THE ROLE OF TECHNICAL AND VOCATIONAL EDUCATION TRAINING ON ENTREPRENEURIAL DEVELOPMENT IN SOUTH RIFT REGION, KENYA

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DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been presented for conferment of a degree or award of a diploma in this or any other university:

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DEDICATION

I dedicate this thesis to my family for their prayers, support, inspiration and encouragement during my academic journey. Your love, patience, understanding and support, I treasure a lot, may God bless you all.

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ABSTRACT

Technical and vocational education training (TVET) provides knowledge and skills for employment which sharpens human skills and improves quality, productivity, innovation and efficiency. The major challenges in the Kenyan TVET system is lack of quality training, none utilization of innovation techniques, not performing practical experiments and also not using information communication technology fully for entrepreneurial skills development. In the South Rift region, adequate quality training, practical entrepreneurship curriculum, attitude towards entrepreneurship through innovation and regular use of ICT knowledge has not been evaluated with the policies, lacking practical approaches towards this gap. The objectives of the study were; to determine TVET quality training effect on student's entrepreneurial development; to assess TVET innovation effect on respondents' entrepreneurial development and to evaluate TVET use of ICT knowledge impact on student's entrepreneurial development. The significance of the study was that TVET could acquire entrepreneurship knowledge by use of information and communication technology by use of e-learning, networking and digital learning for global exposure which leads to knowledge-based economy. The study was based on the neo-classical theory, the innovative theory, and the alert theory of entrepreneurship. The study employed descriptive design in which a sample of 384 respondents was drawn from a total population of 10000. Structured questionnaires were used in collection of data. Validity was assured by seeking expert opinion in order to reduce questionnaire ambiguity before development of the final tools. A test re-test was done by piloting the research instrument in Bureti Technical Institute in Kericho County where Cronbach coefficient of 0.846 was obtained. The collected data were analyzed both qualitatively and quantitatively by use of questionnaires. The study concludes that; TVET quality training, innovative skills and ICT knowledge impact on student's entrepreneurial skills development and practical skills. The study recommends that it is TVET institution should improve on its ICT infrastructure since it reduces the cost of operation and that they should collaborate through public private partnership so as to enhance the quality of their graduates.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Disease Syndrome
AU	Africa Union
BOM	Board of Management.
CBET	Curriculum Based Education Training
GDP	Gross Domestic Product
HIV	Human Immune Virus
ICT	Information Communication and Technology
IT	Information technology
ITTU	Intermediate Technology Transfer Unit
ITU	International Telecommunication Union
KLMIS	Kenya Market Information System
PPP	Public Private Partnership
PSTI	Public Training Institute
SME	Small & Medium Enterprises
SSA	Sub-Saharan Africa

TVET	Technical Vocational Education Training
TVSD	Technical And Vocational Skills Development
USM	University Of Science Malaysia
VSP	Vocational Skills Project
UNESCO	United Nations Education, Scientific and Cultural Organization
VTC	Vocational Training College
VST	Vocational Skills Training
ILO	International Labour Organization
GOK	Government of Kenya
TVETA	Technical and Vocation Education and Training Authority
STEM	Science, Technology, Engineering and Mathematics
PHD	Doctor of Philosophy
TIVET	Technical industrial and Vocational Educational Training
NACCOSTI	National Commission for Science, Technology and Innovation

DEFINITION OF TERMS

Entrepreneurial development is defined basically as the process of improving the skills set as well as the knowledge of respondents as entrepreneurs Gordon (2009).

Entrepreneurship education Entrepreneurship education has the mandate to equip the youth with functional knowledge and skill to build up their character, attitude and vision. It has vital role in developing eco-system that promotes innovation (European Union, 2006).QAA (2012)

Social entrepreneurship social entrepreneurship is a process of recognizing and relentlessly pursuing opportunities to create social value as social agents in the social sector Weber (2010)

Innovation According to Schumpeter an entrepreneur is basically an innovator who introduces new combination of production. Entrepreneurship is a creative activity. Entrepreneurship implies doing new things or doing of things that are already being done on a new way Schumpeter (1991).

Entrepreneurial motivation is the process that motivates the entrepreneur to exert a higher level of effort for the achievement of his entrepreneurial goals. The motivational factors are the drivers within an entrepreneur that affect the direction and intensity of his behavior as an entrepreneur Locke (2007).

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter covers the background of the study; statement of the problem; purpose of the study; objectives of the study; research questions; justification; significance of the study; scope; limitation of the study and assumptions.

1.2 Background of the Study

Technical and Vocational Education and Training (TVET) is education and training which provides knowledge and skills for employment. Entrepreneurial development is defined basically as the process of improving the skills set as well as the knowledge of the trainees as entrepreneurs. Entrepreneurship is defined as it is neither a science nor an art Koellinger (2009). It is a practice, it has a knowledge base, and Knowledge in entrepreneurship is a means to an end, that is, by practice. This can be done through various methods such as classrooms sessions or training programmes especially designed to increase entrepreneurial acumen. Entrepreneurial skills development is the means of enhancing the knowledge and skills of entrepreneurial training through several classroom coaching, programs and training. This entrepreneurial development process helps new institutions or firms or ventures get better in achieving their goals, improve training/business and the nation's economy. TVET uses formal, non-formal and informal learning. The TVET in most of the Developing Countries is expected to play two crucial roles in the national sustainable development (social, economical and environmental) to

provide training opportunities and career advancement avenues for the increased school leavers.

UNESCO leads the global debate by advocating for the rethinking of TVET to enhance its role in developing more equitable and sustainable societies Kirchberger (2008). Young people, women and men acquire knowledge and skills from basic to advanced levels across a wide range of institutional and work settings and in diverse socio-economic contexts.

1.2.1 Global perspective of TVET

Kirchberger (2008) explained that Technical and Vocational Education and Training (TVET) in Asia is undergoing change to provide respondents with basic skills and specific knowledge in addition to providing them with a tool to enhance their knowledge through lifelong learning, employment and to create self-employment. Emphasis is placed on the skills and basic knowledge needed for industry and commerce for the trainees to be independent. The study was on the aspects of the training content that are not only focused on specific jobs but also on career clusters of other related jobs. This was seen as essential in training the labor force to be multi-talented as well as to provide the work experience needed to enhance trainees' skills. TVET changes done in Bangladesh, Thailand, Korea, Singapore, Indonesia, China, and Malaysia have been dynamic. They have introduced a dual system through the integration of courses and industrial training together with the operation in TVET programs, which can encouraged the private sector to play a major role in providing technical and vocational education. Kirchberger (2008) report is consistent with previous research reports by Mbugua (2012).

These countries have been reforming their Technical and Vocation Education and Training (TVET) systems to adapt them to each country's economic growth.

Similarly, research report by Ngure (2013) showed that Taiwan has made changes in her education system, especially in Technical and Vocational Education Training (TVET) in accordance with the labor market's needs. According to the Federal Ministry of Education and Research (BMBF) of Germany (2005) in a report entitled, "Reform of Vocational Education and Training in Germany: The 2005 Vocational Training Act," the reformation (reform) goals for Vocational Skills Training (VET) in Germany are planned to guarantee that the more young people that is entering the workplace can apply recently learned abilities and that they will be self-dependent in their profession/ business. As an additional incentive to trainees, entrepreneurship education was first applied to the instructive educational curriculum, including the Technical and Vocational Education and Training (TVET) curriculum. The purpose was to create and improve the core abilities of trainees who are beginning a business Chen (2010). TVET institution in instilling entrepreneurial skills for the creation of the wellspring of new jobs can improve the quality of life and the economy of the more youthful generation in developing nations like Kenya by aligning TVET training to industrial needs. Studies have additionally demonstrated that people with high enterprising characteristics will be dynamic, adaptable, and ready to adjust to a learning environment and ready to consider change to be a chance (Ngatiah 2006).

TVET in Ghana moved away from measuring success in terms of the number of candidates who pass the final examination to assessing the efficacy of the training programmes in relation to the expectations to the job market. However, formal industry in Ghana appears to be generally of the view that the theoretical technical skills provided by technical training need to be complemented by workplace skills Basu(2008).

This shortfall in technical training corroborates a study conducted by Cai (2014) on the efficacy of technical programmes which revealed that technical graduates lack the requisite practical skills for the world of work and, in most cases, such graduates are retrained before being employed. The formal industry views this shortfall as a frustration with the public TVET system, hence the need for their involvement in TVET curricula design.

Emphasis is put on the abilities and essential information required for industry and business for the understudies to be free, as clarified by Kirchberger (2008), who stressed parts of the preparation content that are centered around explicit occupations as well as on vocation groups of other related employments. This activity apparently is fundamental in preparing the work power to be multi-gifted just as to give the work experience expected to upgrade understudy aptitudes. Kirchberger (2008) additionally talked about the progressions that have happened in the TVET frameworks in Bangladesh, Thailand, Korea, Singapore, Indonesia, China, and Malaysia. Among others, they presented a double framework through the reconciliation of courses and mechanical preparing together with the activity of a business in related foundations, and they urged the private segment to assume a noteworthy job in giving specialized and professional training that is in accordance with industry needs.

Kirchberger's (2008) report is predictable with past research reports which revealed that in many nations, for example, Finland, Germany, Singapore, Chile, and numerous others. These nations have been and are improving their Technical and Vocation Education and Training (TVET) frameworks to adjust them to every nation’s financial development.

The study was demonstrated that Taiwan has made changes in her training framework, particularly in Technical and Vocational Education and Training (TVET) as per the work market's needs. Education and training interventions have been used in other countries to impact entrepreneurial culture within their population, entrepreneurial education and training is supposed to reinforce knowledge skills and attitudes. An attitude which is the psycho-social forces of the individual and cultural context is of prime importance in influencing innovative and entrepreneurial behaviour patterns Akala (2018). Most economics give support to entrepreneurship education and training so as to achieve objectives such as encouraging their citizens to demonstrate positive attitude towards, self-employment, identify viable business opportunities portray a desire to venture into business, demonstrate managerial skills for running successful enterprises, and encourage new start-ups and other entrepreneurial ventures. The countries that industrialized earlier than Kenya like Singapore and Malaysia, despite being in the same level of development with Kenya barely three decades ago, have TVET as pivotal in the realization of their industrialization using entrepreneurship behaviours.

That explains why TVET reforms are being executed in a systematic, progressive and comprehensive manner. The reform leaders are trying to ensure total overhaul in the way we train human power. Indeed it will be a complete paradigm shift. The current system in Kenya is producing more managers and supervisors than technicians and craftsmen.

