to be realized. A combination of the training model and MCS further enhanced institutional performance whose outcomes should be visible in the performance of graduates in the

job market. The study extends leadership studies by other researchers especially Rattana (2012) who suggested that transformational leadership is most suitable for changing global environment. The study proposes a good linkage between policies, the leadership styles and social structure. The leadership style of the manager was said to be able to interpret and propagate the correct attitudes to the followers by creating a suitable social structure with the correct environment and culture to implement policy decisions.

Organisation processes had a positive influence on institutional performance of TTIs in Kenya. Organisation processes were evaluated through the ingredients of organisation structure, funding and infrastructure. The success of the organisation processes relies heavily on a well prepared organisation structure free of bias. Such a structure will need to be supported by a well-oiled funding mechanism that will prepare the required infrastructure that will yield the expected institutional performance. The findings concur with Parsons, Rollyson and Reid, (2012 and Alexander, Ayres and Smith (2015) who suggest that institutions should be strategic in their processes in order to obtain the expected institutional performance.

Human Resources Management (HRM) is the engine of any successful institution. All the units in the institution require qualified personnel to manage and run them. The machines, trainees and even the management and supervision require effective and efficient personnel. Human capital, reward, employees' influence and work systems were used to evaluate the effectiveness of the HRM on institutional performance and the result indicated a positive relationship though the interaction produced insignificant results. However further studies through mediation reviewed MCS mediates fully in the relationship between HRM and Institutional Performance. This

confirmed that HRM is a vital component in an institution. The study adds to the empirical studies by Liao(2006) and Davila(2005) which indicate that HRM contributes immensely to institutional performance.

The study further adds to the scanty empirical evidence on moderating effect of Management Control System (MCS) on the relationship between the training model and institutional performance. This implies that MCS should be included as a core ingredient in ensuring the technical institutions functions perfectly because it introduces the evaluation and feedback component at various levels of curriculum implementation. The fact that MCS is a good moderator in this study concurs with the study results by Lu, Zhuand Chang(2011) on ‘The moderating role of the interactive use of Management Control Systems (MCS) on the relation between knowledge management types and marketing project performance’.

5.3 Recommendations of the study

From the study findings, the training model was found to have a positive relationship with institutional performance and the following recommendations emerged which are broadly divided into policy recommendation and recommendations for further research.

5.3.1 Policy Recommendations

Although leadership is not a magic cure, it plays a key role in effecting significant organizational change and improvement in higher education institutions. This corroborated the research by Hurduzeu (2015) who concluded that a learning institution is considered to be effective if it finds the balance between the demands of various stakeholders (owners, employees, customers, community) and the needs of the students. Hence the institutional leadership is recommended to provide effective

means of doing the right thing at the right time which implies that academic institution leaders need to differentiate and prioritize strategic activities from daily routines so that first prioritized activity can be performed first.

Organisational processes are a vital component of performance and a positive relationship was exhibited by the study results. Such processes should not only be adequate but also efficiently organised. The basic of the processes in a learning institution include finance, procurement, teaching and learning which contribute to the performance of any institution. The study recommends proper coordination of organisational processes with greater emphasis on MCS to realise significant contribution and enhanced effectiveness.

The study displayed a positive relationship between Human Resources Management (HRM) and institutional performance. Human resources not only needed to have the right skills and high level of motivation but also their job designations should match their area of expertise. The study was able to clearly corroborate this analogy and put emphasis on proper workload distribution, a well organised reward system and the provision of proper facilities.

Management control system (MCS) on performance was found to be a suitable moderator in the study. However, it is much stronger in stable environments and profit generating firms where goals to be accomplished can be defined according to processes to be observed and requisite standards as applied in private sector as compared to public institutions. In public sector, control is mainly pegged on strengthening of relationships stipulated in institutional theory (norms, rules, routines and schemas) collectively designed rather than on strengthening of bureaucratic principles designed by management. Thus the study recommends that training

institutions' management should tighten their management control systems to comply with increased external regulations/requirements imposed by the Government and the industry.

5.3.2 Extension of Theory and Practice

This study has enriched literature on Training model-MCS and institutional performance.

Further, a combination of the training model and MCS specifically enhances institutional performance of TTIs whose outcomes should be visible in the performance of graduates in the job market. The researchers in strategic management should expound on this study so as to contribute to the extension of the BSC, institutional, systems and human capital theories/models.

Thus institution managers need to factor in MCS at every level of management in order to realize significant results through gathering of information and recommending satisfactory solutions for bottlenecks arising at every level of performance. The TTIs, industry and the government should collaborate by exchanging ideas and provision of resources to ensure the success of the training model which will consequently result in well-equipped graduates.

5.4 Limitations of the Study

The study was designed to investigate the moderating effect of the training model on institutional performance of technical training institutions in Kenya. During the study a number of limitations were encountered. First, the location of institutions was a major hardship and the researcher was forced to travel day and night and at times using awkward means of transport including 'bodaboda.' The reason for this being

that there was time and financial constraint; not forgetting the poor conditions of roads in the rural areas and hence poor means of public transport.

The instrument was self-administered and this allowed the respondents to take as much of their time as possible. At other times the respondent were engaged with institution activities such as meetings since they were heads of departments. The result was that the researcher had to spend more than two days in many of the stations making the exercise to take longer than expected. The budget of the whole exercise was exceeded by high margin due to the delays when collecting the data. In other cases the respondents did not fully understand the research items and further information was provided. Finally, there exist scarce research on the area of MCS and especially in relation to public institutions and training institutions by extension. It was therefore not easy to get literature and the researcher had to spend a lot of time in any given area of the study.

5.5 Suggestions for Further Research

This study was not able to reject the hypothesis that ‘management control system does not moderate in the relationship between human resources management (HRM) and institutional performance’. It cannot be automatically concluded that the alternative hypotheses is true. The causes of this scenario call for further investigation as a research issue.

The researcher faced challenges in obtaining literature related to the public sector and training institutions in particular related to the training models. The researcher challenges more scholars to venture into this area of study.

The study also recommends that for greater generalization of results, the targeted sample should exemplify a reasonable mix of those institutions registered with both TVETA and MOEST and those that are not registered with TVETA but only with MOEST.

REFERENCES

- Ab Hamid, M. R., Sami, W., & Sidek, M. M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. *Journal of Physics: Conference Series*, 890, 012163.
- Abbott, M. L., & McKinney, J. (2013). *Understanding and applying research design*. John Wiley & Sons.
- Abella, K. T. (1990). Building Successful Training program, 5th edn. Massachusetts, Addison- Wesley Publishing Company Inc., XVII, p.64, p.156.
- Afuah A. & Tucci C. (2000). *Internet business models and strategies: Text and cases*, McGraw-Hill Higher Education, Boston, MA.
- Aguinis, H., & Gottfredson, R. K. (2010). Best-practice recommendations for estimating interaction effects using moderated multiple regression. *Journal of Organizational Behavior*, 31(60): 776–786.
- Akareem, H. S., & Hossain, S. S. (2016). Determinants of education quality: What makes students' perception different? *Open Review of Educational Research*, 3(1), 52–67.
- Alexander, J. L., Ayres, K. M., & Smith, K. A. (2015). Training teachers in evidence-based practice for individuals with autism spectrum disorder: A review of the literature. *Teacher Education and Special Education*, 38(1), 13–27.
- Althaus, C., Bridgman, P., & Davis, G. (2007). *The Australian policy handbook*. Allen & Unwin Sydney.
- Alvesson, M. (2012). *Understanding organizational culture*. Sage.
- Amadi. (2014). *The effect of training and development on employees Performance. A case of Safaricom Limited*. (MBA Thesis). University of Nairobi, Kenya.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6–7), 493–520.
- Amugune, B. K. (2014). Sample size determination and sampling techniques. *Mental Health Workshop, Maanzoni*. University of Heidelberg. 1-10
- Antonakis, J., & Robert, J. (2013). 'The Full-Range Leadership Theory: The Way Forward', *Transformational and Charismatic Leadership: The Road Ahead 10th Anniversary Edition (Monographs in Leadership and Management*, Emerald Group Publishing Limited. *Monographs in Leadership and Management, Vol. 5*, 3-33 -
- Arfo, E. B. (2015). *A Comparative Analysis of Technical and Vocational Education and Training Policy in Selected African Countries* [PhD Thesis]. University of KwaZulu-Natal, Edgewood.

- Arjomandi, M., Kestell, C., Grimshaw, P., & others. (2009). An EFQM Excellence Model for higher education quality assessment. *20th Annual Conference for the Australasian Association for Engineering Education, 6-9 December 2009: Engineering the Curriculum*, 1015.
- Armstrong M. (2007). *A handbook of employee reward management and practice (2nd ed.)*. Philadelphia: Kogan Page.
- Arora, A., & Kaur, S. (2015). Performance assessment model for management educators based on KRA/KPI. *International Conference on Technology and Business Management*, 23.
- Ary, D., Jacobs, L. C., Sorensen, C. K., & Walker, D. (2013). *Introduction to research in education*. Cengage Learning.
- Asl, S. Z., Brojeni, N. K., Ghasemi, A., Faraji, F., Hedayati, M., & Azizi, F. (2009). Alterations in osmotic fragility of the red blood cells in hypo- and hyperthyroid patients. *Journal of Endocrinological Investigation*, 32(1), 28–32.
- Astawa, I. P., & Sudika, P. (2015). The impact of local culture on financial performance in property firms in Bali. *Asia-Pacific Management and Business Application*, 3(2), 106–115.
- Augusto de Matos, C., Vargas Rossi, C. A., Teixeira Veiga, R., & Afonso Vieira, V. (2009). Consumer reaction to service failure and recovery: The moderating role of attitude toward complaining. *Journal of Services Marketing*, 23(7), 462–475.
- Auzair S. M. (2011). The effect of business strategy and external environment on management control systems: A study of Malaysian hotels. *International Journal of Business and Social Science*. 2 (13) (2011), Pp. 236-244.
- Awortwi, N. (2010). Building new competencies for government administrators and managers in an era of public sector reforms: The case of Mozambique. *International Review of Administrative Sciences*, 76(4), 723–748.
- Aziz, S. A., & Mahmood, R. (2011). *The relationship between business model and performance of manufacturing small and medium enterprises in Malaysia*. African Journal of Business Management 5(22):8919-8932
- Bahl, S., & Wali, O. P. (2014). Perceived significance of information security governance to predict the information security service quality in software service industry: An empirical analysis. *Information Management & Computer Security*, 22(1), 2–23.
- Bahous, R., & Nabhani, M. (2015). Faculty views on developing and assessing learning outcomes at the tertiary level. *The Journal of General Education*, 64(4), 294–309.
- Baines, A., & Langfield-Smith, K. (2003). Antecedents to management accounting change: A structural equation approach. *Accounting, Organizations and Society*, 28(7–8), 675–698.

- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173.
- Becker, G. S. (2013). *The economic approach to human behavior*. University of Chicago press.
- Belsley, D. A., Kuh, E., & Welsch, R. E. (2005). *Regression diagnostics: Identifying influential data and sources of collinearity* (Vol. 571). John Wiley & Sons.
- Bercu, B., Portier, B., & Vazquez, V. (2014). On the asymptotic behavior of the Durbin–Watson statistic for ARX processes in adaptive tracking. *International Journal of Adaptive Control and Signal Processing*, 28(10), 1002–1023.
- Best, J.W. & Kahn, J. (2006). *Research in Education: New Delhi: Prentice Hall*
- Bevan, S. (2012). Good work, high performance and productivity. *Work Foundation*.
- Bisbe, J., & Malagueño, R. (2009). The choice of interactive control systems under different innovation management modes. *European Accounting Review*, 18(2), 371–405.
- Bititci, U., Garengo, P., Dörfler, V., & Nudurupati, S. (2012). Performance measurement: Challenges for tomorrow. *International Journal of Management Reviews*, 14(3), 305–327.
- Black, A. C., & Rosen, M. I. (2011). A money management-based substance use treatment increases valuation of future rewards. *Addictive Behaviors*, 36(1–2), 125–128.
- Black, P., Harrison, C., Lee, C., Marshall, B., & William, D. (2003). Formative and summative assessment: Can they serve learning together. *AERA Chicago*, 23.
- Blackmore, K., & Nesbitt, K. (2013). Verifying the Miles and Snow strategy types in Australian small-and medium-size enterprises. *Australian Journal of Management*, 38(1), 171–190.
- Blumberg, B., Cooper, D. R., & Schindler, P. S. (2008). *Business research methods* (Vol. 2). McGraw-Hill Higher Education London.
- Blumberg, S. J., & Luke, J. V. (2010). Wireless substitution: Early release of estimates from the National Health Interview Survey, January–June 2011. *National Center for Health Statistics*, 201(3).
- Bobe, B. (2012). Management control systems, strategy implementation and capabilities development in university academic units: *Impacts on performance*.
- Bogetoft, P., & Wittrup, J. (2017). Apples to oranges: Benchmarking vocational education and training programmes. *School Effectiveness and School Improvement*, 28(2), 191–216.

- Brinkerhoff, D. W., Wetterberg, A., & Wibbels, E. (2018). Distance, services, and citizen perceptions of the state in rural Africa. *Governance*, 31(1), 103–124.
- Brown, B., & Anthony, S. D. (2011). How P&G tripled its innovation success rate. *Harvard Business Review*, 89(6), 64–72.
- Bryman, A. (2004). Qualitative research on leadership: A critical but appreciative review. *The Leadership Quarterly*, 15(6), 729–769.
- Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford University Press.
- Burke, J. C., & Minassians, H. P. (2001). Linking Resources to Campus Results: From Fad to Trend: The Fifth Annual Survey: 2001. *Albany, NY: The Rockefeller Institute*.
- Caballero, F. F., Soulis, G., Engchuan, W., Sánchez-Niubó, A., Arndt, H., Ayuso-Mateos, J. L., Haro, J. M., Chatterji, S., & Panagiotakos, D. B. (2017). Advanced analytical methodologies for measuring healthy ageing and its determinants, using factor analysis and machine learning techniques: The ATHLOS project. *Scientific Reports*, 7, 43955.
- Camillus, J. C. (2002). Linking Strategic Vision and Managerial Action. *Willey*, 33(1)
- Camp, R. C., & Camp Robert, C. (1989). Benchmarking: The search for industry best practices that lead to superior performance. *Journal of business strategy*, 13(3) pp. 3-6
- Carlson, R. (2017). *A concrete introduction to real analysis*. Chapman and Hall/CRC.
- Carlton, D. (2018). Situational Incompetence: An investigation into the causes of failure of a large-scale IT project. In *Dark Sides of Organizational Behavior and Leadership*.
- Carr, N. (2010). *The shallows: How the internet is changing the way we think, read and remember*. Atlantic Books Ltd.
- Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001). *Applied business research: Qualitative and quantitative methods*. John Wiley & Sons Australia.
- Chalmers, D., Lee, K., & Walker, B. (2008). International and national quality teaching and learning performance models currently in use. *Carrick Institute for Learning and Teaching in Higher Education*.
- Chen, S., & Haziza, D. (2019). Recent Developments in Dealing with Item Non-response in Surveys: A Critical Review. *International Statistical Review*, 87, S192–S218.
- Cheng, Y. C. (2013). *School effectiveness and school-based management: A mechanism for development*. Routledge.
- Chesbrough, H. (2007). Business model innovation: It's not just about technology anymore. *Strategy & Leadership*, 35(6), 12–17.

- Clarke, B. (2012). From Information to Cognition: The Systems Counterculture, Heinz von Foerster's Pedagogy, and Second-Order Cybernetics. *Constructivist Foundations*, 7(3).
- Cohen, E. (2008). Book Review: Creswell, JW, & Plano Clark, VL (2006). *Designing and Conducting Mixed Methods Research*. Thousand Oaks, CA: Sage. *Research on Social Work Practice*, 18(5), 527–530.
- Cohen, P., West, S. G., & Aiken, L. S. (2014). *Applied multiple regression/correlation analysis for the behavioral sciences*. Psychology Press.
- Coimbra, E. A. (2013). *Kaizen in logistics and supply chains*. McGraw-Hill Education New York, NY.
- Colling, T., & Terry, M. (2010). *Industrial relations: Theory and practice*. John Wiley & Sons.
- Cooper, D. J. (2014). On the intellectual roots of critical accounting: A personal appreciation of Tony Lowe (1928–2014). *Critical Perspectives on Accounting*, 25(4–5), 287–292.
- Cooper, D. R., & Schindler, P. S. (2008). International edition: *Business research methods*. New Delhi: McGraw-Hill.
- Cooper, & Schindler. (2008). *International Edition: Business Research Methods*. New Delhi.
- Cordeiro, G. M., & Lemonte, A. J. (2011). The β -Birnbau–Saunders distribution: An improved distribution for fatigue life modeling. *Computational Statistics & Data Analysis*, 55(3), 1445–1461.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334.
- Crutzen, N., Zvezdov, D., & Schaltegger, S. (2017). Sustainability and management control. Exploring and theorizing control patterns in large European firms. *Journal of Cleaner Production*, 143, 1291–1301.
- Cummings, G. G., MacGregor, T., Davey, M., Lee, H., Wong, C. A., Lo, E., Muise, M., & Stafford, E. (2010). Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review. *International Journal of Nursing Studies*, 47(3), 363–385.
- Damerow, P. (2006). The material culture of calculation: A theoretical framework for a historical epistemology of the concept of number. In *Mathematisation and demathematisation: Social, philosophical and educational ramifications*. Sense Publ. (pp. 19–56).
- Danneels, E. (2002). The dynamics of product innovation and firm competences. *Strategic Management Journal*, 23(12), 1095–1121.

- Darling-Hammond, L., & Richardson, N. (2009). Research review/teacher learning: What matters. *Educational Leadership*, 66(5), 46–53.
- Davila, T. (2005). An exploratory study on the emergence of management control systems: Formalizing human resources in small growing firms. *Accounting, Organizations and Society*, 30(3), 223–248.
- Deissinger, T. (2014). TVET system research. In *Areas of vocational education research* (pp. 91–108). Springer.
- DeVellis, R. F. (2016). *Scale development: Theory and applications* (Vol. 26). Sage publications.
- Dillenberger. (2011). Models of Subjective Learning—STICERD. *Department of Economics, University of Pennsylvania*.
- Dirks, K. T., & Ferrin, D. L. (2001). The role of trust in organizational settings. *Organization Science*, 12(4), 450–467.
- Ditillo, A. (2004). Dealing with uncertainty in knowledge-intensive firms: The role of management control systems as knowledge integration mechanisms. *Accounting, Organizations and Society*, 29(3–4), 401–421.
- Duke O., Russell T. W. (2013). *The Certified Quality Manager Handbook*.
- Dunk. (2005). Financial and Non-Financial Performance: The Influence of Quality of Information System Information, Corporate Environmental Integration, Product Innovation, and Product Quality", Epstein, M. and Lee, J. (Ed.) *Advances in Management Accounting* (Advances in Management Accounting, Vol. 14. Emerald Group Publishing Limited, Bingley, Pp. 91-114.
- Dyer, P., Gursoy, D., Sharma, B., & Carter, J. (2007). Structural modeling of resident perceptions of tourism and associated development on the Sunshine Coast, Australia. *Tourism Management*, 28(2), 409–422.
- Egesi, O. K., Okoro, N. S., & Ndidi, A. (2014). Technical and Vocational Education and Training (TVET) For Sustainable Future in Nigeria. *Journal of Resourcefulness and Distinction*, 8(1):1-8
- Ehikioya, B. I. (2009). Corporate governance structure and firm performance in developing economies: Evidence from Nigeria. *Corporate Governance: The International Journal of Business in Society*, 9(3), 231–243.
- Eisenhardt, K. M., & Sull, D. N. (2001). Strategy as simple rules. *Harvard Business Review*, 79(1), 106–119.
- Emery, E. (2016). *Ethical behavior, leadership, and decision making* (PHD Thesis). Walden University
- Eriksson, P., & Kovalainen, A. (2015). *Qualitative Methods in Business Research: A Practical Guide to Social Research*. Sage.

- ESCAP, A. (2009). UNDP (2010). *Achieving the Millennium Development Goals in an Era of Global Uncertainty-Asia-Pacific Regional Report 2009, 10.*
- Essawi, M., & Tilchin, O. (2012). Structural approach to changing organizational cultural values. *International Journal of Business and Social Science, 3*(20), 175–178.
- Evans, J., Bridson, K., & Rentschler, R. (2012). Drivers, impediments and manifestations of brand orientation: An international museum study. *European Journal of Marketing, 46*(11/12), 1457–1475.
- Evertson, C. M., & Weinstein, C. S. (2013). *Handbook of classroom management: Research, practice, and contemporary issues.* Routledge.
- Fawcett, T., Killip, G., & Janda, K. B. (2014). Innovative practices in low carbon retrofit: Time, scale and business models. *Proceedings of the Paper Presented at BEHAVE Conference, 3, 4.*
- Feldman, M. P. (2001). The entrepreneurial event revisited: Firm formation in a regional context. *Industrial and Corporate Change, 10*(4), 861–891.
- Field, A. (2009). *Correcting problems in the data. Discovering statistics using SPSS.* London: SAGE Publications Ltd.
- Fortino, A. (2013). The Purpose of Higher Education: *To Create Prepared Minds.*" evollution.com. Retrieve on 20th March, 2019
- Fraenkel, J. R., & Wallen, N. E. (2000). *How to design and evaluate research in education New York: McGraw.*
- Francis, D. (2015). *Solving the Problem of Poor Quality of University Graduates in Nigeria—A Proposed Holistic Approach.* University of Calabar, Cross River State, Nigeria.
- Frankel & Wei. (2019). ASEAN in a Regional Perspective. A Research Project Undertaken for the Southeast Asia and Pacific Department International Monetary Fund. *Harvard University Press.*
- Gallo, A. (2015). A refresher on regression analysis. *Harvard Business Review*, <https://hbr.org/2015/11/a-refresher-on-regression-analysis>. Retrieved on 5/6/2019
- Gennard, J., & Judge, G. (2005). *Employee relations.* CIPD Publishing.
- Ghasemi A, Syedmoradi L, Zahediasl S, Azizi F. (2010). Pediatric reference values for serum magnesium levels in Iranian subjects. *Scand J Clin Lab Invest.*
- Glassman, A. M., & Opengart, R. (2016). Teaching Innovation and Creativity: Turning Theory into Practice. *Journal of International Business Education, 11*, 113.