This development includes ongoing shift from the conventional training methodology to the competency-based education and training (CBET). Entrepreneurship courses and texts share this focus. Sustainability entrepreneurship takes a slightly different perspective, however, by emphasizing the additional goal of promoting sustainable living, in terms of social equity and environmental improvement Basu (2008)

This encourages the role of innovators and leaders in entrepreneurship development, than mere managers Basu (2008). Through it one may be able to discover the essence, concerns and objectives of the phenomena too. Similarly, the essence, concerns and objectives of entrepreneurship as a field of study. These basic issues, emanating from a definition the appropriate target audience, course contents and teaching methodologies.

Entrepreneurial development is defined basically as the process of improving the skills set as well as the knowledge of the trainees as entrepreneurs. This can be done through various methods such as classrooms sessions or training programmes especially designed to increase entrepreneurial acumen Kintu (2019). One of the first efforts to move in the new direction to entrepreneurial development in Kenya involved introducing entrepreneurship education into all technical training institutions in the country. The ongoing reforms of the technical and vocational training stand to put Kenya in a class of its own in skills training and job creation. The changes are a culmination of comprehensive reforms of the TVET that have been ongoing for more than ten years. The Government of Kenya and other stakeholders will come to acknowledge TVET as key component of the strategy for hastening the pace of industrialization. In any case, it isn't clear the effect that business abilities have. Furnishing young fellows and ladies with the aptitudes they have to enter the commercial center is an essential component in tending to

youth joblessness, which influences an expected 74.8 million youth around the world (ILO, 2012).

1.2.2 Local perspective of TVET

In Kenya, Technical Vocational Education and Training (TVET) can assume a central means in planning youth for work, however experts state that as a rule such projects fail to react to work market needs. In any case, Tarno (2017) noted that the current public technical and vocational education training (TVET) framework in Kenya experiences basic issues including the decrease in quality of teaching; absence of relevance to occupation and social realities, under-enrolment, and under-subsidizing. This demonstrates that Kenya faces a troublesome future on the grounds that the significance of abilities and sufficient preparing can't be over-accentuated as it is mastery and innovation that separates between the created and creating nations, for example, Kenya. The study endeavors to determine the challenges, identify the problems that the vocational Training colleges face while carrying out their learning activities, and determine the cause and possible solutions to these problems experienced by the technical and vocational education training colleges. TVET is recognized to be a crucial vehicle for social equity, inclusion and sustainable development Kamau, (2013).

In Kenya, Business instruction is perhaps the most noteworthy change in training and preparing framework. In the previous decade there has been presentation of different aptitudes at practically all dimensions of instruction and preparation in essential and auxiliary training and from vocational Training colleges. Despite its relevance, there is no

empirical evidence on the enabling factors of entrepreneurship and their contribution to the development of a marketing innovation centered culture Faria (2015).

TVET programmes in Kenya target to absorb the large proportions of trainees who cannot progress to higher levels of education. Out of the approximately 1,000.000 graduates of primary education, of which 100% proceeded to secondary schools (Government of Kenya, 2019). At the end of 2019 the secondary school candidates were approximately 500,000, only 125,000 proceeded to universities, the rest were expected to be catered for by the middle level colleges, Technical training institutes, vocational training colleges, to vocational training colleges, other courses like, armed forces, security guards, drivers, some on job training industries, boda boda business and casual workers in various companies.

According to GOK (2019) the unemployment rate in Kenya was 2.6 percent in 2019, 5.4 percent in 2020,6.6 percent in 2021 due to covid-19 pandemic/ corona virus. In south rift region, Bomet, Narok and Kericho , there were so many unemployed youth, among them trained , untrained and form 4 leavers which can be a problem, needing a solution. TVET implementation of curriculum on entrepreneurship was a solution. In such a case, failure to find out if what is offered in the TVET institutions matches in what employer's require may lead to higher number of graduate remaining unemployed Njuguna (2011). It is against this background that this research project finds it necessary to assess the relationship between the acquired skills from TVET and required skills in the labor market, (GOK, 2019).

The TVET framework which is required to assume a basic job in this endeavor by giving fundamental aptitudes and catalyze industrialization is in a poor state. Additionally, few investigations have been done on the relationship between required skills and gained abilities from TVET in developing economies and the mismatch between training outcomes and market demands had demised many graduates' job opportunities. TVET training will increases competence levels and employability for its graduates (Muhonja, 2011).

TVET in South Rift counties that is, Bomet and Narok need to undertake a culture of innovation which will be going to flourish and of which the ripple effect will be felt in all the industrial sectors Rono (2017). TVET principals with Trainers in South Rift Region should follow social entrepreneurship behavior where the transformational leadership that combines entrepreneurship with societal vision while building bridges between business, government and society. The study was done due to the need for entrepreneurial studies introduced in TVET curriculum as the current curriculum has been blamed for only training learners how to pass examinations and preparing trainees to be good job-seekers but not job-creators. The presence of unemployed graduates in the nation is a clear indication that our curriculum is very inadequate .It is time to start curriculum to focus on quality, innovation and ICT for equipping learners with knowledge in entrepreneurship.

Social entrepreneurs are leaders who find what is not working and solve the problems by changing the system, spreading, the solution and persuading entire TVET institution to take to new leaps. They are pressed by their ideas committing their lives to changing the direction as change agents of their fields. They are both visionaries and ultimate realists, concerned with the practical implementation of their vision among all else Akala (2018).

The solutions to the problem are to make teaching efficient and effective following practical entrepreneurship training and practices. To address this, the necessary tools for matching training skills to the needs of the ever evolving labour market have been put in place. Even more importantly, they are ensuring that those skills and available labour is well suited for manufacturing, industrialization and the service sector, transport, financial and other anchors for rapid growth.

TVETs are not well equipped as they lack infrastructure and most of them are in remote areas. There are low student populations as they don't see the benefit of TVET Tarno, (2017). Most of the TVET offer short courses such as artisan, certificate and a few for Diplomas. Most of the trainees are KCPE holders and form four drop outs with a pass for most of them are of grade D minus, D plain for vocational training colleges for Artisan, craftmen and D+,C-,C,C+ in KCSE and above for certificate and diplomas.

1.3 Statement of the Problem

Technical and Vocational Education and Training (TVET) provides knowledge and skills for employment since it sharpens human characteristics which increases quality productivity, innovation and efficiency so as to effectively manage or establish an enterprise. TVETs in south rift (Bomet, Narok and Kericho) lack demand – driven oriented training. TVET lack linkages with industries and also the principal and tutors are not double qualified that is in academic qualification and practical skills which are key towards industrial development. Training in TVET lack competency based curriculum implementation that is they lack a good curriculum system towards academic learning and practical skills incorporated in the curriculum. They lack constant reformation of

curriculum towards entrepreneurship education. TVETs are not all inclusive in the curriculum systems which are tailored to meet special needs of participants. Most TVETs lack continuous innovation improvement thus little innovative apprenticeship practices of which trainers and trainees not linked to industries. TVET lacks cost effective model as they are not conversant in entrepreneurial mindset and they lack leadership on social entrepreneurial where they should be change agents in society. Lastly I can briefly sum up all the problems as follows, lack of paradigm shift in the TVET system by an overhaul in operations; lack of effective online learning or digital learning; lack of effective digital networking; lack of digitizing production of goods and services; lack of internet accessibility for sourcing knowledge; lack of innovative skills culture and lack of ICT infrastructure in TVET of which there is little entrepreneurial development practise in South rift region. The TVET leadership should adapt social entrepreneurship techniques where they were agents of the change; they should be instrumental in critical thinking with entrepreneurial mind set. They should do constant reformation curriculum as per the continuous innovation improvement in the TVET. All the classroom learning and training to use open and distant learning, digital networking and internet as a source of knowledge.

1.4 Purpose of the Study

The purpose of the study was to establish the role of technical and vocational education training in entrepreneurial development in South Rift Region, Kenya.

1.5 Objectives of the Study

The study specifically sought to;

i. Determining the role of quality training offered by TVET Institutions in entrepreneurial development through the government entrepreneurial support in South Rift Region, Kenya.
ii. Assessing the role of innovation mechanism adopted by TVET Institutions in entrepreneurial development through the government entrepreneurial support in South Rift Region, Kenya.
iii. Examining the extent to which ICT usage by TVET Institutions plays a role in entrepreneurial development through the government entrepreneurial support in South Rift Region, Kenya.

1.6 Research Questions

The following research questions guided the study.

i. To what extent does the role of quality training offered by TVET Institutions play on entrepreneurial development through the government entrepreneurial support in South Rift Region, Kenya?
ii. To what extent does the role of innovation mechanisms adopted by TVET Institutions play on entrepreneurial development through the government entrepreneurial support in South Rift Region, Kenya?

iii. To what extent does the use of ICT by TVET Institutions play on entrepreneurial development through the government entrepreneurial support in South Rift Region, Kenya?

1.7 Justification of the Study

The justification of the study was to justify that TVET offer quality training, innovation and ICT for entrepreneurial development, currently that may not had been practically examined. The TVET system was not offering training towards entrepreneurship education and therefore the need for a paradigm shift towards curriculum which improves the generation of employment and creation of jobs opportunities. TVET helps to reduce the rate of drop out and unemployment in society. The actual need for this research was to investigate how all TVETs geared towards quality training for efficient and effectiveness, innovation skills culture and full implementation of ICT usage in digital learning, digitizing all its operations through the support of the government.

1.8 Significance of the Study

TVET offers quality training using efficient and effective curriculum implementation. It fully utilized the research and development in order to attain maximum standard in achieving high performance management with the aim of making respondents entrepreneurially motivated. Its provides hands on learning in practical practices for learners in TVET and help management and tutors acquire double qualifications skills, which is academic knowledge and practical skills. It helps also in inducing job placement before graduation as per as apprenticeship is concern. It will encourage high employment rate in our industries. It helps the academician do specific study for furthering knowledge

in the research field. It can also be used by policy makers to make education policies, scientific policies and decision making by government for technological improvement.

1.9 Scope of the Study

The scope of the study explains the research area to be explored in the study and specify the parameters within which the study was operating. Thus, the scope of a study was to define the purpose of the study, the population size and characteristics, geographical location, then time period within the study was conducted, the theories that the study focus on the research area of the study was to study the role of technical and vocational educational training on entrepreneurial development in South Rift region, Kenya. It was by use of structured questionnaires which were properly filled and returned back. The purpose was to establish the role of technical and vocational training on entrepreneurial development. The study population was 10,000 and the sample size of 384. The study was undertaken between the months of November, 2020 and January, 2021 which was a span of 3months. It was done in the three South Rift counties Bomet, and Narok, the pilot study was done in Kericho County at Bureti Technical Training Institute and at Bomet County at Solyot vocational Training College. The analytical scope was by use of data collected from TVETs by organizing and preparing the data for analyzing and interpreting results in the research study. The theories used in the study were the neoclassical theory of entrepreneurship, the innovative theory of entrepreneurship and Alert theory of entrepreneurship.

1.10 Limitation of the Study

The study was limited to information from TVET in South Rift region. The study had limitation of scope, time, and costs. These are frequently known as the triple constraints known as management triangle. In most of the time, there is limitation of costs, risks, benefits, quality, scope and time. Not only do you need to create and follow an effective research project on timeline and a detailed budget. You also need to be prepared to all the obstacles that are bound to pop up along the way. The scope is considered as it is a common knowledge to keep in mind that the final vision is influenced by the time and funds available. Distance in terms of coverage can be limited by time. It is important to keep the end goal realistic and attainable otherwise, you risks losing momentum or resources before you reach completion. It must be kept in mind that the research project cost more which include materials, cost for travelling and accommodation for research assistants. Include extra funds for unexpected costs that may arise along the way which can be very costly. It is to create quality service by dedicating time to managing questionnaires and answers relevantly. It can be difficult to do research project on quality management, in checking and knowing whether the respondent understood the answering of questionnaires perfectly well. It is difficult to measure whether they enjoy answering them or they hate them. Lastly, there is limitation of data in accessibility and lack of complete sufficient information due to limitation of entrepreneurial knowledge by respondents.

1.11 Assumptions of the Study

The study targeted only respondents on the sampled TVET institutions, who would be ready to respond voluntarily, sincerely and sufficiently. In the study, the trainers and trainees were freely given questionnaires after doing sampling, assuming they were all available for the response answers at the institution. It was assumed that TVET respondents were giving their views on their skills and how they were applying their skillfulness.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents review of related literature, theoretical framework, conceptual framework, and identification of knowledge gaps.

2.2 Review of Related Literature.

This review of the study is based on the knowledge from other related studies carried out by different researchers. The review is mainly evidence based. This includes;

2.2.1 Quality training in TVET for entrepreneurial development.

Quality in TVET education is by use of Total quality management which covers a very wide area. It covers all the functions and activities within TVET institutions which include the intake of trainees, learning processes and the whole period of training to the graduation time. TVET success, is only through quality training undergoes from the beginning so as to be accommodated in the job market in the county, National and globally. The TVET principal must have qualification both administrative and pedagogical level Shuria (2015). He must be conversant with technical training and practices, a result-based form of management. TVET management must work closely with the staff to know the objectives, goals and thus engage them fully in the quality training process.

2.2.2 Efficacy levels in TVET

The efficacy levels are the ability to produce a desired or intended result through efficiency and effectiveness. The quality of skills in productivity was by a measure of the rate at which output flows from the use of a given amount of in-put. It is measured by expressing output as a rate to a selected input such as labour and capital productivity, Mwengi (2019). Globalization continues to have a major influence on the need for flexible for work skills and secondary education and skills training of different quality, will not do. Arguably, the many benefits claimed for TVSD, such as higher productivity, readiness for technological changes, openness to new forms of work organization, the capacity to attract foreign direct investment and the achievement of millennium development goals, all depend on the quality of the skills acquired and dynamic environment in which they can be applied. The findings concluded that skills are the key drivers of growth, employment and competitiveness and they lay the foundation for productivity and innovation.

According to Mwengi (2019), TVET institution in Kenya have recently been upheld as key economic drivers and societal game- changes by their virtual of providing the market the right technical skills required in the major industries in the country such as the manufacturing industry and construction industry. The findings reveal that leadership influences the strategic direction, decision making and employee involvement. It concluded the leadership to intellectual stimulation and aspiration, motivation towards effective operation of the organization with low staff turnover. Quality can be achieved by use of Technical entrepreneurship, as this is when TVET links all aspects of technology onto corporate strategy. This refers to creation of a new business based on

exploiting of a technological innovation or the expansion of an existing business through the acquisition marshalling of resources or through a spin off from the parent TVET College to set the small venture at arm's length. Technical entrepreneurship is the most powerful way for a college or a country/county to achieve true self- reliance and sustainable entrepreneurial development.

The vast majority of the TVET in the nation offer multiyear summed up confirmation courses in customary training, for example, Civil, Electrical and Mechanical Engineering. Amid the most recent two decades numerous polytechnics began offering courses in different teachings, for example, Electronics, Computer Science, Medical Lab innovation, Hospital Engineering, Architectural Assistantship and so forth. Likewise, many single innovation foundations are additionally offering confirmation programs in territories like Leather Technology, Sugar Technology, and Printing Technology and so on. Numerous certificate programs are additionally being offered only for ladies in Women's Polytechnics, for example, in Garment Technology, Beauty Culture and Textile Design. Polytechnics are intended to give aptitudes after ascertain class and the term of confirmation programs is 3 years, which implies, the learner winds up employable at 19 years old years. Polytechnics are additionally offering post certificate and propelled recognition projects of 1-2 years term in various specializations Lamballais (2012).

The point of the polytechnic training is to make a pool of expertise based labor to help shop floor and field activities as a center dimension connect among professionals and architects. The pass-outs of Diploma level Institutions in Engineering and Technology assume a critical job in overseeing shop-floor tasks Mwengi (2009).

Further it is a set up that little and medium Industry want to utilize Diploma Holders in light of their exceptional aptitudes in perusing and translating illustrations, evaluating, costing and charging, supervision, estimation, testing, fix, support and so forth. Kenya as stated earlier, has a high population which is youthful and obviously, the government cannot create jobs for all of them, the private sector if provided with a conducive environment will go a long way in reducing this number but our aim is for the attainment of a middle income status for the Kenyan population by 2030 as per Kenya's economic blueprint Lauren (2014).

TVET should also support women and people living with disabilities adequately as their contribution cannot be down played, in this regard, unique opportunities should be created for women entrepreneurs/disable entrepreneurs to network economically and provide growth for them Koellinger (2012). About 50 years ago, Abraham Maslow nailed it when he said that, good managers and good enterprises and good products and good communities and good states are all conditions of one another. As a principle of Maslow’s needs hierarchy theory of human needs that is physiological needs, security needs, belongingness and love needs, esteem needs, cognitive needs, aesthetic needs, self-actualization and self-fulfillment.

As nations sort out their priorities for the coming years, fostering entrepreneurship must be a cornerstone of their economic policy so as to ensure that global change remains their ally and never becomes the enemy. According to Wheelahan (2010), in Uansin Gishu County, Kenya, TVET qualification should not only equip trainees with the knowledge and skills they need for work, but also ensure that they have adequate language literacy and numeracy skills and foundation skills, green skills needed for suitable economy and

society, technological skills and the knowledge and skills they need for further learning as the basic, for changes for their existing work and for occupational progression.

The study findings provide precursory evidence that some skills provided in TVET like interpersonal qualities, ability to use numerical data, critical analysis, teamwork and experience are below what is required in the job market. Few studies have examined the availability and adequacy of facilities needed for effective implementation of the curriculum in TVET institutions in Kenya. These studies have shown that inadequacy and high cost of infrastructure and equipment affects curriculum implementation in TVET institutions Wheelahan (2010). Moreover, anecdotal evidence suggests that obsolete equipment existing in technical colleges in Kenya compromises effective training of youth for a modern economy. Indeed, evidence shows that inadequate investment in instructional equipment could hinder learning outcomes among respondents as they would have fewer opportunities to practice with these tools and machines. International discourses have cited teaching and learning resource inadequacy as an impediment to curriculum implementation.

The studies cite lack of standard workshops for practical work, large class sizes, lack of related modern instructional facilities and materials as constraints to effective Artisan and Craft curriculum implementation. Similar challenges are identified in TVET implementation in Kenya, Wheelahan (2010). Studies have reported inadequacy of teaching and learning resources, obsolescence of equipment, and shortage of material resources less time allocation. Teaching and learning resource inadequacies are mentioned to be a major impediment to curriculum implementation in a number of studies conducted in Kenya. Collaborations between learning institutions and the

surrounding community have been shown to improve teacher's teaching effectiveness and respondents' achievement consequently leading to effective curriculum implementation.

A study found that TVET teachers' perceptions negatively influenced their motivation to teach and their attitude towards their profession. In the study, TVET teachers exhibited low motivation and morale for engaging in learning and professional development and cited such extrinsic factors as level of pay and benefits as contributing to their dissatisfaction in the work place. The study concluded that TVET teachers' low motivation to learn affected negatively their overall performance in the TVET institutions Anane (2013).

In Kenya, lack of motivation among trainees/tutors is a barrier to implementation of TVET curriculum. Researchers have established positive correlation between student's participation in co-curricular activities and school outcomes, Wheelahan (2010). For instance, 80% of respondents having active participation in co-curricular activities demonstrated good academic performance in their annual examination. It is established that respondents who become heavily involved in co-curricular activities tend to be model respondents and seldom get involved in delinquency and crime. Similarly, concluded that respondents' involvement in co-curricular activities enhances their competencies in communication, cognitive, managing self and academic competency. Further studies have found positive associations between participation in co-curricular activities and academic performance of the respondents. However, none of the cited studies examined the influence of co-curricular activities on educational outcomes among

respondents in community colleges hence the current study endeavored to uncover this influence.

2.2.3 Curriculum design and delivery in TVET

TVET curriculum should be designed with needs of a fast evolving world and thus arming future graduates with the skills needed to address real life issues. It has also to increase the employability of respondents who then posses a lot of skills sought after in the competitive job market, thereby there will be no respondents graduating with impressive grades in courses that are relevant to the needs of the modern economy. Entrepreneurship should be introduced in curriculum as Kenyan employers have complained about ill-equipped graduates who do not meet their demands even after graduating from TVET institutions with technical skills without entrepreneurial mindsets. This has been attributed to the fact that the Kenyan TVET system fails to address the needs of the market hence continues to face criticism since they are ill-equipped to meet the demands of a real working environment Gichuru (2016).

The constitution recognizes the need for education as a basic human need, and that the form of education should be that which has the ability to equip the learners with national values and life skills. But how relevant is the Kenyan education to the job market when even after graduating, one is not able to get a job or create jobs Medugu (2013). According to Gichuru (2016) who said lifeskills training in TVET can lay a foundation in the focus on establishing the role of training entrepreneurial skills. The study was done in Nairobi City noted that multiplicity of core skills is crucial for employability of TVET graduates.