- Gleeson, J. (2010). *Curriculum in context: Partnership, power and praxis in Ireland*. Peter Lang.
- Goldsmith, T. E., & Kraiger, K. (1997). Applications of structural knowledge assessment to training evaluation. *Improving Training Effectiveness in Work Organizations, 4*.
- Technical and Vocational Education and Training (TVETA) Act.
- Grigoroudis, E., Orfanoudaki, E., & Zopounidis, C. (2012). Strategic performance measurement in a healthcare organisation: A multiple criteria approach based on balanced scorecard. *Omega, 40*(1), 104–119.
- Grissom, J. A., & Loeb, S. (2011). Triangulating principal effectiveness: How perspectives of parents, teachers, and assistant principals identify the central importance of managerial skills. *American Educational Research Journal, 48*(5), 1091–1123.
- Hackman, J. R., & Wageman, R. (1995). Total quality management: Empirical, conceptual, and practical issues. *Administrative Science Quarterly, 30*–342.
- Hafiz, B., & Shaari, J. A. N. (2013). Confirmatory factor analysis (CFA) of first order factor measurement model-ICT empowerment in Nigeria. *International Journal of Business Management and Administration, 2*(5), 081–088.
- Hahn, R., & Gold, S. (2014). Resources and governance in “base of the pyramid”-partnerships: Assessing collaborations between businesses and non-business actors.
- Hamid, K., Suleman, M. T., Ali Shah, S. Z., Akash, I., & Shahid, R. (2017). Testing the weak form of efficient market hypothesis: *Empirical evidence from Asia-Pacific markets*. <http://dx.doi.org/10.2139/ssrn2912908>. Retrieved on 30/05/2019
- Hamsici, O. C., & Martinez, A. M. (2007). Spherical-homoscedastic distributions: The equivalency of spherical and normal distributions in classification. *Journal of Machine Learning Research, 8*(Jul), 1583–1623.
- Hannula, L. (2018). Graduate employment in the era of globalisation: *Challenges, opportunities, and what finnish tertiary education could learn from the UK*. (PHD Thesis) Helsinki University
- Harris, I. C., & Goode, M. M. H. (2004). The Four Levels of Loyalty and the Pivot Role of Trust of Online Dynamics. *Journal of Retailing 80*(2), 139–158.
- Harrison, J. (2002). Organisational Processes. *Simulation Modelling Practice and Theory, 10*, 249–251. [https://doi.org/10.1016/S1569-190X\(02\)00118-1](https://doi.org/10.1016/S1569-190X(02)00118-1)
- Harrison, M. (2018). *Trade Unions and the Labour Party Since 1945*. Routledge.

- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*(2), 268.
- Hayes, A. F. (2013). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408–420.
- Helmy, A. (2014). *VET Training and Industry Partnerships: A Study in East Java, Indonesia* [PhD Thesis]. Victoria University.
- Hempel, P. S., Zhang, Z.-X., & Tjosvold, D. (2009). Conflict management between and within teams for trusting relationships and performance in China. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 30*(1), 41–65.
- Ho, T.-H., Su, X., & Wu, Y. (2014). Distributional and peer-induced fairness in supply chain contract design. *Production and Operations Management, 23*(2), 161–175.
- Hoque, Z. (2014). 20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research. *The British Accounting Review, 46*(1), 33–59.
- Horngren, C. T., Harrison, W. T., Bamber, L. S., Willis, B., & Jones, B. (2005). *Accounting*. Pearson Education.
- Huhtala, M., Kangas, M., Lämsä, A.-M., & Feldt, T. (2013). Ethical managers in ethical organisations? The leadership-culture connection among Finnish managers. *Leadership & Organization Development Journal, 34*(3), 250–270.
- Hurduzeu, R.-E. (2015). The impact of leadership on organisation performance. *SEA: Practical Application of Science, 3*(1).
- Invernizzi, D. C., Locatelli, G., & Brookes, N. J. (2017). How benchmarking can support the selection, planning and delivery of nuclear decommissioning projects. *Progress in Nuclear Energy, 99*, 155–164.
- Irianto, D. (2005). *Quality management implementation: A multiple case study in Indonesian manufacturing firms*. University of Twente.
- Irwin, J. R., & McClelland, G. H. (2001). Misleading heuristics and moderated multiple regression models. *Journal of Marketing Research, 38*(1), 100–109.
- Ishak, N. B., Eze, U. C., & Ling, L. S. (2010). Integrating knowledge management and human resource management for sustainable performance. *Journal of Organizational Knowledge Management, 2010*, 1–13.
- Islam, M., Mia, A., & Mission, D. A. (2007). The innovative elements in non-formal education of Bangladesh: Perspective of income generating programmes for poverty alleviation. *International Journal of Education and Development Using ICT, 3*(3).

- Jankowick, A.D. (2000). *Business Research projects 3rd Edition*. Business Press.
- Jarvenpaa, S. L, Tractinsky, N., & Vitale, M. (2000). *Consumer Trust in and Internet Store,*” Volume 1, 45-71.
- Jolliffe, I. (2011). *Principal component analysis*. Springer.
- Jowi, J. O. (2018). *Deans in Kenyan Universities: Their leadership styles and impacts on staff commitment*. (PHD Thesis). Centre for Higher Education Policy Studies
- Kanyoro, M. (2015). *Effects of Performance Contracting on Performance of TVET Institutions in Nairobi County* [PhD Thesis]. St. Paul’s University.
- Kaplan, R. S., & Norton, D. P. (2008). *The execution premium: Linking strategy to operations for competitive advantage*. Harvard Business Press.
- Kaplan, R. S., & Norton, D. P. (2015). *Balanced Scorecard Success: The Kaplan-Norton Collection (4 Books)*. Harvard Business Review Press.
- Kaplan, R. S., Robert, N. P. D. K. S., Davenport, T. H., Kaplan, R. S., & Norton, D. P. (2001). *The strategy-focused organization: How balanced scorecard companies thrive in the new business environment*. Harvard Business Press.
- Kariya, T., & Rosenbaum, J. E. (2003). Stratified incentives and life course behaviors. In *Handbook of the life course* (pp. 51–78). Springer.
- Kim, S., Park, I., & Park, S. (2013). Trade-creating regime-wide rules of origin: A quantitative analysis. *Applied Economics Letters*, 20(11), 1056–1061.
- Kim, W. C., & Mauborgne, R. A. (2014). *Blue ocean strategy, expanded edition: How to create uncontested market space and make the competition irrelevant*. Harvard business review Press.
- King, K., & McGrath, S. (2004). Knowledge for development. *Comparing British, Japanese, Swedish and World Bank Aid*. Human Sciences Research Council Press, Cape Town, South Africa.
- Kline, R. B. (2011). *Convergence of structural equation modeling and multilevel modeling*. Sage
- Kober, R., Ng, J., & Paul, B. J. (2007). The interrelationship between management control mechanisms and strategy. *Management Accounting Research*, 18(4), 425–452.
- Krone, T., Albers, C. J., & Timmerman, M. E. (2017). A comparative simulation study of AR (1) estimators in short time series. *Quality & Quantity*, 51(1), 1–21.
- Kruis A. (2008). *Management control system design and effectiveness*. Nyenrode Research Group (NRG), Alblaserdam.

- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, 79(5), 540–563.
- Kumari. (2019). Why engineers don't want to become teacher in school? *Quora.Com*. <https://help.quora.com/hc/en-us>. Date retrieved 10/09/2019
- Laguir, L., Laguir, I., & Tchemeni, E. (2019). Implementing CSR activities through management control systems: A formal and informal control perspective. *Accounting, Auditing & Accountability Journal*, 32(2), 531–555.
- Lam, K. W., & Hassan, A. (2018). Instructional Technology Competencies Perceived by Technical and Vocational Education and Training (TVET) Students in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 8(5), 343–366.
- Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations and Society*, 22(2), 207–232.
- Latip, N. A. M., Salleh, M. I., Omar, B., & Yaakub, K. B. (2013). A Resource-based Perspective on Technological Competencies and Relationship Performance: An Empirical Analysis. *South East Asia Journal of Contemporary Business, Economics and Law*, 3(2), 18–22.
- Lauglo, J. (2009). Research for TVET policy development. *International Handbook of Education for the Changing World of Work*, 891–904.
- Lawrence, T. B., & Suddaby, R. (2006). Institutions and Institutional Work. SR Clegg, C. Hardy, TB Lawrence & WR Nord (eds.) *Handbook of Organization Studies*. 215-254. Sage. March, JG (1991) *Exploration and Exploitation in Organizational Learning*. *Organization Science*, 2(1), 71–87.
- Liao, Y.-S. (2006). Human resource management control system and firm performance: A contingency model of corporate control. *The International Journal of Human Resource Management*, 17(4), 716–733.
- Loch, C. H., & Wu, Y. (2008). Social preferences and supply chain performance: An experimental study. *Management Science*, 54(11), 1835–1849.
- Lotich. (2016). 10 Steps to Developing and Managing a Budget. <https://TheThrivingSmallBusiness.Com>. Date Accessed 10/09/2019.
- Lowe, E. A. (1971). On the idea of a management control system: Integrating accounting and management control. *Journal of Management Studies*, 8(1), 1–12.
- Lu, C.-T., Zhu, D.-S., & Chang, Y.-W. (2011). The moderating role of the interactive use of Management Control Systems (MCS) on the relation between knowledge management types and marketing project performance. *African Journal of Business Management*, 5(3), 687–698.