This lays the foundation on looking at how lifeskills can be implemented at TVET institution. To ensure that there are tangible results from the initiatives of the TVET programmes, entrepreneurial skills training should be given attention by use of the relevant curriculum. The findings of the study found out that there were lack of lifeskills Training in TVET and concluded that improvement can be realized as lifeskills training is conducted in TVET institution. The challenges faced by learned youths today could all be attributed to a poor education system. The curriculum has been blamed for only teaching learners how to pass examinations and preparing respondents to be good job seekers but not job creators. We should stop over-emphasizing passing examinations and let respondents express themselves in schools and discover what they really love. If the curriculum would equip learners with immediate life skills; skills that would enable the youth and persons with disabilities to adjust to the changing world; skills to create jobs; wealth and skills that would encourage entrepreneurial skills among the youth; then ours would be an economically-developed nation Ooko (2012).

The presence of unemployed graduates in the nation is a clear indication that our curriculum is very inadequate. It is for this reason that we have the feeling that there is need for the curriculum to focus on equipping learners with knowledge of entrepreneurship. After spending at least sixteen years in school, one should be able to offer solutions to many challenges they may face and this can only be done with a good curriculum. It is quite important, therefore, that the curriculum includes a properly designed and a well-implemented entrepreneurship program to offer solutions to youth unemployment in the county/ country Gichuru (2016). The role of entrepreneurial skills

in curbing unemployment cannot be overemphasized hence the need to have it included as part of the curriculum.

The fact that jobs are scarce does not give them a license to engage in criminal Activities and drug abuse as a means to survive. Youths should realize they have various talents which can, with some creativity be utilized to earn a living and change the world. There is need to engage them so that they can discover their talents which can also be money-making ventures. Our education system has also failed our youths due to the slow economic, corruption, nepotism and demand for experiences by potential employers. A good number of youths remain unemployed. There is need to reconstruct the education so as to include universally desirable values that are necessary for producing well-rounded, balanced and useful youths.

The government has come up with the access to government procurement opportunities certificates which many youths have, by getting businesses has been a great challenge as cartels and corrupt officials control procurement departments. This has discouraged our youths Gichuru (2016). Another challenge is that traditionally financial institutions have avoided lending to youths. The government needs to allow the youths to access funds either as individuals or as groups from the Youth Enterprise Development Fund through borrowing. This should be made affordable in the sense that group members can guarantee each other.

According to Ngatiah (2012) who executed the needs and challenges in post secondary TVET institutions in Kenya. The study specifically ought to describe inter alia, the challenges faced by TVET Institutions and suggests ways to address the challenges.

Adopting case study design, two public post-secondary TVET Institutions, Kenya Polytechnic and TTI were studied. The study established that majority of the instructor/ tutor s at KP (80%) held Bachelor's degree or lower, 19.5% held Master Degree and one instructor/ tutor in Health Science and Biotechnology had PhD qualification.

However, these advanced qualifications were not evenly spread in all the academic programs. Despite the low proportion of TVET teacher with advanced degrees, it appears that for public TVET institutions, teacher qualification is not a major concern, more so for artisans and craft curriculum that is at the basic level in the ladder of TVET programs. This is because from the foregoing findings, 80% of the teacher had the minimum qualifications to teach artisan and craft courses Muthima (2015). Thus, this study sort to unearth the proportion of qualified artisan and craft teachers in community colleges and find out whether this adequacy influenced artisan and craft curriculum implementation. The findings showed that teacher qualifications, teacher experience and teacher motivation as high influence on the implementation of Artisan and craft curriculum. In conclusion the study recommends employment of more qualified teacher, adoption of effective teacher motivation strategies and capacity building for teachers to ensure effective implementation of Artisan and craft curriculum.

China has also been reported to have struggling industries today due to a deficiency in skilled workforce. Many people blame the ever increasing youth unemployment problem on the quality of education. However, the common opinion is that as a society, the manner in which we have historically defined gainful employment has had serious repercussions on the value, quality and status we place on the type of education that shapes our careers. It would seem that somewhere along the way, hierarchy was created

within the education system that valued some career paths over others, pushing our youth to very restricted and narrow definition of a "successful career." This hierarchy came with connotations of underachievement and stigmatization around certain jobs and implied success and higher intellectual capacity around others Ngatiah (2012).

Perhaps then it is right to say that the issue of unemployment may largely be a result of social constructs as much as political and economic circumstances. According to the Kenya Bureau of Statistics, the youth between the ages of fifteen and thirty four years, who form 35% of the Kenya population, have the highest unemployment rate of 73% currently.

According to Nduku (2017) who undertook a research in Machakos Technical Institute, Kenya of the blind said TVET and entrepreneurial skills development providers need to transform into inclusive institutions to be able to increase the access of disadvantaged persons to TVET courses. But access to TVET is not enough, disadvantaged persons have to find equipment in order to progress economically out of poverty. They said the competence based Education Training and Employability and the visually impaired groups in Kenya is the only way to address the challenges facing the visually impaired persons or disabled people is to ensure they acquire entrepreneurial skills in order to make them employable. The findings revealed that CBET approach can adequately prepare the visually impaired or disabled persons learners for the job market because they are able to acquire fundamental knowledge needed in the market place, such knowledge pertains to how best is the market their business, communicate, treat and handle their customers, effectively execute business idea among other issues. The study concluded

that the skills acquired through this approach are relevant in enable the participation of the usually impaired in the job market, especially through self-employment.

CBET curriculum should be reviewed continuously and made flexible in order to allow effective adjustments when necessary to accommodate emerging needs and dynamics among special groups of learners including the visually impaired and disabled persons. However, the issue relating to fragmentation of TVET institutions is still a challenge as a number of institutions in other line ministries are yet to comply with the TVET Act. TVET in Kenya dates back to independence. The reforms that led to its inception aim to make education and training more responsive to all sectors of the economy. The Ominde report of 1964 emphasized practical subjects and their alignment of education to employment opportunities. Sessional paper no. 10 of 1965 on African socialism and its application to planning in Kenya emphasizes that economic growth requires ample supplies of skilled, trained, and experienced manpower Nalianya (2011). Despite the progress made so far in enhancing access, retention, quality, completion rates and gender parity in education and training, the TVET sector continues to face challenges like inadequate TVET centres, limited availability of customized teaching and learning materials.

For the case of quality and relevance, it is important tool to note that quality TVET programs guarantee a strong link between skills learnt and the needs of the market, hence producing graduates with superior employability. Comprehensive TVET reforms are largely attributed to continental, national, and county concerns. In 2005, the government

published sessional paper no. 1 with the aim of having TVET provide and promote lifelong education and training for self-reliance while in 2007, the African Union adapted a policy on TVET framework as part of its plan for Action for the second decade of education (2006-2015).

In order to address these issues, the government provided policy direction for reforms in education and training through sessional paper no. 1 of 2012 (now sessional paper no. 2 of 2015) which calls for education and training structures into basic, TVET and university sub-sectors. The TVET sub-sector focuses on providing skills that meet workplace needs as well as on self-employment, guaranteeing human and economic development Baghere (2011). Its outcome must be human resources fit for the job market. Quality assurance is therefore, exertion throughout the TVET system and should be integrated into all parts of the qualification system.

Before 2013, the quality assurance function of TVET institutions in Kenya was a function of the Ministry of Education, Science and Technology through Directorate of technical accreditation and quality assurance and was mostly subjected to the institution in the ministry. But owing to the fragmented nature of TVET in Kenya, the quality of training differs greatly from one institution to another, in addition to challenges of poor curriculum design and delivery leading to instances of training that does not meet the quality and relevance required. In addition, there has been ineffective coordination and Synchronization of the TVET sector Koellinger (2012). Therefore, there was need to ensure harmonization and coordination of programs, by standardizing the quality and relevance of training in all TVET institutions.

However, the issue relating to fragmentation of TVET institutions is still a challenge as a number of institutions in other line ministries are yet to comply with the TVET Act and sessional paper no. 2 of 2015. Some of them have cited respective Act of parliament establishing them as the reason for not complying, though ideally this Act should have been amended in line with TVET Act and the Kenya constitution 2010.

The TVET Act gives the education cabinet secretary the overall responsibility in the provision of training and policy guidance while TVET has the overall responsibility of coordinating and regulating TVET. The institutions which are yet to comply are still training and giving internal examinations which are not standardized, therefore, resulting in different qualifications by type and level Waweru (2011). The continuous violation of the law by the institutions bogged down the whole essence of TVET reforms and by extension, the realization of vision 2030. As TVET, it shall strive to ensure every training provides compliance with the provision of TVET Act.

Kenya's TVET sector has a vital role to play in provision of skilled personnel required to efficiency accelerate the execution of planned projects in strategic growth areas of manufacturing, infrastructure development, science, technology and innovation, as highlighted in the Medium Term Plan II (MTP II) of Kenya vision 2030. The enhancement of both quality and relevance of TVET during the MTP II will ensure that output from TVET system such as skills, innovation, or research competency are beneficial to the realization of goals highlighted within the identified improvement areas. The delivery of quality TVET is an important consideration worldwide, especially in engineering and science-based courses, which are important catalysts for industrial growth Simiyu (2009).

Efficient and modernized TVET institutions play vital roles in a nation's development by providing highly skilled adaptable graduates and competent manpower with precise and relevant skills and competencies required in the vibrant labour market Wagah (2010). The achievement of Kenya's blueprint of vision 2030 places much emphasis on the link between education, training and the labour market, the need to create entrepreneurial skills and competencies and strong public and private partnerships. These links are important for realization of a globally competitive quality education, training and research for sustainable development within the TVET system. The TVET sector has made significant progress over the past few years in terms of development with more institutions being registered and the upgrade of both the Kenya Polytechnic and Mombasa Polytechnic to university colleges and ultimately to universities in 2013. The TVET sector has initiated construction of new public institutions in various parts of the country/counties as well as establishing of centres of excellence in order to provide quality and relevant skilled human resources in the middle-level cadre.

Technical and Vocational Education and Training Authority (TVETA) is the state corporation that is authorized by section seven of TVET Act of 2013 to regulate TVET institutions in Kenya. The authority regulates and coordinates technical training in the country through Registration, Licensing, and Accreditation of institutions, programs, and trainers. TVETA has been constantly sensitizing the public and administrators of TVET institutions by organizing regular talk shows and placing adverts in both print and electronic media to inform institutions and the public on the significance of regulating training in TVET institutions. Additionally, TVETA has developed a register on the registration status of TVET in various parts of the country/counties. All the registration

details and applications forms for registration of institutions can be readily accessed from the authority's website Kamau (2013).