- Macpherson, W. G., Lockhart, J. C., Kavan, H., & Iaquinto, A. L. (2015). Kaizen: A Japanese philosophy and system for business excellence. *Journal of Business Strategy*, 36(5), 3–9.
- Maes, J. D., & Weldy, T. G. (2018). Building Effective Virtual Teams: Expanding OD Research and Practice. *Organization Development Journal*, 36(3), 83.
- Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research. *Management Science*, 52(12), 1865–1883.
- Malmi, T., & Brown, D. A. (2008). Management control systems as a package—Opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287–300.
- Manita, R., Lahbari, H., & Elommal, N. (2011). The impact of qualitative factors on ethical judgments of materiality: An experimental study with auditors. *International Journal of Business*, 16(3), 231.
- Mankiw, N. G. (2016). *Brief principles of macroeconomics*. Cengage Learning.
- Marginson, D. E. (2002a). Management control systems and their effects on strategy formation at middle-management levels: Evidence from a UK organization. *Strategic Management Journal*, 23(11), 1019–1031.
- Marginson, D. E. (2002b). Management control systems and their effects on strategy formation at middle-management levels: Evidence from a UK organization. *Strategic Management Journal*, 23(11), 1019–1031.
- Martin, B., Kolomitro, K., & Lam, T. (2013). Training Methods: A Review and Analysis. *Human Resource Development Review*, 13, 11–35.
- Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals*, 11(1), 73–104.
- MBNQA. (1987). *Malcolm Baldrige National Quality Improvement Act of 1987 (Public Law 100–107)*.
- McBain, R. (2004). Training effectiveness in evaluation. *Henley Manager Update*, 15(3).
- McClellan, E., & Collins, C. J. (2011). High-commitment HR practices, employee effort, and firm performance: Investigating the effects of HR practices across employee groups within professional services firms. *Human Resource Management*, 50(3), 341–363.
- McCull-Kennedy, J. R., & Anderson, R. D. (2002). Impact of leadership style and emotions on subordinate performance. *The Leadership Quarterly*, 13(5), 545–559.

- Merchant, K., & Otley, D. (2007). *A review of the literature on control and accountability. I Handbook of Management Accounting Research, CS Chapman, AG Hopwood & MD Shields*. Amsterdam: Elsevier.
- Middaugh, M. F. (2001). *Understanding faculty productivity: Standards and benchmarks for colleges and universities*. John Wiley & Sons.
- Milliken, F. J., Morrison, E. W., & Hewlin, P. F. (2003). An exploratory study of employee silence: Issues that employees don't communicate upward and why. *Journal of Management Studies, 40*(6), 1453–1476.
- Mintrom, M. (2014). Creating cultures of excellence: Strategies and outcomes. *Cogent Education, 1*(1), 934084.
- Mishra, A. (2017). Challenges in quality improvement of engineering education in India. *PEOPLE: International Journal of Social Sciences, 3*(1).
- Mishra, O., & Garg, D. (2013). JIT supply chain; an investigation through general system theory. *Management Science Letters, 3*(3), 743–752.
- Monden, Y. (2011). *Toyota production system: An integrated approach to just-in-time*. Productivity Press.
- Montuori, A. (2011). Systems approach. *The Encyclopedia of Creativity, 2*(2011), 414–421.
- Mose, J. M. (2014). *Effect of corporate governance on financial performance of telecommunication firms in Kenya* [PhD Thesis]. School of Business, University of Nairobi.
- Mugenda, O. M., & Mugenda, A. G. (2003). *Qualitative and quantitative approaches. Research Methods Africa Center for Technology Studies (Acts) Press. Nairobi Kenya*.
- Murad, M., & Gill, S. A. (2016). Impact of Leadership on Institutional Performance: Evidence from Public Sector Universities of Faisalabad, Pakistan. *Studies, 5*(4).
- Murgor, T. K. (2013a). A comparison of technical and vocational acquired skills differences based on gender in Tvet institutions, UasinGishu County, Kenya. *Journal of Education and Practice, 4*(22), 181–187.
- Murgor, T. K. (2013b). Relationship between Technical and Vocational Acquired Skills and Skills Required in Job Market; Evidence from TVET Institutions, UasinGishu County, Kenya. *Journal of Education and Practice, 4*(19), 77–83.
- Mutai, E. (2018). Every employer should fund industrial training, says agency. <https://www.businessdailyafrica.com>. Date Retrieved 10/09/2019.

- Mwaniki, L. W. (2015). Factors that Influence the Adoption of Insourcing in Public Technical and Vocational Education and Training Institutes in Kiambu County. *International Journal of Academic Research in Business and Social Sciences*, 5(7), 112–122.
- Navaretti, G. B., Castellani, D., & Pieri, F. (2014). Age and firm growth: Evidence from three European countries. *Small Business Economics*, 43(4), 823–837.
- Ndungu, C. G., & Njeru, A. (2014). Assessment of factors influencing adoption of agency banking in Kenya: The case of Kajiado north Sub County. *International Journal of Business and Commerce*, 3(8), 91–111.
- Nichols, T. S. (2017). *Explore, Experience, And Excel: The Impact of Service-Learning on the Perceived Leadership Traits and Public Speaking Skills in Fundamentals of Public Speaking Courses*. Trevecca Nazarene University.
- Obinozie, R. O. (2016). *Effects of Management Control Systems and Strategy on Performance of Minority-Owned Businesses*.
- Odumeru, J. A., & Ogbonna, I. G. (2013). Transformational vs. transactional leadership theories: Evidence in literature. *International Review of Management and Business Research*, 2(2), 355.
- Oermann, M. H., & Gaberson, K. B. (2016). *Evaluation and testing in nursing education*. Springer Publishing Company.
- O'Leary, R., & Bingham, L. B. (2009). *The collaborative public manager: New ideas for the twenty-first century*. Georgetown University Press.
- Oluwale, B. A., Jegede, O. O., & Olamide, O. O. (2013). Technical and vocational skills depletion in Nigeria and the need for policy intervention. *International Journal of Vocational and Technical Education*, 5(6), 100–109.
- Omachonu, V., Johnson, W. C., & Onyeaso, G. (2008). An empirical test of the drivers of overall customer satisfaction: Evidence from multivariate Granger causality. *Journal of Services Marketing*, 22(6), 434–444.
- Orozco D. (2016). *Understanding the impact of Management Control Systems over capabilities and organizational performance, under the influence of perceived environmental uncertainty*. University of Barcelona.
- Osborne, Christensen, W. R., & Gunter, J. (2001). Educational psychology from a statistician's perspective: A review of the power and goodness of educational psychology research. *National Meeting of the American Education Research Association (AERA)*, Seattle, WA.
- Osborne, J. W. (2001). A new look at outliers and fringeliers: Their effects on statistic accuracy and Type I and Type II error rates. *Unpublished Manuscript, Department of Educational Research and Leadership and Counselor Education, North Carolina State University*, 7.

- Pandey, I.M. (2005). "Balanced scorecard: Myth and reality", *Vikalpa*, Vol. 30 No. 1, pp. 51-66.
- Parker, Owen, & Liz Wright. (2001). *Pay and Employee Commitment: The Missing Link.* *Ivey Business Journal*.
- Parsons, M. B., Rollyson, J. H., & Reid, D. H. (2012). Evidence-based staff training: A guide for practitioners. *Behavior Analysis in Practice*, 5(2), 2–11.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How College affects students: A third decade of research (Vol. 2)*. San Francisco: Jossey-Bass.
- Pedhazur, E. J. (1997). *Multiple Regression in Behavioral Research* (3rd ed). Orlando, FL: Harcourt Brace.
- Peljhan, D. (2007). The role of management control systems in strategy implementation: The case of a Slovenian company. *Economic and Business Review for Central and South-Eastern Europe*, 9(3), 257.
- Pérez, B. E., González, J. M. G., & Gallardo, A. L. (2008). Organisational Control System in a Continuous Improvement Environment: Special Reference to the Role of Management Accounting. *Journal of Accounting, Business & Management*, 15(1).
- Powell, T. C., Lovallo, D., & Fox, C. R. (2011). Behavioral strategy. *Strategic Management Journal*, 32(13), 1369–1386.
- Price A. (2012). *The Harvard map of HRM: seminal model of HRM. Based on Human Resource Management, 4th edition, Harvard University.*
- Rahman, N. A., Voon, B. H., & Firdaus, A. (2016). Identifying the dimensions for culture of excellence in higher education. *Procedia-Social and Behavioral Sciences*, 224, 84–92.
- Rana, M. H., & Malik, M. S. (2017). Impact of human resource (HR) practices on organizational performance: Moderating role of Islamic principles. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(2), 186–207.
- Rattana S. (2012). *Moderating Role of Business Strategies on the Relationship between Best Business Practices and Firm Performance, Valaya Alongkorn Rajabhat University.*
- Reinartz, W. J., & Kumar, V. (2003). The impact of customer relationship characteristics on profitable lifetime duration. *Journal of Marketing*, 67(1), 77–99.
- Reitzig, M., & Maciejovsky, B. (2015). Corporate hierarchy and vertical information flow inside the firm—A behavioral view. *Strategic Management Journal*, 36(13), 1979–1999.

- Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management*, 35(3), 718–804.
- Robinson, D. G., Robinson, J. C., Phillips, J. J., Phillips, P. P., & Handshaw, D. (2015). *Performance consulting: A strategic process to improve, measure, and sustain organizational results*. Berrett-Koehler Publishers.
- Room, C. (2018). *Regression Modelling. Correlation Analysis for the Behavioral Sciences, 3rd Edition Third Edition*. Hardcover
- Rorison, Jamey; Voight, Mamie. (2016). Leading with Data: How Senior Institution and System Leaders Use Postsecondary Data to Promote Student Success. *Institute for Higher Education Policy. 1825 K Street Suite 720, Washington, DC 20006*.
- Rosenbaum, j. (2002). "Beyond empty promises: *Policies to improve transitions into college and jobs.*" *Paper Prepared for the Office of Vocational and Adult Education, Us Department of Education, Washington, DC*. Page 178.
- Rowe, N. F. (2009). The active people survey: A catalyst for transforming evidence-based sport policy in England. *International Journal of Sport Policy*, Vol. 1(1), 89–98.
- Ruben, B. D. (2004). *Pursuing excellence in higher education*.
- Rust, R. T., Lemon, K. N., & Zeithaml, V. A. (2004). Return on marketing: Using customer equity to focus marketing strategy. *Journal of Marketing*, 68(1), 109–127.
- Sasongko, H. (2016). *The analysis of the effectiveness of managerial leadership program at PT. IkanDorang* [PhD Thesis]. Widya Mandala Catholic University Surabaya.
- Schein, E. H. (2004). *Organizational culture and leadership (Jossey-Bass business & management series)*. Jossey Bass Incorporated.
- Schultz, T. W. (1971). *Investment in Human Capital. The Role of Education and of Research*.
- Scott, W. R. (2004). Institutional theory. *Encyclopedia of Social Theory*, 11, 408–414.
- Seher, D. (2014). *Business Process Reengineering and Organizational Structure—A Case Study of Indian Commercial Banks*.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
- Sellin, B. (2002). *Scenarios and Strategies for Vocational Education and Lifelong Learning in Europe: Summary of Findings and Conclusions of the Joint CEDEFOP/ETF Project (1998-2002)*. CEDEFOP Panorama Series. ERIC.