TVETA is currently planning to develop a close collaboration with all professional bodies involved in TVET to monitor, improve, and maintain the quality of training Kelemba (2010). TVET provide skills that will display hands-on exhibitions and offer opportunities for youths, parents and the general public to interact with training providers, career counselors and employers. The Kenya skills show will also provide inspiration to the youth, parents, and educators to discover opportunities for training in clinical, vocational, entrepreneurial, and life skills.

The advantages of fruitful R & D can be huge. Some exploration prompts licenses with the capability of authorizing and loyalties, be that as it may, numerous revelations are not patentable or organizations don't wish to uncover subtleties of the thoughts following the patent course. All things being equal, the principal association to convey another item or administration to the market by and large stands to benefit from it before the others can make up for lost time. Early items or administrations in tertiary establishments might be estimated higher on the grounds that an impermanent restraining infrastructure exists until contenders reveal their renditions. The expenses of R & D are normally high Parker (2012).

Research "should be up to date with instructing and should raise the nature of tertiary training, specifically, and of public activity, all in all." The commitments of research in Bomet, be that as it may, were frustrated by the absence of sufficient assets and restricted relevance to societal requirements. Consideration must be paid to improving both

essential and connected research, encouraging work on cutting edge innovations of basic social and monetary need in South Rift locale improving the readiness of scientists, setting up "sufficient structures for the coordination, spread and production of research results attempting to make inquire about exercises a basic piece of foundations' open administration capacities, and diminishing duplication between institutional participation including the two analysts and offices Ollila (2011).

There were no issues in South Rift locale with the nature of guidance, the extent of classes, accessibility of forward-thinking materials and gear, the pertinence of the educational modules to current conditions, and the coordination of tertiary advanced education with the universe of work. TVET instruction establishments should start to give educational preparing to their trainers/ tutors just as to their alumni understudies trying to wind up teachers at the TVET dimension. Understudies ought to have chances to encounter the universe of work through such encounters as temporary jobs, helpful situations with businesses in their field of study, and off-term occupations. Explicit designs ought to likewise be created for the securing of required materials and hardware. Professions of scholarly staff, especially versatility and "mind channel," present earnest issues for Bomet TVET institution Tarno (2017).

The states of work for scholastic staff should be inspected so as to create procedures for holding very qualified tutors/trainers who discover increasingly worthwhile open doors outside of TVET training and frequently outside their local nations. Concentrates were likewise expected to decide the status of proceeding with expert improvement for scholastic staff Tarno, (2017). At last, systems should be built up to give chances to look into preparing, both of experienced Lecturers and of confirmation understudies.

2.3 Innovation in TVET for Entrepreneurial Development.

The innovative theory is one of the most famous theories of entrepreneurship used all around the world. The theory was advanced by one famous scholar, Schumpeter, in 1991. Schumpeter analyzed the theory proposed by Marshall, and he concluded that the theory was wrong. Schumpeter believes that creativity or innovation is the key factor in any entrepreneur's field of specialization Parker (2012). He argued that knowledge can only go a long way in helping an entrepreneur to become successful. However, Schumpeter viewed innovation along with knowledge as the main catalysts of successful entrepreneurship. He believed that creativity was necessary if an entrepreneur was to accumulate a lot of profits in a heavily competitive market.

2.3.1 Innovative skills culture in TVET

Innovation is doing something new or something different, is a necessary condition for a student to behave as an entrepreneur in all the TVET study life. Innovation involves applying ideas successfully, production, improving, changing and modification. Creativity is the ability to bring something new into existence, but not necessarily take necessary action to make it a reality. Technological innovation is the technical, industrial and commercial use of new processes and equipment. This range from simple investment in manufacturing new equipment or any technical measures to improve method of production, the sequence of scientific research, market research, invention, development design first production and marketing of a new product. Product innovation focuses on the creation of new products or services, or on improving the features of a current product

or services, Parker (2012). Process innovation is the creation or improvement of a process by which a product or service is produced or delivered.

Entrepreneurial development is achieved with the application of Entrepreneurship management which is by encouraging opportunity seeking, accepting, embracing change and encouraging the rapid transfer of knowledge and information. Quality training is achieved by putting in place a relevant curriculum design which is a term to describe the purposeful, deliberate and systematic organization of curriculum (instructional blocks) within class or course, Shuria (2015).In other words it is away for teachers to plan instruction. Research and development improves quality which involves information gathering to enable further entrepreneurial development of the idea. This is through market research and competitor analysis. This enables proper definitions of the product.

According to Shuria (2015), TVET should be capable to lead, guide and support generating ideas and promoting sustainable innovation behavior is a common denominator for committed leaders. Leaders also need to focus on developing innovation, creativity and risk taking skills of the teams that work for innovations in TVET in order to have well equipped teams to achieve successful innovations. This was done at Kabete Technical institute Nairobi County. To focus that college be competitive in order to enhance their impact to the society and steer continued growth, development and sustainability. The finding shows that TVET should adapt new methods of leadership as well and change the direction of management to enhance success of the institutions. It was concluded that the managers competencies numerous specialists bolster this hypothesis, and henceforth its prevalence over different speculations of business enterprise. This hypothesis accentuates associations of assets methodically to achieve

greatest benefit. Business visionaries are consequently coordinators of a financial endeavor; they arrange, claim, oversee and accept changes. Enterprise is in this way a progression of educated exercises which center around the focal elements of overseeing organizations, for example, creation, arranging showcasing, planning, controlling, assessing and financing.

Due to the many strong arguments for entrepreneurship, promoting an entrepreneurial culture should be encouraged by word and might from the country's leaders. This should be accompanied by directing our education system to deliver individuals with a good combination of specialist and generalist skills. On top of this, the main tenets of entrepreneurship should be a common course for all respondents so as to equip them with necessary skills like writing a business plan, preparing a proposal to present to investors, how to register a company, general accounting skills and other necessary skills Shuria (2015). In order to do this, the Kenyan government must stop trying to feed people with fish and instead teach them how to actually fish.

According to Mumo (2015) in Limuru, Kenya, who captured the attitude of secondary school respondents towards the TVET. It also found out that gender, socio-economic background, and age as well the academic performance of the respondents affects his or her attitude towards the TVET. The study revealed that the TVET is still important in training for skills that resolved to establishment of income generation avenues. However the study found out that most of the respondents had a negative attitude towards TVET brought about by various factors such as the kind of courses the TVET offer.

Further, personal aspiration of the respondents and high value attached to academic education discouraged them from pursuing courses in the TVET. In addition, the physical conditions of St. Bosco College and the life the trainees have enhanced the negatively biased attitude towards TVET. The study further found out that there were some association found between, socio-economic background, gender and academic performance of secondary school respondents and their attitudes towards the TVET.

However the relationship between age and attitude towards the TVET was not significant Kollinger (2012). Therefore the study recommended that the TVET program should be strengthen and modernized, to cater for both secondary and primary graduate by providing modern tools and equipment as well as the introduction for new courses and trades. It is further noted that the name of the youth polytechnic should be changed by affiliating it to a university and the TVET should also hold open days with the stakeholders as a corrective measure for the negatively biased attitude towards the TVET institutions. The findings is that despite the progress made over the last decade in enhancing access, retention, quality, completion rates and gender parity in education and training in Kenya, the TVET sub-sector continues to experience low female enrollment in Science, Technology, Engineering and mathematics (STEM) based courses.

Kenyan budget which seeks to create a new revolving fund worth 3.8 billion Kenyan shillings of which 3 billion will be lent out and 800 million for capacity building Shuria (2015).The Youth Fund which was set up for the same purpose has been hit by corruption scandals and massive defaults in repayments, which begs the question of whether our leaders are actually working towards recovering the money and attempting to put in place

a strategy that will actually work. A country as their booming entrepreneurial sector is responsible for much of their present economic prosperity.

The U.S is among the most entrepreneurial nation because American's believe they have opportunities to start businesses and live in a culture that respects entrepreneurship as an occupation. There is additionally a societal recognition that degrees direction a premium in the activity advertise as opposed to certificates. A Nation-wide plan of "Sub-mission on Polytechnics" has likewise been propelled. Under this plan new polytechnics will be set up in each region not having one as of now. These Polytechnics will be set up with Central financing and more than 700 will be set up through PPP and private subsidizing. All these new polytechnics establishments will have a network polytechnic wing. Ladies' Hostels will likewise be set up in all the administration polytechnics Kollinger (2012).

Still in another study, Simiyu (2009) investigated factors influencing career choices in TVET institutions in Bungoma County. The study aimed at accessing the influence of physical facilities, gender and job opportunities and career choices. Further, the student's background and government policy and career choices of TVET were accessed.

The study, however, found that peer pressure, gender and respondents background had a higher influence to respondents choices compared to other factors like physical facilities and job opportunities. The study recommends that measures be undertaken to reduce the current problems caused by poor career choices which include advising the ministry of Education to set up bridging courses, workshops and examiners in TVET institutions. This is aimed at helping the student's project and careers which would matter with the job market upon graduation Mohanja (2011).

In conclusion, TVET are meant for educating youth on the important of the entrepreneurial skills required for development. It is therefore necessary that the public be educated about the usefulness of the TVET and they are not for failures, attitude related issues, government policy and inadequate finding of TVET institutions in Kenya are the key factors affecting these institutions. These factors have an influence on the general enrolments of learners in these institutions Sulivan (2015).

However, female participation levels are wanting due to attitude and other social cultural factors such as stereotyping among other factors. Conversely, it was aimed at advertising ways of changing this scenarios and looking at countries that comprised the male participation in TVET institutions Mumo (2015).

The current Government Polytechnics will be boosted to modernize in PPP Mode. Endeavors will likewise be made to expand admission limit by utilizing space, staff and different offices in the current polytechnics in movements. There is additionally a deficiency of qualified confirmation holder in a few new regions. Thusly, building foundations will be boosted and urged to acquaint recognition courses with increase consumption limit. Confirmation projects could be kept running in night shifts when the lab, workshop, hardware and library are, Shiroku Production (2012). TVET institutions should take study of entrepreneurship which is as old as nature and it offers the best lessons. Nature has miracles that we never get time to appreciate and learn from. The greatest miracle is not about heavier than aero planes flying, wireless mobile phones or even chatting online. The greatest miracles in nature have no human intervention and are never hidden from our view like circuits in electronic equipment. Think of seeds that you

plant or eat from maize, beans, lentils or any other grain. They are tried and stored for years.