- Sharma P. K. (2013). *Management Control Systems and their Impact on Productivity in Large Organisations*. Patil University.
- Sharon, & Spencer. (2004). *OCR, Certificate in Administration level 3, student's book*. Oxford Heinemann, USA.
- Simiyu, J. W. (2009). Factors That Influence the Attractiveness of a Technical and Vocational Education and Training Centre: A Case Study of a Technical Institute in Kenya. *Level 3*, 7(1), 5.
- Simons R. (1994). How new top managers use control systems as levers of strategic renewal. *Strategic Management Journal*.
- Simons, R. (1995). Control in an age of empowerment. *Harvard Business Review*, 73(2).
- Simons, R., Russ-Eft, D., Preskill, H., Tejada, R. A., Delgado Negrini, S., Montero Corrales, M., Cano Gallego, J., Chang, R. Y., Morgan, M. W., & González, A. (2000). *Performance measurement and control systems for implementing strategy*. IICA, Tegucigalpa (Honduras) Instituto Nacional Agrario, Tegucigalpa
- Singh, M. (2013). Educational practice in India and its foundations in Indian heritage: A synthesis of the East and West? *Comparative Education*, 49(1), 88–106.
- Spröber, N., Schneider, T., Rassenhofer, M., Seitz, A., Liebhardt, H., König, L., & Fegert, J. M. (2014). Child sexual abuse in religiously affiliated and secular institutions: A retrospective descriptive analysis of data provided by victims in a government-sponsored reappraisal program in Germany. *BMC Public Health*, 14(1), 282.
- Stichweh, R. (2011). Systems theory. *International Encyclopedia of Political Science*. New York: Sage.
- Stockburger, D. (2001). *Introductory statistics: Concepts, models, and applications*. Atomic Dog Pub.
- Strier, K. B. (2016). *Primate behavioral ecology*. Routledge.
- Stufflebeam, D. L., & Zhang, G. (2017). *The CIPP evaluation model: How to evaluate for improvement and accountability*. Guilford Publications.
- Tait, A. R., Voepel-Lewis, T., Zikmund-Fisher, B. J., & Fagerlin, A. (2010). The effect of format on parents' understanding of the risks and benefits of clinical research: A comparison between text, tables, and graphics. *Journal of Health Communication*, 15(5), 487–501.
- Tan, E. (2014). Human capital theory: A holistic criticism. *Review of Educational Research*, 84(3), 411–445.

- Taticchi, P., Riccaboni, A., & Luisa Leone, E. (2010). Implementing strategies through management control systems: The case of sustainability. *International Journal of Productivity and Performance Management*, 59(2), 130–144.
- Taticchi, P., Tonelli, F., & Cagnazzo, L. (2010). Performance measurement and management: A literature review and a research agenda. *Measuring Business Excellence*, 14(1), 4–18.
- Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. E. (2014). Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Qual Saf*, 23(4), 290–298.
- Tennant, G. (2017). *Six Sigma: SPC and TQM in manufacturing and services*. Routledge.
- Tessier, S., & Otley, D. (2012). A conceptual development of Simons' Levers of Control framework. *Management Accounting Research*, 23(3), 171–185.
- Tessmer, M. (2013). *Planning and conducting formative evaluations*. Routledge.
- Truong, D. (2010). How cloud computing enhances competitive advantages: A research model for small businesses. *The Business Review, Cambridge*, 15(1), 59–65.
- Tsamenyi, M., Sahadev, S., & Qiao, Z. S. (2011). The relationship between business strategy, management control systems and performance: Evidence from China. *Advances in Accounting*, 27(1), 193–203.
- Tyler, T. R. (2013). *Why people cooperate: The role of social motivations*. Princeton University Press.
- UNESCO. (2014). *Research in early childhood education for sustainability: International perspectives and provocations*. Routledge.
- UNESCO. (2015). *World TVET Database on Madagascar*.
- Van Kemenade, A. (2009). Discourse relations and word order change. *Information Structure and Language Change*, 91–118.
- Vargo, S. L., & Lusch, R. F. (2004). The four service marketing myths: Remnants of a goods-based, manufacturing model. *Journal of Service Research*, 6(4), 324–335.
- Veal, A. J. (2005). *Business research methods: A managerial approach*. Pearson Education Australia/Addison Wesley.
- Velnampy, T., & Nimalthasan, P. (2013). Corporate governance practices, capital structure and their impact on firm performance: A study on Sri Lankan listed manufacturing companies. *Research Journal of Finance and Accounting*, 4(18).

- Verhoef, P. C., Reinartz, W. J., & Krafft, M. (2010). Customer engagement as a new perspective in customer management. *Journal of Service Research*, 13(3), 247–252.
- Vigo, M., Brown, J., & Conway, V. (2013). Benchmarking web accessibility evaluation tools: Measuring the harm of sole reliance on automated tests. *Proceedings of the 10th International Cross-Disciplinary Conference on Web Accessibility*, 1.
- Wairimu G. (2009). *Technical, vocational education and training in Africa: Has it lost its significance? KMAfrica Dakar Conference*. Dakar: KMAfrica.
- Waithaka, S. M., & Ngugi, K. (2012). Analysis of factors that influence implementation of performance contracts in state corporations (A Case of Kenya Civil Aviation Authority). *International Journal of Humanities and Social Science* 2(17) pp. 283-297
- Wang, Q., Gürsel, I. V., Shang, M., & Hessel, V. (2013). Life cycle assessment for the direct synthesis of adipic acid in microreactors and benchmarking to the commercial process. *Chemical Engineering Journal*, 234, 300–311.
- Washe F. M. (2011). *An evaluation of budgeting processes in Parastatals (A case of Kenya revenue authority) (Master's Thesis)*, University of Nairobi (UON).
- Williams, L. J., Hartman, N., & Cavazotte, F. (2003). Method variance and marker variables: An integrative approach using structural equation methods. *Academy of Management*, Seattle, WA. 13(3):477-514
- Wulnye, Alkins & Abdul-Fatamu. (2018). Training and Development: Management Tool for Increased Performance. *International Journal of Economics, Commerce and Management*. 6(5) pp. 745-776
- Yang, X., Holmes, M. J., Newton, A. T., Morgan, V. L., & Landman, B. A. (2012). A comparison of distributional considerations with statistical analysis of resting state fMRI at 3T and 7T. *Medical Imaging 2012: Image Processing*, 8314, 831416.
- Yilmazer, T., & Schrank, H. (2010). The use of owner resources in small and family owned businesses: Literature review and future research directions. *Journal of Family and Economic Issues*, 31(4), 399–413.
- Young, R., & Poon, S. (2013). Top management support—almost always necessary and sometimes sufficient for success: Findings from a fuzzy set analysis. *International Journal of Project Management*, 31(7), 943–957.
- Yuan, K.-H., & Bentler, P. M. (2001). Effect of outliers on estimators and tests in covariance structure analysis. *British Journal of Mathematical and Statistical Psychology*, 54(1), 161–175.
- Zell, D. (2018). *Changing by design: Organizational innovation at Hewlett-Packard*. Cornell University Press.

- Zhang, X., & Chen, R. (2008). Examining the mechanism of the value co-creation with customers. *International Journal of Production Economics*, 116(2), 242–250.
- Zhu, W., Chew, I. K., & Spangler, W. D. (2005). CEO transformational leadership and organizational outcomes: The mediating role of human–capital-enhancing human resource management. *The Leadership Quarterly*, 16(1), 39–52.
- Ziderman, A. (2001). Financing vocational training to meet policy objectives: Sub-Saharan Africa. *World Bank, Africa Region, Human Development Department, Washington, DC*, 130.
- Zigan, K., & Zeglat, D. (2010). Intangible resources in performance measurement systems of the hotel industry. *Facilities*. 28(13/14):597-610

APPENDICES**Appendix 1: Introduction letter****Clement Karani****P.o. Box 44600-00100****Nairobi.****Dear Respondent**

I am a post graduate PhD student at the Moi University and am currently doing research on **‘Moderating Effect of Management Control Systems (MCS) on the Training Model and Institutional Performance of Technical Training Institutes (TTIs) in Kenya.’** To achieve this, you have been selected for this study. I kindly request you to fill the attached questionnaire to generate the data required for this study. This information will be used purely for academic purposes and your name will not be mentioned in the report. Findings of this study, shall upon request, be availed to you.

Thank You

C. K. Mbore

Appendix 2: Letter of Authorization



MOI UNIVERSITY
ISO 9001:2008 CERTIFIED
SCHOOL OF BUSINESS AND ECONOMICS

Tel: (020) 2211206
 Fax No: (020) 220247
 Telex No. 35047 MOI UNIVERSITY

P. O. Box 63056
 Nairobi
 KENYA

Ref: MU/SBE/NRB/PHD/SA

16th August, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: MBORE CLEMENT KARANI
REG/NO:SBE/D/026/16

This is to confirm that the above named is a bona-fide student of Moi University registered for Doctor of Philosophy in Business Management, offered at Nairobi Campus.

Mr. Karani has completed coursework and is awaiting results.

Any assistance given to him will be highly appreciated.

Yours faithfully,

MOI UNIVERSITY
 NAIROBI SATELLITE CAMPUS

16 AUG 2016

SCHOOL OF BUSINESS & ECONOMICS
 P.O. Box 63056-00200, NAIROBI.

DR. ROBERT ODUNGA
FOR: DEAN, SCHOOL OF BUSINESS AND ECONOMICS.

Appendix 3: Questionnaire

Introduction

This questionnaire is meant to investigate the **Moderating effect of Management Control Systems (MCS) on the Training model and Institutional Performance of TTIs in Kenya**. All information provided will be treated with utmost confidentiality.

Kindly respond to all questions by a tick (√) where required.

Section A: General Information

1. Name of Institution

(optional).....

2. Name of your Department

(optional).....

3. Number of years that you have served in this institution.

a) 1-2 b) 3-5 c) 6-10 d) over 10

4. Please indicate your Highest Qualifications

a) Certificate b) Diploma c) Graduate d) Post graduate

5. Age of institution

a) 1-2 b) 3-5 c) 6-10 d) over 10

6. Number of teachers in the institution

a) 1-20 b) 21-50 c) 51-100 d) over 100

7. Number of students in the institution

a) 1-50 b) 51-100 c) 101-200 d) 201-500 e) over 500

8. Distance of the institution from the County Education Office in kilometers

a) 1-10 b) 11-20 c) 21-50 d) 51-100 e) over 100

Section A: Institutional Performance

For the statements below, to what extent do you agree or disagree? The Responses vary from 1-5 scale where (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree. Tick as appropriate.

		1	2	3	4	5
	Internal Operations					
1.	Internal operations and processes of the TTI are efficient and effective					
2.	Performance control techniques are simple, systematic, easy-to-understand approach					
	Learning and growth					
3.	Evidence of institution growth in academic circles is available					
	Financial Perspective					
4.	There is an Efficient and effective control mechanism of institutional funds (Adherence to budgets and plans)					
	Customer Focus					
5.	Students and other stakeholders are satisfied with institutional services (adherence to the customer service charter)					
6.	Student follow-up programs are integrated					

Section B: Institutional Leadership

For the statements below, to what extent do you agree or disagree? The Responses vary from 1-5 scale where (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree. Tick as appropriate.

		1	2	3	4	5
	Policies					
1.	Institutional policies and programs are effectively communicated					
2.	Duties are clearly spelt out for each employee					
	Social Structure					
3.	Sanctions for undisciplined staff are fairly applied and communicated					
4.	There is collaboration with stakeholders					
	Leadership Style					
5.	Leadership roles are available for staff at every level					
6.	Participative leadership is encouraged					

Section C: Organisation Processes

For the statements below, to what extent do you agree or disagree? The Responses vary from 1-5 scale where (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree. Tick as appropriate.