Once planted they germinate into crops that flower and give rise to the next generation of crops. Suppose human beings could be dried like that. Incidentally that is done but through freezing. Recently a baby was born after the egg had been frozen for two decades. The seeds we plant require less technology, just dry them in the sun. How does a seed long dry for years but once planted grow? Biologist can explain to us in plain language, but whichever way they do, that does not diminish the significance of the miracle. Genetic engineers have tried to focus on this great cycle of life and make money from it Ferej (2012). They have figured out that if you stopped the seeds from growing again by manipulating the genes you can force farmers to buy them every season instead of using the seeds from the previous crop. That's why seed companies are doing well. That might be reason genetically modified crops are resisted in Kenya. It is all economics. It is possible in future that our planting and harvesting will be "uberised", controlled from another country, not by farmers themselves. If you buy certified seeds, you can figure out the future already. We use seeds from the previous crop to plant the next season in the previous years in the country side. Today, every farmer wants to buy seeds, seen as more disease resistant or more productive, giving you more bags per acre. Not realizing the control they lose over their farming. This is enough testimony on agri-entrepreneurship or on farming entrepreneurship.

2.3.2 Re-engineering methods in TVET

Reengineering is most commonly defined as the redesign of business processes and the associated systems and organizational structures to achieve a dramatic improvement in business performance. It is the examination and change of five components of the business strategy, process, technology, organization, and culture. The centre for youth entrepreneurship education notes that, "Effective youth entrepreneurship education prepares young people to be responsible, enterprising individuals who become entrepreneurs or entrepreneurial thinkers and contribute to economic development and sustainable communities." There is need for respondents to acquire necessary knowledge for job creation, skills for innovation, and also trade to serve them in a harsh economy that does not provide jobs. Acquiring entrepreneurial skills should, therefore, be a consideration for most youths. With entrepreneurship, one also stands a higher chance of self-employment. The youth face a myriad of societal problem today Mumo (2015)

As a reminder of various Canadian TVET institutions reveal why we as Kenyans are willing to pay an arm and leg to ensure their children have access to this world class education system. Imagine this, instead of walking around with your staff/student's identification card to go through security checks in your building; you have a smart arm band that has a chip program with the rhythm of heartbeat. So to go through security checks, all you need is that magic band that recognizes your heartbeat and because every heartbeat is different; if it is stolen, it cannot be used by anyone else. Sounds like some farfetched technology in a sci-fi movie. The fact is, it is happening and the genius behind this innovative idea is a student at the college of Toronto, one of Canada's top colleges. This innovation is among numerous other spectacular innovations that visiting journalists

from East Africa, on a tour of the county's institutions of higher learning sponsored by the Canadian High Commission, recently got a chance to sample. They learnt that the student that holds the arm band's patent is one of the new millionaires in Canada Parker (2012). This is after master card, the global electronic payment processing firm, borrowed the idea with plans to use it on some of its smart cards. It is also worth noting that the idea for the Blackberry phone was conceived at the college of Waterloo in Toronto by respondents and it went ahead to become an established mobile brand.

And at the same college which has unparalleled engineering program where respondents think in the realm of impossibilities there is one-of-a-kind institute of nanotechnology where respondents are performing 'magic' using the smallest particles.

"We have a clean room, where respondents do their solution-seeking experiments. Because they deal with the smallest of particles not a single speck of dust can be spotted in the clean room, respondents have to be sanitized before they enter the room," explains Tony Munro, the manager of the international recruitment at the college of Waterloo. It would appear that such innovations are the order of the day in Canadian colleges and TVET institutions.

Even fascinating is the fact that TVET institutions could soon outdo universities in churning out innovators due to the massive investment of qualified teaching staff and availability of cutting-edge research facilities and infrastructure. "At the rate at which we are churning out innovators, the next Bill Gates (founder of Microsoft) might just come from a college," says Stephen Andrews, a director at the Canadian Independent College Parker (2012).

For instance at Algoquin College, a student is currently working on a camera that has temperature sensors, a technology that will be useful during winter to check which points of the building have a leak in heat Parker(2012). This is expected to help see energy loopholes. “Once this technology is perfected, it can be replicated on a large scale. Because it is a camera, it will be stationed at various points of the building where it can pick up on temperatures. This way, we can save on energy,” explains Alexander Young of Algoquin College.

At centennial college respondents are working on an energy conservation plant that will ensure water is not heated for too long during the winter. “The key word is energy conservation with this plant cold water is first pumped to the ground where it becomes a bit. Warm and is then pumped back before it goes through the heating system. Doing this saves energy because the water does not go through heating system at the negative degrees, which would require a lot of energy to heat, centennial colleges Arunarfow Hor explains. At the same college, a student establishes an application that helps autistic respondents in their learning. “One of our respondents came up with a brilliant app that helps autistic children in their learning process with these app teachers have an easy time teaching certain concepts that may appear basic to normal kids. It makes teaching autistic kids fun and easy Nasharudin (2010). The idea was being commercialized and the respondents are reaping big from this innovation, says purnimatyagi, the college’s innovation programme manager (Health). One thing that stands out in this teacher-student interaction is the fact that while the respondents shine and take all the glory, professors who helped them perfect their innovations are satisfied to stay in the shadows. While doors and opportunities open for our respondents, they do not benefit in any way.

But they are not complaining, their joy is to see respondents minds excel, says professor Hor who has some admirable chemistry with his respondents Sullivan (2015).

Another unique feature is the proximity of industries to the campuses which are there because those players being aware of the intensity of research going on at the campuses want to "scoop" these innovations before their competitor do Bunyi(2015). And these companies do not just position themselves near universities for the breakthrough but also to hire the best brains. Here they work very closely with industries and are in constant production of graduates with skills that the industry does not need. So they also ask them how many graduates they need and what kind of skills they should have, says Rafis Goobran, dean of faculty (Engineering and Design). As part of this synergy, universities also offer solutions to industry and help them upgrade their systems and machines. They bring their troublesome machines to the engineering department where respondents are tasked with coming up with solutions sometimes this include dismantling the machine and coming up with a more efficient and upgraded version, says professor Goubran. Respondents who participate in such assignments are almost always guaranteed jobs in these industries once they finish college.

The partnership between TVET and industry is so watertight that graduates absorption into the job market is more than 90%. With an education that trains respondents to be innovators, creators and entrepreneurs startups hubs are common place. One such hub is the Digital media zone (DMZ) based at the university of Byerson in Toronto. It is ranked fifth in the world on the TVET business incubator indoors. Opened in 2010, DMZ is one of the country's largest incubators for technology startups helping entrepreneurs succeed by connecting them with customers, advisors, influencers and fellow entrepreneurs

Mueller, (2014). This kind of education as we learned does not come cheap with tuition fees being about 1.7 Million per year. And onto this living and travel appraises and this figure goes up by hundreds of thousands. Nonetheless, the benefit far outweigh the costs and one can understand why well-heeled Kenyan's are willing to pay an arm and allege to ensure their children have access to this world-class university education (TVET) institutions.

TVET offers best cure for unemployment for Kenyan people as many people in this country have high opinion of Swiss chocolate and cheese. But what if we were to say to you that if you love to eat tasty and firm ugali or a fresh chapatti, then Swiss technology almost definitely played a part in that? Kenyan youth are undoubtedly a crucial asset for a strong and thriving Kenya. However, providing the youth with positive and long-term perspectives policy-makers, companies and society. Switzerland has one of the lowest youth unemployment rates in the world Bunyi (2015). And here is something which may amaze many in a country like Kenya where families will often make great sacrifices to get their children a university education: only one third of young Swiss choose to go to university after completing compulsory education, up to the secondary school level is the world's leading innovator. One answer to this can be found just a few kilometers north of Nairobi, in an industrial park on the side of Thika highway. It is home to the Eastern Africa headquarters of the Buhler Group, a Swiss company.

It was founded back in 1860, and to date remains entirely family-owned, despite having grown into a company which today employs around 10,500 persons in 140 countries. That's why we can confidently say that if you love to eat that firm ugali or fresh chapatti, chances are that its ingredients have been ground by a Buhler mill. In fact, the company

is the world's leading provider of technology to the grain processing industry. But, the machine is only one ingredient of the recipe to success. Despite tremendous technological progress, the key factor for a high-quality product is and will always remain – the person operating the mill: the miller. That is why inspired by its longstanding experience rooted in Switzerland's education system and without any perspective or expectation of short-term gains Buhler has invested in establishing the African milling School. Each year, dozens of young women and men from Kenya and the region, but also countries as far as Pakistan, Nigeria and South Africa, come to Nairobi and participate in TVET to become professional millers Bunyi (2015).

The two year apprenticeship programme at the African Milling School offers comprehensive and intensive training, both theoretical and practical. After completing their course, these young people return to their countries with excellent professional perspectives. Today, we are proud to say, 26 young respondents graduated and received their diploma in milling. The success story of the African Milling School is symptomatic for the system of TVET in Switzerland. That system enables young people to enter the labour market and it has become a key ingredient for our strong and sustainable economic and social development. After completing compulsory education, a full two-thirds of young Swiss people who finish compulsory education in any one year, enter a TVET programme, preparing them for one of about 250 professions. This includes commercial employees, healthy care workers, electricians or millers. During the programmes (which upto four years), they undergo an apprenticeship in order to learn a given grade in practice. It combines classes at a TVET college with on-the-job training at a host

Company, where the young apprentices are employed and earn their first (and somewhat modest) salaries Bunyi (2015).

While the TVET system as developed over decades in Switzerland, there is no reason whatsoever why it cannot function well in other countries, too. Action is needed by government to generate the right laws, assure quality and standards and create incentives for companies. The essential ingredient, however, is and remains the private sector Bunyi(2015). It is companies which provides jobs, and demand certain skill sets. It is the company which provides the apprenticeship positions accordingly. This is how the Swiss system takes into account actual needs and is thus correlated with the labour market.

As a result young graduates from apprenticeship programmes have a wealth of job prospects. In short, while this is crucial for the government to create the right framework conditions, it is for the companies to take responsibility, hold a long-term vision and give back to society by harnessing the creative energy of youth. As in previous generations, the social issues facing today's' youth can have significant effects on how they will eventually turn out as they reach adulthood. The government needs to help our youth by addressing these issues; some youths despite being well educated and with good academic-credentials lack entrepreneurial skills Zhou & Cai (2014).

According to Zhou & Cai (2014), who carried out study of TVET institutions in Kenya on the impact on top leadership competencies or their agility. The aim was o established the role played by TVET leadership's ability to perform high managerial duties on the performance of State Corporation in China. The scholars found that the managerial competency of TVET leadership was determined by the entrepreneurial skills and

capabilities within the employee of institutions and therefore defining operational competencies of an institution was best done by establishing the competencies of the employees. Their conclusion based on their findings was that leadership competencies of an institution contribute to the great extends to the competencies of the institution performance as well. Entrepreneurial ideas are more like seed waiting for the right time to be planted. Some are planted by the TVET institutions, which stirs the respondents' act to start a venture. The proliferation of TVET colleges offering entrepreneurship courses is a realization that the seed of entrepreneurship can be planted by the colleges Zhou & Cai (2014). It is always true that dropouts become great entrepreneurs. In most cases as this will remain to be researched.