		1	2	3	4	5
	Funding					
1.	Teaching and learning materials are provided on time					
2.	Funding for programs is adequate					
	Infrastructure					
3.	Teaching facilities are adequate					
4.	The institution has a maintenance program					
	Organisation structure					
5.	The entire system (institution departments) is coordinated					
6.	Roles are not duplicated					

Section D: Human Resources

For the statements below, to what extent do you agree or disagree? The Responses vary from 1-5 scale where (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree. Tick as appropriate.

		1	2	3	4	5
	Reward Systems					
1.	Reward mechanism of staff is available					
2.	Remuneration is adequate					
	Work Systems					
3.	Teachers are qualified for areas assigned					
4.	Teacher evaluation process is clear and adequate					
	Human capital					
5.	Training and development programs are available					
6.	Work is fairly distributed taking teachers strong areas into account					
	Employee Influence					
7.	Teachers influence decisions of the employer through trade unions					
8.	Participative leadership motivates the employees					

Section E: Management Control System (MCS)

For the statements below, to what extent do you agree or disagree? The Responses vary from 1-5 scale where (1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree. Tick as appropriate.

	Benchmarking	1	2	3	4	5
1.	Benchmarking programs are carried out frequently					
	Curriculum					
2.	The curriculum content is adequately covered					
3.	Students are disciplined					
	Budgeting					
4.	Budgets and plans are strictly adhered to in the institution					
	Kaizen					
5.	Formulating and implementing change is encouraged					
6.	Adequate management support is provided					
7.	Monitoring of teaching and learning is achieved					

Appendix 4: List of Approved Technical Training Institutes in Kenya by TVETA

SN	INSTITUTION	LOCATION/ COUNTY	NO. OF DEPARTS	SAMPLE
1	Aldai Technical Training Institute	NANDI	4	2
2	Baringo Technical Training Institute	KABARNET	3	2
3	Bondo Technical Training Institute	BONDO	3	2
4	Bumbe Technical Training Institute	FUNYULA, BUSIA	5	2
5	Bureti Technical Training Institute	KERICHO	3	2
6	Coast Institute of Technology	VOI, TAVETA	7	4
7	Bushiangala Technical Training Institute	KAKAMEGA	4	2
8	Eldoret Polytechnic	ELDORET	12	5
9	Emining Technical Training Institute	MOGOTIO	3	2
10	Friends College Inst of Tech Kaimosi	TIRIKI	6	3
11	Godoma Technical Training Institute	KILIFI	3	2
12	Jeremiah Nyaga Training Institute	EMBU	3	2
13	Karumo Technical Training Institute	MERU	3	2
14	Kiambu Institute of Science & Technology	KIAMBU	12	5
15	Kaiboi Technical Training Institute	NANDI	8	4
16	Keroka Youth T.T Inst	KEROKA	5	2
17	Kisiwa Technical Training Institute	BUNGOMA	4	2
18	RamogiInst.of Technology	KISUMU	7	4
19	Kisumu Polytechnic	KISUMU	9	5
20	Kinyanjui Technical Institute	NAIROBI	6	3
21	Kenya Technical Teachers College	NAIROBI	12	5
22	Kabete Technical Training Institute	NAIROBI	10	5
23	Karen Technical Institute	NAIROBI	5	3
24	Kitale national polytechnic	KITALE	8	4
25	Katine Technical Training Institute	MACHAKOS	4	2
26	Kiirua Technical Training Institute	MERU	4	2
27	Machakos Technical Institute for the Blind	MACHAKOS	5	2
28	Matili Technical Training Institute	BUNGOMA	4	2
29	Mathenge Technical Training Institute	NYERI	8	4
30	Mawego Technical Institute	OYUGIS	7	4
31	Meru Technical Training Institute	MERU	9	5
32	Michuki Technical Institute	KANGEMA	7	4
33	Mitunguu Technical Training Institute	MERU	4	2
34	Mombasa Technical Training Institute	MOMBASA	9	5
35	Musakasa Technical Training Institute	BUNGOMA	3	2
36	Mukiria Technical Training Institute	MERU	3	2
37	Mukurweini Tech. Training Institute	NYERI	3	2
38	Nyandarua Institute of Science and Techn.	NYAHURURU	5	3
39	Nairobi Technical Training Institute	NAIROBI	9	5
40	Nyeri Technical Institute	NYERI	10	5

41	Nkabune Technical Training Institute	MERU	9	5
42	NEP Technical Training Institute	GARISSA	6	3
43	OI Lessos Technical Institute	OLESOS	6	3
44	Ramogi Institute of Advanced Technology	KISUMU	8	4
45	Rwika Institute of Technology	EMBU	7	4
46	Rift Valley Inst. of Scie & Technology.	NAKURU	12	5
47	Rift Valley Technical Training Institute	ELDORET	12	5
48	Siaya Institute of Techn.	SIAYA	7	4
49	Sigalagala Technical Training Institute	KAKAMEGA	9	5
50	Shamberere Technical Training Institute	KAKAMEGA	4	2
51	Sot Technical Training Institute	BOMET	4	2
52	Sangalo Institute of Technology	BUNGOMA	9	5
53	St. Joseph's Technical Institute for the Deaf	NYANG'OMA SIAYA	6	3
54	Thika Technical Training Institute	THIKA	9	5
55	The Kisii National Polytechnic	KISII	12	5
56	Tseikuru Technical Training Institute	MWINGI	4	2
57	Sikri Vocational Training Centre for the Blind and Deaf	SIKRI HOMABAY	4	2
58	Wote Technical Training Institute	MAKUENI	6	3
59	Ziwa Technical Training Institute	ELDORET	4	2
	TOTAL		379	194

Source: Ministry of Education Website (2015)

Appendix 5: EFA factor loadings matrix

		1	2	3	4
B1	Institutional policies and programs are effectively communicated	0.647	-0.011	0.251	0.228
B2	Duties are clearly spelt out for each employee	0.554	0.187	0.297	0.315
B3	leadership roles are availed for staff at every level	0.674	0.152	0.316	0.061
B4	Suctions for undisciplined staff are fairly applied and communicated	0.750	0.118	0.01	0.025
B5	Participative leadership is encouraged	0.696	0.28	0.177	0.067
B6	There is collaboration with stake holders	0.556	0.239	0.337	0.263
C1	Teaching and learning materials are provided on time	0.526	-0.04	0.154	0.512
C2	Funding for programs is adequate	0.167	0.101	0.207	0.774
C3	Teaching facilities are adequate	0.148	0.367	0.135	0.646
C4	The institution has a maintenance program for facilities	0.139	0.228	0.634	0.640
C5	The entire system (Institution department) is coordinated	0.143	0.229	0.708	0.718
C6	Roles are not duplicated	0.141	0.126	0.515	0.5371
D1	There is a comprehensive reward mechanism of staff in the institution	0.11	0.509	0.025	0.559
D2	Work is fairly distributed taking teachers strong areas into account	0.361	0.607	0.005	0.214
D3	Teacher evaluation process is clear and adequate	0.422	0.600	0.126	-0.015
D4	Teachers are qualified for areas assigned	0.284	0.492	0.537	-0.106
D5	There is comprehensive training and development programs for the staff	0.005	0.642	0.207	0.143
D6	Remuneration is adequate	-0.048	0.621	0.247	0.424
E1	Monitoring of teaching and learning is achieved	0.404	0.434	0.444	0.019
E2	Adequate support by management is provided	0.214	-0.128	0.601	0.181
E3	Benchmarking with industry and similar institutions is	0.184	0.307	0.437	0.368

	carried out frequently				
E4	The curriculum content is adequately covered	0.314	0.272	0.654	0.02
E5	Budgets and plans are strictly adhered to in the institution	0.32	0.17	0.535	0.251
E6	Individual initiative, formulating and implementing change is encouraged	0.432	0.182	0.450	0.274
E7	Students are disciplined in behaviour and commitment to training	0.502	0.336	0.520	0.118

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a Rotation converged in 14 iterations.

Appendix 6 Reliability Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Institutional leadership				
Institutional policies and programs are effectively communicated	18.1074	21.056	0.575	0.827
Duties are clearly spelt out for each employee	17.7651	20.235	0.639	0.815
leadership roles are availed for staff at every level	17.9799	20.412	0.646	0.814
Suctions for undisciplined staff are fairly applied and communicated	18.0403	20.863	0.57	0.828
Participative leadership is encouraged	17.9463	19.43	0.677	0.807
There is collaboration with stake holders	17.8456	20.321	0.631	0.817
Processes				
Teaching and learning materials are provided on time	17.1879	17.6	0.461	0.781
Funding for programs is adequate	17.3691	16.572	0.581	0.753
Teaching facilities are adequate	17.3691	16.694	0.584	0.752
The institution has a maintenance program for facilities	17.1946	16.293	0.661	0.734
The entire system (Institution department) is coordinated	16.9396	17.368	0.491	0.774
Roles are not duplicated	17.1611	17.271	0.502	0.772
Human Resources				
There is a comprehensive reward mechanism of staff in the institution	17.5369	19.845	0.508	0.756
Work is fairly distributed taking teachers strong areas into account	17.1007	21.307	0.564	0.745
Teacher evaluation process is clear and adequate	17.1141	21.061	0.508	0.755
Teachers are qualified for areas assigned	17.0134	20.473	0.509	0.755

There is comprehensive training and development programs for the staff	17.3423	20.037	0.546	0.746
Remuneration is adequate	17.3826	19.359	0.564	0.741
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Management Control System				
Monitoring of teaching and learning is achieved	21.3154	25.974	0.575	0.736
Adequate support by management is provided	21.2081	24.409	0.371	0.8
Benchmarking with industry and similar institutions is carried out frequently	21.5973	26.499	0.548	0.742
The curriculum content is adequately covered	21.2886	27.031	0.558	0.742
Budgets and plans are strictly adhered to in the institution	21.5369	26.953	0.491	0.752
Individual initiative, formulating and implementing change is encouraged	21.3826	26.238	0.558	0.74
Students are disciplined in behaviour and commitment to training	21.3087	26.836	0.545	0.743
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Performance				
Internal operations and processes of the institution are efficient and effective	17.5302	19.953	0.55	0.818
Evidence of institution growth in academic circles is available	17.2752	18.593	0.652	0.798
There is an efficient and effective control mechanism of institutional funds (Adherence to budgets and plans)	17.5772	18.597	0.627	0.803
Students and other stakeholders are satisfied with institutional services (Adherence to customer service charter)	17.4497	19.479	0.612	0.807
Performance control techniques are simple, systematic, easy to understand approach	17.3154	18.934	0.651	0.799
Students follow-up programs are integrated in the training program	17.4161	18.461	0.565	0.818