The courses range from technical skills, undergraduates to PhDs. The only contention is that entrepreneurship should not be about theories, but practice, starting real activities and making a difference to the lives of ordinary citizens. Entrepreneurship graduates still see it as a black box. There is even a joke in some TVET colleges that if you can't teach anything else, try entrepreneurship. Other entrepreneurial seeds are planted by experience. TVET graduates soon realize the money from employment is not enough and the owner of businesses makes too much money. For others, the seeds of entrepreneurship are planted by a negative experience like loss of jobs or failure leading to innovations. Boredom is another entrepreneurial seeds planter Zhou & Cai (2014). After years in one place or career, you want a change. Once seeds are planted, someone must nurture them by watering and adding manures. Nurturing entrepreneurial ideas include; mentoring, internships, apprenticeship, coaching, attachment, benchmarking, and

business incubation that is on how to navigate turbulent times, just like irrigation during drought. That is why a good TVET board makes a big difference.

According to Tarno (2017) Technical, Industrial, Vocational and Entrepreneurial Training (TIVET) is the Kenya version for the globally known TVET (thereafter STEM and SET on one hand TVET and TIVET on the other be used interchangeably. This sub-sector continues to play a crucial role in socio-economic development of any nation. Educated and skilled people spur the economic growth and development. The widely recognized role of TVET was to form the skills required to improve productivity, raise income levels and improve access to employment opportunities. Additionally, according to Ogola W.O, Thumbi G.M, Ondieki C.M, Nyagoa, and Akumu C.T (2014) in Rift Valley Technical Training Institute is that most of the current challenges includes; gender imbalance , poor remuneration, poor treatment by the professional body and lack of proper training facilities in their study or Re-orienting Engineering Professionals bodies towards industrialization for Sustainable Development (SD) in Kenya. Further studies conducted by Makari (2014) on TVET in West Pokot County at Cheptarit TVET show that lack of modern equipment, inadequate number qualified instructor/ tutor s and low enrolment brought about by lack of funds are the key challenges. In conclusion, Kenya should train more engineers, Technologists, Technicians, crafts persons and Artisan in order to achieve vision 2030.

Nurturing also include government that provide public goods such as roads, security and good policies Mueller (2012). The arrowing for the entrepreneurial Ideas includes profits while replanting is starting new lines of businesses. Incidentally entrepreneurs such as farmers are looking for new and better seeds provided by innovations. We never heard of

M-pesa kiosks, cyber café, phone shops and other new types of enterprises based on new technologies previous years when growing up.

Much like genetically modified seeds, the new enterprises as you make more money as well. They often run 24hours and can cross borders. The seeds are either eaten or replanted. In entrepreneurship being eaten is common, young promising firm are bought or eaten by big established firms to reduce their threat Parker (2012). The great years are spend in schooling learning about entrepreneurship can be learnt in one season watching seeds being planted, growing and harvested. Nature seems a better teacher of entrepreneurship than any professor. If you want to be great entrepreneur why not spend time with farmers as they prepare their farms and plant seeds till the crops sprout and marvel at the miracles of nature.

Apply that in TVET institutions or businesses and you could get us Kenyan's next multinational corporation. TVET should introduce the curriculum units dealing in entrepreneurial development studies linked with Kenya employers. Other than promoting this culture, the government with the help of the private sector should put in place measures which foster human capital mobility between TVET and private sector in order to transfer knowledge and ideas, facilitate the entry of new participants with innovative ideas and foster a culture that encourages risk-taking and accepts failure as permissible social and individual norms Parker (2012). On top of this, the government should place emphasis on creating a general institutional framework and making high payoffs to productive entrepreneurship activities as compared to unproductive and evasive activities.

An entrepreneurial mind-set adds value across business, social, government, and academic sectors by promoting innovative problem identification and value creation Abebe (2012). Applying various entrepreneurial skills has led directly to observable improvement in work quality and productivity in a range of fields. Furthermore, the correlation between entrepreneurship education and entrepreneurial intentions are well-documented, including in a study of over five hundred VET trainees in Tanzania. To combat youth unemployment in Southern Africa, entrepreneurial training (ET) is being utilized to tap into a network of self-starting motivated trainees. ET has the power to reduce poverty and create growth in Africa by increasing youth's human capital and accelerating long-term professional growth. Entrepreneurial skills enable productive self-employment, help achieve economic stability, and can also reduce delinquent activity Yasin (2011).

In Kenya, Safaricom has put Kenya on the global map due to innovation in mobile telephony and bringing up services that have an impact on a huge number of the populace. Products like M-Pesa, a money transfer service that was the first of its kind in the world and the latest M-Kesho (done in conjunction with Equity Bank) which promises to revolutionize the financial industry in Kenya by allowing all users of its M-Pesa service to operate interest earning bank accounts in their cell phones. This service has Entrepreneurs see change as the norm and as healthy. Usually they do not bring about the change themselves. Potential to deliver savings services to millions of poor people worldwide and boost movement of cash in the Kenyan economy Hicks (2014).

Management innovation is the discovery and implementation of new ways of organizing, leading, coordinating and motivating employees; where managers use a range of new and

different practices to enhance the performance of people working under them. Brand innovation is the creation of value within a business through the development of a powerful brand; where an organization differentiates itself or its offerings building a unique brand. Rebranding of TVET to attract youth for more enrolment as a sure way to undertake youth unemployment and lack of opportunities continue to be a challenge in Kenya. County governments like Bomet and Narok have been faced with challenges with varying dynamic from county to county. The recent reforms and changes in the education sector are timely but need to consider upgrade and investing in technical centres. We all know the attitude towards the TVET colleges by our youth and parents. These colleges have largely been associated with failures and school drop-outs thereby attracting few or more of the young people.

Some of the facilities in the colleges are outdated and in most cases the centres are located in remote areas with minimal internet connection or electricity Mbiti (2014). It is high time our national and county governments considered re-branding and investing in technical centres to attract the youth, even those who score grade A. if possible they can be lifted and renamed –incubation centres; innovation centres; centre of creativity; apprenticeship centres. Let the courses offered be diverse to the purpose of completing industrial park model. Training is therefore possible by knowing how to motivate, direct and lead people.

Entrepreneur is one who innovates, assembles imports, raises money, chooses managers and sets organization going with his ability to identify them. Entrepreneurs in a developing economy is one who starts an older new industry, undertakes risks, bears uncertainties and also performs the management functions of decision making and

coordination. He also puts the new process based in technological research into operations. Re-engineering which is fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical measures of performance such as cost, service, and speed. Education is acknowledged as a means for transforming and empowering the youths with skills, knowledge and attitudes to enable them become productive members of the society Mbiti (2014).

Yet Kenya as a developing country with population of 47 million is battling with poverty and unemployment problems. This study therefore focused on the contribution of a revitalized technical and vocational education and training with emphasis on youth empowerment to improve the economic status of the country and welfare of the people. Issues pertaining to integrating technical and vocational education and training (TVET) in education curricula, entrepreneurial activities aimed at jobs creation, to solve the problem of widespread poverty and unemployment, priority should be given to revitalizing technical and vocational education and training with the priority given to empowering the youths on vocational education with innovative skills Abebe (2012).

2.4 Use of ICT in TVET for Entrepreneurial Development

ICT is the application of systems in a computer to store, retrieve and send information through networks. ICT is the most reliable, cheap and fastest means of sending information from one area to another. ICT is widely used as an innovation, creative and training/learning tool in all institutions of TVET. TVET use ICT in various operations for achievement of entrepreneurial development Parker (2012). TVET will adopt the use of ICT in the training and digital entrepreneurship processes. All TVET will have to attain

ICT laboratories in order to attain entrepreneurial development. ICT will have to connect internet in TVET.

Governments worldwide recognize the role of information and communication technologies (ICTs) in national development Waweru (2011). ICTs are key to transforming traditional economies into information and knowledge-based economies. In the vision towards an 'Intelligent Island'. For example, Singapore perceives ICTs as the engine for promoting development and growth, and also gaining global competitive advantage. The country developed ICT policies and strategies to increase productivity, improve infrastructure, reduce costs and attain high value-added industries.

To a large degree, these policies and strategies have contributed to the phenomenal development that is associated with Singapore. The need to develop ICT policies stems from the challenges that many African countries are facing because of globalization and liberalization, Globalization has removed time differences and geographical boundaries between countries. Many African governments are now aware of the important role of ICTs in transforming economies in an increasingly knowledge-based global village. ICTs can address the creation of wealth, management of the HIV/AIDs epidemic, and others, Waweru (2011).

Consequently, Several African countries, like Egypt, Mauritius, Rwanda, and South Africa have developed comprehensive national policies and strategies to transform their nations into information/ knowledge societies Waweru (2011). The expansion of human capacity, especially in ICT, is critical in these national policies and strategies because of the information oriented societies that are emerging globally. ICT can provide authentic

and simulated learning for serious games and simulations are increasingly used in education to provide learners more opportunities to practice techniques and manipulate different parameters. Serious games using augmented reality and virtual reality technologies, for example, allow respondents to apply theory to practice in a realistic, safe and controlled way. It was found in one study that nursing trainees were able to transfer knowledge and skills from the simulation training to apply them on real patients during their practicum Blackwell (2012).Such technologies create close to realistic learning environments that were not previously possible.

2.4.1 Digital learning in TVET

The digital spaces offer TVET a myriad of opportunity besides offering respondents a platform to engage far and wide. The nature of our constantly changing world means that investment in our TVET system need to strategically consider the future needs of the job market; it is simply supply and demand Waweru (2011). It is therefore now the right time TVET to encourage and promoting digital learning.

In Singapore National policies and programs can be an important tool for the realization of ICT's promise in education, and they are the focus of this research study. The chapter presents a framework of alternative rationales and program components that can be used by researchers and policymakers to analyze, formulate, revise, and compare national ICT efforts. The framework consists of four alternative policy rationales – or strategic policy positions – and five components of ICT programs, or operational policies. Strategic and operational policies of various countries are used to illustrate these rationales and components Yuserrie (2010).The research study concludes with recommendations that

countries can use when formulating or updating their educational ICT plans. It is therefore imperative that principals gain knowledge on how computers can be used for educational purposes with a view of facilitating their use and minimizing any negative effects that may be associated with their use Shen (2010).