Appendix 7CFA: Test for Construct Validity

Construct	Indicators	Factor Loading	Squared Multiple correlations	AVE
Institutional leadership	Institutional policies and programs are effectively communicated	0.707	0.418	0.749
	Duties are clearly spelt out for each employee	0.764	0.501	
	leadership roles are availed for staff at every level	0.768	0.512	
	Suctions for undisciplined staff are fairly applied and communicated	0.703	0.439	
	Participative leadership is encouraged	0.794	0.481	
	There is collaboration with stake holders	0.759	0.108	
Processes	Teaching and learning materials are provided on time	0.615	0.286	0.701
	Funding for programs is adequate	0.732	0.401	
	Teaching facilities are adequate	0.742	0.453	
	The institution has a maintenance program for facilities	0.801	0.58	
	The entire system (Institution department) is coordinated	0.66	0.354	
	Roles are not duplicated	0.657	0.331	
Human Resources	There is a comprehensive reward mechanism of staff in the institution	0.676	0.325	0.694
	Work is fairly distributed taking teachers strong areas into account	0.721	0.407	
	Teacher evaluation process is clear and adequate	0.677	0.374	
	Teachers are qualified for areas assigned	0.68	0.422	
	There is comprehensive training and development programs for the staff	0.696	0.334	
	Remuneration is adequate	0.715	0.401	

	Monitoring of teaching and learning is achieved	0.726	0.407	
	Adequate support by management is provided	0.505	0.154	
	Benchmarking with industry and similar institutions is carried out frequently	0.686	0.322	
	The curriculum content is adequately covered	0.712	0.453	
	Budgets and plans are strictly adhered to in the institution	0.675	0.395	
	Individual initiative, formulating and implementing change is encouraged	0.711	0.392	
Management Control System	Students are disciplined in behaviour and commitment to training	0.689	0.44	0.672
	Internal operations and processes of the institution are efficient and effective	0.696	0.385	
	Evidence of institution growth in academic circles is available	0.774	0.502	
	There is an efficient and effective control mechanism of institutional funds (Adherence to budgets and plans)	0.761	0.47	
	Students and other stakeholders are satisfied with institutional services (Adherence to customer service charter)	0.741	0.465	
	Performance control techniques are simple, systematic, easy to understand approach	0.769	0.498	
Performance	Students follow-up programs are integrated in the training program	0.706	0.447	0.741

Appendix 8: Durbin Watson tables

Durbin-Watson "d" statistic: Significance points of dL and dU at 0.05 level of significance
 k'=number of explanatory variables excluding the constant term

obs.	k'=1		k'=2		k'=3		k'=4		k'=5		k'=6		k'=7		
	N	dL	du	dL	Du	dL	du	dL	du	dL	du	dL	du	dL	du
6	0.610	1.400	-	-	-	-	-	-	-	-	-	-	-	-	-
7	0.700	1.356	0.467	1.896	-	-	-	-	-	-	-	-	-	-	-
8	0.763	1.332	0.559	1.777	0.368	2.287	-	-	-	-	-	-	-	-	-
9	0.724	1.320	0.629	1.699	0.455	2.128	0.296	2.588	-	-	-	-	-	-	-
10	0.879	1.320	0.697	1.641	0.525	2.016	0.376	1.414	0.243	2.822	-	-	-	-	-
11	0.927	1.324	0.658	1.604	0.595	1.928	0.444	2.283	0.316	2.645	0.203	3.005	-	-	-
12	0.971	1.331	0.812	1.579	0.658	1.864	0.512	2.177	0.379	2.506	0.268	2.832	0.171	3.149	-
13	1.010	1.340	0.861	1.562	0.715	1.816	0.574	1.094	0.445	2.390	0.328	1.692	0.230	2.985	-
14	1.045	1.350	0.905	1.551	0.767	1.779	0.632	2.030	0.505	2.296	0.389	1.572	0.286	1.848	-
15	1.077	1.361	0.946	1.543	0.814	1.750	0.685	1.977	0.562	2.220	0.447	2.472	0.343	2.727	-
16	1.106	1.371	0.982	1.539	0.857	1.728	0.734	1.935	0.615	2.157	0.502	2.388	0.396	2.624	-
17	1.133	1.381	1.015	1.536	0.897	1.710	0.779	1.900	0.664	2.104	0.554	2.318	0.451	2.537	-
18	1.158	1.391	1.046	1.535	0.933	1.696	0.820	1.872	0.710	2.060	0.603	2.257	0.502	2.461	-
19	1.180	1.401	1.074	1.536	0.967	1.685	0.859	1.848	0.752	2.023	0.649	2.206	0.549	2.396	-
20	1.201	1.411	1.100	1.537	0.998	1.676	0.894	1.828	0.792	1.991	0.692	2.162	0.595	2.339	-
21	1.221	1.420	1.125	1.538	1.026	1.669	0.927	1.812	0.829	1.964	0.732	2.124	0.637	2.290	-
22	1.239	1.429	1.147	1.541	1.053	1.664	0.958	1.797	0.863	1.940	0.769	2.090	0.677	2.246	-
23	1.257	1.437	1.168	1.543	1.078	1.660	0.986	1.785	0.895	1.920	0.804	2.061	0.715	2.208	-
24	1.273	1.446	1.188	1.546	1.101	1.656	1.013	1.775	0.925	1.902	0.837	2.035	0.751	2.174	-
25	1.288	1.454	1.206	1.550	1.123	1.654	1.038	1.767	0.953	1.886	0.868	2.012	0.784	2.144	-
26	1.302	1.461	1.224	1.553	1.143	1.652	1.062	1.759	0.979	1.873	0.897	1.992	0.816	2.117	-
27	1.316	1.469	1.240	1.556	1.162	1.651	1.084	1.753	1.004	1.861	0.925	1.974	0.845	2.093	-
28	1.328	1.476	1.255	1.560	1.181	1.650	1.104	1.747	1.028	1.850	0.951	1.958	0.874	2.071	-
29	1.341	1.483	1.270	1.563	1.198	1.650	1.124	1.743	1.050	1.841	0.975	1.944	0.900	2.052	-
30	1.352	1.489	1.284	1.567	1.214	1.650	1.143	1.739	1.071	1.833	0.998	1.931	0.926	2.034	-
31	1.363	1.496	1.297	1.570	1.229	1.650	1.160	1.735	1.090	1.825	1.020	1.920	0.950	2.018	-
32	1.373	1.502	1.309	1.574	1.244	1.650	1.177	1.732	1.109	1.819	1.041	1.909	0.972	2.004	-
33	1.383	1.508	1.321	1.577	1.258	1.651	1.193	1.730	1.127	1.813	1.061	1.900	0.994	1.991	-
34	1.393	1.514	1.333	1.580	1.271	1.652	1.208	1.728	1.144	1.808	1.080	1.891	1.015	1.979	-
35	1.402	1.519	1.343	1.584	1.283	1.653	1.222	1.726	1.160	1.803	1.097	1.884	1.034	1.967	-
36	1.411	1.525	1.354	1.587	1.295	1.654	1.236	1.724	1.175	1.799	1.114	1.877	1.053	1.957	-
37	1.419	1.530	1.364	1.590	1.307	1.655	1.249	1.723	1.190	1.795	1.131	1.870	1.071	1.948	-
38	1.427	1.535	1.373	1.594	1.318	1.656	1.261	1.722	1.204	1.792	1.146	1.864	1.088	1.939	-
39	1.435	1.540	1.382	1.597	1.328	1.658	1.273	1.722	1.218	1.789	1.161	1.859	1.104	1.932	-
40	1.442	1.544	1.391	1.600	1.338	1.659	1.285	1.721	1.230	1.786	1.175	1.854	1.120	1.924	-
45	1.475	1.566	1.430	1.615	1.383	1.666	1.336	1.720	1.287	1.776	1.238	1.835	1.189	1.895	-
50	1.503	1.585	1.462	1.628	1.421	1.674	1.378	1.721	1.335	1.771	1.291	1.822	1.246	1.875	-
55	1.528	1.601	1.490	1.641	1.452	1.681	1.414	1.724	1.374	1.768	1.334	1.814	1.294	1.861	-
60	1.549	1.616	1.514	1.652	1.480	1.689	1.444	1.727	1.408	1.767	1.372	1.808	1.335	1.850	-
65	1.567	1.629	1.536	1.662	1.503	1.696	1.471	1.731	1.438	1.767	1.404	1.806	1.370	1.843	-
70	1.583	1.641	1.554	1.672	1.525	1.703	1.494	1.735	1.464	1.768	1.433	1.802	1.401	1.837	-
75	1.598	1.652	1.571	1.680	1.543	1.709	1.515	1.739	1.487	1.770	1.458	1.801	1.428	1.834	-
80	1.611	1.662	1.586	1.688	1.560	1.715	1.534	1.743	1.507	1.772	1.480	1.801	1.453	1.831	-
85	1.624	1.671	1.600	1.696	1.575	1.721	1.550	1.747	1.525	1.774	1.500	1.801	1.474	1.829	-
90	1.635	1.679	1.612	1.703	1.589	1.726	1.566	1.751	1.542	1.776	1.518	1.801	1.494	1.827	-
95	1.645	1.687	1.623	1.709	1.602	1.732	1.579	1.755	1.557	1.778	1.536	1.802	1.512	1.827	-
100	1.654	1.694	1.634	1.715	1.613	1.736	1.592	1.758	1.571	1.780	1.550	1.803	1.528	1.826	-
150	1.720	1.746	1.706	1.760	1.693	1.774	1.679	1.788	1.665	1.802	1.651	1.817	1.637	1.832	-
200	1.758	1.778	1.748	1.789	1.738	1.799	1.728	1.810	1.718	1.820	1.707	1.831	1.697	1.841	-

Appendix 9: Theories and Models summary

	Theory/model	Description	Application
1.	Balance score card (Kaplan & Norton 2001)	It is based on four strategies: the customer perspective; the internal business perspective; the learning and growth perspective and the financial perspective.	Institutional performance
2.	Total quality management (TQM) system (Hackman and Wageman 1995),	Comprises of four interlocking assumptions about processes, employees, organizations (as systems) and leadership. TQM consists of organization-wide efforts to install and make permanent a climate in which an organization continuously improves its ability to deliver high-quality products and services to customers.	Training Model
3.	Human capital theory (Adams 1776; Schultz, 1971)	Human Capital Theory refers to the aggregate stock of competencies, knowledge, social, and personal attributes embodied in the ability to create intrinsic and measurable economic value. Human Capital Theory views humans and individuals as economic units acting as their own economy	Human resources
4.	Institutional theory (Scott 2004)	Institutional theory is about the establishment of authoritative guidelines in an institution through the integration of certain structures which include schemes, rules, norms and routines	Leadership
5.	The Harvard Map or model	The Harvard approach recognizes an element of mutuality in all businesses and employees are significant stakeholders in an organization	Human resources
6.	Systems theory	Systems theory is the interdisciplinary study of systems and a system is an entity with interrelated and interdependent parts;	Processes
7.	Just-in-Time (JIT) principle	Just-in-Time (JIT) is a production system that is designed to get quality, reduce costs, and achieve delivery time as efficiently as possible by removing all types of waste present in the production process so that companies are able to deliver their products (both goods and services) in accordance with the will of the consumer right time.	Processes and organisation system

Appendix 10: Regression Models

Multiple Regression Coefficients

Variables	Model 1	Sig	Model 2	Sig
(Constant)	-1.088	.152	-.597	.301
Age of institution	.062	.672	.033	.764
Number of teachers	.135	.244	.114	.187
Number of students in the institution	-.005	.964	.03	.659
Distance of institution from County education office	.142	.015	-.031	.505
X1_Leadership			.367	.000
X2_Processes and Organisation Systems			.194	.021
X3_Human Resources			.268	.002
R	.243		.702	
R ²	.059		.492	
Adjusted R	.033		.467	
R ² change	.059		.433	
F-Statistic	2.252		40.092	

Values of unstandardized regression coefficients with standard errors: p<0.05

Model Summary: Moderated Multiple Regression Coefficients

Variables	Model 1	Sig p<0.05	Model 2	Sig p<0.05	Model 3	Sig p<0.05	Model 4	Sig p<0.05
(Constant)	.379	.464	-.271	.585	-.424	.394	-.435	.383
Age of institution	-.036	.719	-.045	.639	-.037	.699	-.025	.794
Number of teachers	.140	.073	.128	.087	.142	.056	.130	.088
Number of students in the institution	.018	.797	.016	.806	.012	.856	.013	.849
Distance of institution from County education office	-.023	.588	-.009	.823	.003	.946	.005	.894
X1_Leadership	.149	.066	.029	.731	.018	.829	.032	.707
X2_Processes and Organisation Systems	.024	.765	.036	.642	.035	.645	.031	.689
X3_Human Resources	.048	.569	.028	.729	.033	.675	.010	.910
Z-Management	.604	.000	.455	.000	.438	.000	.437	.000

Control System							
X1 interaction Z		.142	.000	182	.000	.147	.025
X2 interaction Z				.111	.047	.119	.037
X3 interaction Z						.047	.490
R	.771	.795	.801	.802			
R ²	.595	.631	.642	.643			
Adjusted R	.571	.608	.616	.615			
R ² change	.102	.037	.010	.001			
F-Statistic	35.396	13.89	4.035	.479			
		7					

b. Values of unstandardized regression coefficients with standard errors: $p < 0.05$

Model Summary; multiple regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R-Square Change	F Change	df1	df2	Sig. F Change
1	.243a	0.059	0.033	0.984	0.059	2.252	4	144	0.066
2	.702b	0.492	0.467	0.730	0.433	40.092	3	141	0.000

a. Predictors: (Constant), Distance OD institution from County education office, Number of teachers, Number of students in the institution, Age of institution

b. Predictors: (Constant), Distance od institution from County education office, Number of teachers, Number of students in the institution, Age of institution, X2_Processes and Organisation Systems, X1_Leadership, X3_Human Resources

ANOVA; multiple regression model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.712	4	2.178	2.252	.066b
	Residual	139.288	144	0.967		
	Total	148.000	148			
2	Regression	72.832	7	10.405	19.517	.000c
	Residual	75.168	141	0.533		
	Total	148.000	148			

b. Predictors: (Constant), Distance of institution from County education office, Number of teachers, Number of students in the institution, Age of institution

c. Predictors: (Constant), Distance of institution from County education office, Number of teachers, Number of students in the institution, Age of institution, X2_Processes and Organisation Systems, X1_Leadership, X3_Human Resources

Model Summary; MMR model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R-Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.702a	0.492	0.467	0.730	0.492	19.517	7	141	0.000
2	.771b	0.595	0.571	0.655	0.102	35.396	1	140	0.000
3	.795c	0.631	0.608	0.626	0.037	13.897	1	139	0.000
4	.801d	0.642	0.616	0.620	0.010	4.035	1	138	0.047
5	.802e	0.643	0.615	0.621	0.001	0.479	1	137	0.490

a. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems

b. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System

c. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System, X1 interaction Z

d. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System, X1 interaction Z, X2 interaction Z

e. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System, X1 interaction Z, X2 interaction Z, X3 interaction Z

ANOVA; MMR model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72.832	7	10.405	19.517	.000b
	Residual	75.168	141	0.533		
	Total	148.000	148			
2	Regression	88.001	8	11.000	25.667	.000c
	Residual	59.999	140	0.429		
	Total	148.000	148			
3	Regression	93.454	9	10.384	26.461	.000d
	Residual	54.546	139	0.392		
	Total	148.000	148			
4	Regression	95.004	10	9.500	24.739	.000e
	Residual	52.996	138	0.384		
	Total	148.000	148			
5	Regression	95.188	11	8.653	22.448	.000f
	Residual	52.812	137	0.385		
	Total	148.000	148			

b. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems

c. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System

d. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System, X1 interaction Z

e. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System, X1 interaction Z, X2 interaction Z

f. Predictors: (Constant), X3_Human Resources, Age of institution, Number of students in the institution, Number of teachers, Distance of institution from County education office, X1_Leadership, X2_Processes and Organisation Systems, Z_Management Control System, X1 interaction Z, X2 interaction Z, X3 interaction Z

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-.597	.575		-1.038	.301
	Age of institution	.033	.110	.020	.301	.764
	Number of teachers	.114	.086	.086	1.325	.187
	Number of students in the institution	.034	.078	.028	.442	.659
	Distance od institution from County education office	-.031	.046	-.047	-.669	.505
	X1_Leadership	.367	.080	.367	4.586	.000
	X2_Processes and Organisation Systems	.194	.083	.194	2.333	.021
	X3_Human Resources	.268	.084	.268	3.189	.002
	(Constant)	-.379	.517		-.734	.464
2	Age of institution	-.036	.100	-.022	-.360	.719
	Number of teachers	.140	.078	.105	1.807	.073
	Number of students in the institution	.018	.070	.015	.258	.797
	Distance od institution from County education office	-.023	.042	-.034	-.542	.588
	X1_Leadership	.149	.081	.149	1.850	.066
	X2_Processes and Organisation Systems	.024	.080	.024	.299	.765
	X3_Human Resources	.048	.084	.048	.571	.569

	Z_Management Control System	.604	.101	.604	5.949	.000
	(Constant)	-.271	.495		-.547	.585
	Age of institution	-.045	.095	-.028	-.470	.639
	Number of teachers	.128	.074	.096	1.725	.087
	Number of students in the institution	.016	.067	.013	.246	.806
	Distance od institution from County education office	-.009	.040	-.014	-.224	.823
3	X1_Leadership	.029	.084	.029	.345	.731
	X2_Processes and Organisation Systems	.036	.077	.036	.466	.642
	X3_Human Resources	.028	.081	.028	.348	.729
	Z_Management Control System	.455	.105	.455	4.337	.000
	X1 interaction Z	.142	.038	.316	3.728	.000
	(Constant)	-.424	.496		-.855	.394
	Age of institution	-.037	.094	-.023	-.387	.699
	Number of teachers	.142	.074	.107	1.927	.056
	Number of students in the institution	.012	.066	.010	.181	.856
	Distance od institution from County education office	.003	.040	.004	.067	.946
4	X1_Leadership	.018	.083	.018	.217	.829
	X2_Processes and Organisation Systems	.035	.076	.035	.462	.645
	X3_Human Resources	.033	.080	.033	.420	.675
	Z_Management Control System	.438	.104	.438	4.207	.000
	X1 interaction Z	.182	.043	.404	4.270	.000
	X2 interaction Z	.111	.055	.129	2.009	.047
	(Constant)	-.435	.497		-.876	.383
	Age of institution	-.025	.096	-.015	-.261	.794
	Number of teachers	.130	.076	.098	1.718	.088
	Number of students in the institution	.013	.066	.010	.191	.849
5	Distance od institution from County education office	.005	.040	.008	.134	.894
	X1_Leadership	.032	.086	.032	.377	.707

X2_Processes and Organisation Systems	.031	.076	.031	.401	.689
X3_Human Resources	.010	.087	.010	.113	.910
Z_Management Control System	.437	.104	.437	4.183	.000
X1 interaction Z	.147	.065	.328	2.268	.025
X2 interaction Z	.119	.057	.138	2.101	.037
X3 interaction Z	.047	.068	.097	.692	.490

a. Dependent Variable: Y_Institutional Performance

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-1.088	.756		-1.439	.152
	Age of institution	.062	.146	.038	.425	.672
	Number of teachers	.135	.115	.101	1.171	.244
	Number of students in the institution	-.005	.104	-.004	-.045	.964
	Distance od institution from County education office	.142	.057	.214	2.469	.015
2	(Constant)	-.597	.575		-1.038	.301
	Age of institution	.033	.110	.020	.301	.764
	Number of teachers	.114	.086	.086	1.325	.187
	Number of students in the institution	.034	.078	.028	.442	.659
	Distance od institution from County education office	-.031	.046	-.047	-.669	.505
	X1_Leadership	.367	.080	.367	4.586	.000
	X2_Processes and Organisation Systems	.194	.083	.194	2.333	.021
	X3_Human Resources	.268	.084	.268	3.189	.002

a. Y= dependent variable, Institutional performance

	N	Range	Minimum	Maximum	Mean	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
X1_Leadership	149	4.11461	-2.53267	1.58194	0E-7	.08192319
X2_Processes and Organisation Systems	149	4.70430	-2.77803	1.92626	0E-7	.08192319

X3_Human Resources	149	4.38088	-2.62438	1.75650	0E-7	.08192319
Z_Management Control System	149	4.67864	-2.91646	1.76219	0E-7	.08192319
Y_Institutional Performance	149	4.07963	-2.31133	1.76830	0E-7	.08192319
Valid N (listwise)	149					
	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
X1_Leadership	1.0000000 0	1.000	-.601	.199	-.389	.395
X2_Processes and Organisation Systems	1.0000000 0	1.000	-.279	.199	-.524	.395
X3_Human Resources	1.0000000 0	1.000	-.405	.199	-.614	.395
Z_Management Control System	1.0000000 0	1.000	-.565	.199	-.403	.395
Y_Institutional Performance	1.0000000 0	1.000	-.563	.199	-.658	.395
Valid N (listwise)	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error

X1_Leadership		X2_Processes and Organisation Systems	X3_Human Resources	Z_Management Control System	Y_Institutional Performance
	1				
X1_Leadership	149 .596** .000	.596** .000	.568** .000	.721** .000	.625** .000
	149	149	149	149	149
X2_Processes and Organisation Systems	.568** .000	1	.610** .000	.702** .000	.555** .000
	149	149	149	149	149
X3_Human Resources	.721** .000	.610** .000	1	.733** .000	.577** .000
	149	149	149	149	149
Z_Management Control System	.625** .000	.702** .000	.733** .000	1	.755** .000
	149	149	149	149	149
Y_Institutional Performance	.555** .000	.577** .000	.755** .000	.755** .000	1
	149	149	149	149	149