The report said that the greater part of the TVET keep running on old educational programs, do not have the most recent showing devices, and have non-adjusting approaches, which make it difficult to coordinate ICT in their courses. The report blamed educators for absence of certainty to instruct ICT points, noticing this was genuine even among teachers who have learning in ICT. An expected 24 percent of heads of division talked with as per the report referred to constrained ICT aptitudes and proficiency among teachers as a noteworthy test for incorporating ICT to TVET course arrangement. “Instructor/ tutor s confidence presents a particular challenge for ICT integration in TVET institutions,” the report said. The report called for a modernization of training and curricula to reflect use of technology in enhancing critical thinking and higher order Muthima (2015).

ICT can promote reflective learning and knowledge creation in project-based learning using ICT and e-portfolios enable evidence-based practice in workplace contexts in which knowledge and skills are used and new knowledge is created. Use of ICT in such contexts, along with interactions with peers and industry experts reinforces learning and enables respondents to develop their reflective capacity Waweru (2011). E-portfolio and project-based learning encourage respondents to be knowledge producers rather than knowledge consumers and can change the way respondents respond to holistic and process-driven assessments. The challenges of the potential benefits that new ICT can

bring in terms of transforming skills development and TVET are enormous, but actual benefits in TVET institutions have yet to be seen in many cases.

This is partly due to the lack of access to ICT and the under-development of ICT in many countries of the Asia-Pacific region. There is therefore great disparity in levels of ICT development between the countries of the region. The Asia-Pacific region has the largest range of ICT development index (IDI) values in the world.

According to Waweru (2011) who established that existence of teacher qualification in inadequacies in curriculum implementation in TVET institutions is a challenge. He conducted a base line survey on the level of awareness and existing practices in the use ICT in TVET institutions in Kenya at Kaiboi Technical Training Institute. The findings showed that limited ICT skills and literacy among lecturers (Mentioned by 24% of HODs) and insufficient ICT training opportunities (Mentioned by 20 % of lecturers) were some of the major challenges in integrating ICTs to TVET course provision. The law proportion of HODs and lecturers who mentioned therefore said challenges indicates that generally high qualification existed among few of the ICT lecturers in TVET institutions in Kenya Moktar (2016). The study concluded that the institutions or TVET employed qualified and professional staff to teach the courses which were basically Artisan and craft. The qualifications of Artisans and craft teachers in community colleges can enter in service courses to improve their teachings skills. The study examined the qualification of Artisan and Graft teachers in TVET in order to a certain whether or not they are qualified effectively implement Artisan and craft curriculum.

According Ocharo (2019) is that lack of computer literacy amongst respondents and staff as a reason for the lack of implementation of flexible and blended approaches in teaching in TVET institutions for example Rift Valley Institute of Science and Technology (RVIST) in Nakuru County. Some tutors do not even know how to make or use PowerPoint while others do not know how to fix and work with the projector. Tutors need to be taught how to use the facilities, it should not be taken for granted that they know how to manipulate them and training should be organized.

Some of TVET respondents come from secondary school in the rural areas and they might have never seen a computer of which some villages in Kenya do not have electricity. So they will not learn very fast when an instructor/ tutor uses electronics in class and they get confused. Lack of computer literacy among tutors is may be due the fact computers is a new phenomenon, some tutors might have gone to school before the advent of the computers, hence training is necessary in order for them to implement flexible and blended approaches in teaching Ocharo (2011). The findings revealed that lack of computer literacy among respondents and staff, lack of enough tutors, lack of ICT policy framework and inadequate facilities were the main factors that prevent the use flexible and blended approaches in TVET institutions. In conclusion a policy framework be develop to guide instructor/ tutor s on the implementation of flexible and blended approaches in the teachings and learning practice in TVET institutions and also the equipment's for the ICT facilities and equipment in order to realize full implementation of flexible and blended approaches in teaching ICT and learning practices geared towards entrepreneurial skills development in TVET institutions in Kenya.

Digital Education is the change maker to providing education for all. A balance between sufficient “knowing” and necessary “doing” will create the basis for digital skills for employability within the TVET graduates. ICT can be a powerful tool to contribute in providing universal access to education and training. All respondents need to have 21st century skills including basic ICT skills but there also a high need for qualified graduation with special ICT skills in all parts of the world. Therefore, digitization requires new learning methods, new profile and skills of tutors in TVET. It is also necessary to train and prepare tutors for the new learning situations, but it is not enough. Learning must be taken to the next level through more cooperative, multidisciplinary strategy Ocharo (2019). This requires a different way of thinking and approach. It must be direct and easy to visualized, Interdisciplinary approaches will help people to reflect critically on how technology can really add value to learning and re-training.

2.4.2 Internet usage in TVET

The Internet accessibility is an ecosystem fill with millions of knowledge sources that offers theoretical and practical learning in TVET institution. This will guarantee that graduates looking for jobs in possession of the digital literacy skills set required for success in the modern world Hooker (2015). The government policy has had practical implication such as opening of scores of TVET institution focus on the vocational needs of a digital future. In order to attain this status, entrepreneurship is the key and the youth are the holders of this key. America is a proper example of how entrepreneurship can move entrepreneurs see change as the norm and as healthy. Usually they do not bring about the change themselves.

Furthermore, governments should increase the use of technology for efficient service delivery, which is by computerizing most of the processes it takes to start a business and establishing a one-stop-shop for registering a company (the recent Doing Business Survey in East Africa by the World Bank indicates that it takes two procedures to start a business in Rwanda as compared to 11 in Kenya) and which ultimately cuts the time used in starting a business and make it harder for civil servants to engage in corrupt activities. Educational system should also churn out individuals who have the skills to deal with constant change and who look at their environment with eyes of opportunity where the glass is half full opportunities rather than half empty Hooker (2015).

One need only look at companies like Facebook, Twitter, and Apple and in Kenya's case Safaricom to see how entrepreneurship and innovation can transform companies Hooker (2015). One of the characteristics that these companies have in common is their ability to see opportunities, seize them and promote innovation as part of their system. Entrepreneurial companies have extraordinary growth over a sustained 'period and thus impact remarkably on economic growth.

According to Waweru (2015) the poor internet connectivity was decried by most TVET respondents which factor that have prevented the implementation of flexible and blended approaches in their teaching which was done in Kisumu Polytechnic in Kisumu County. TVETs cannot be able to fully utilize this approaches as they could not do research on the internet. It is hard to embrace these approaches without internet connectivity; internet connectivity usually enables tutors to research on teaching content to be delivered in class. Once tutor has enough teaching content, he/she we plan his or her work properly and adopt flexible and blended approaches in his/her teaching and presentation.

Also the poor internet connectivity and installation is a big challenge. These approaches can be embraced if instructor/ tutor s or lecturers are also able to access internet and research teaching content. This would enhance their implementation of internet as a must. Internet connectivity is prerequisite to holistic implementation of flexible and blended approaches in their teachings. The findings revealed that poor internet connectivity and lack of ICT policy framework and inadequate facilities were the main factors that prevent the use flexible and blended approaches in TVET institutions. In conclusion the study established that poor internet connectivity and lack of computer literacy among student and staff which make them do practice in new practices in new approaches.

"TVET need to embrace professional development programmes to enable instructor/ tutor s overcomes fear in teaching ICT subjects," recommends the report. "There is an opportunity for institutions to formally recognize internal resources and develop programs for institution-based staff development that is focused on short regular in-house workshops using external and internal resources supports." The strategy to end poverty has to be multi-sectoral and will require a committed action program for infrastructural development, institutional capacity-building and empowerment of people. ICTs and TVET are important tools to wage war against poverty in all developing countries. Hooker (2015) points out that for the first time in history our generation has the power and opportunity to end extreme poverty in the world's most desperate regions, Parker (2012). Education for All (EFA), TVET for All and ICTs are the keys to empowering rural people. This action programme for empowerment and capacity-building must start in the millions of villages and town slums spread all over Kenya especially South rift region.

2.5 Empirical Related Literature Review

At the establishment of the Peoples' republic of China in 1949, the new nation critically needed the services of mid-level technical personnel and the government adopted technical and vocational education as means of achieving this and emphasis was on training for specific industries (Guo & Lamb, 2010). The period witnessed the development of heavy industries as national development strategy of the government, and technical and vocational education was key instrument of providing the needed personnel.

The People's Republic of China (PRC), for instance, has been continuously developing its TVET system in conjunction with these changes. In the 2010s, based on solid legal and policy frameworks and plans, it began to significantly improve access to TVET, maintain high employment rates of TVET graduates, strengthen cooperation between TVET institutions and employers, and promote the development of qualified TVET teaching force and the use of information and communication technology (ICT) in TVET. PRC's decade of reform (2010–2020) has contributed to the development of stronger local TVET systems, especially in advanced eastern provinces, relying on local governments' supporting policies to systematically involve and coordinate with industry and employers and using technologies in the provision of TVET Hao (2012).

TVET education has been used in many countries across the World to equip youth with skills and knowledge to address the problem of youth unemployment Iacovou and Arnstein (2007). Countries like Taiwan, China and India went further to use TVET as a means for supporting creation of skilled work force (UNESCO, 2009). This increases productivity and hence economic growth. But the role of TVET goes further to promotion

of social development. Entrepreneurial training effectiveness though Government entrepreneurial support and venturing of TVET studies into quality training centres ,innovation ,incubation centres and ICT centres related entrepreneurship by indirect-path analysis in Kenya.

2.6 Theoretical Framework.

A number of theories that can explain the issues of entrepreneurial development in TVET include;

2.6.1 The neo-classical theory of entrepreneurship.

The new classical approach began with the Hawthorne studies in the 1920s. It grew out of the limitation of the classical theory. Under classical approach attention was focused on jobs and machines. After sometime, workers resisted this approach as it did not provide the social and psychological satisfaction. Therefore attention shifted inwards towards the human side of management. George Elton Mayo (1890 – 1949) is considered to be the founder of the neo-classical theory Anderson (2014). He was the leader of the team which conducted the famous Hawthorne Experiments at the western electric company (USA) during 1927-1932. There are mainly three elements of Neo-classic theory of management.

They are Hawthorne Experiments, Human Relation Movement and Organizational behavior. Neo-classical theory has made significant contribution to understanding of human behavior at work and in organization. It has generated awareness of the overwhelming role of human factor in industry. This approach has given ideas and

techniques for better understanding of human behavior. Contributors to this approach recognize an organization as a social system subject to the sentiments and cultural patterns of the member of the organization group dynamics, leadership, motivation, participation, job environment and many other factors constitute to the core of the Neo-classical theory. This approach changed the view of the employees are tools and furthered the believe that the employees are valuable resources. It also laid the foundation for later development in management theory.

Neoclassical entrepreneurship theory aims at explaining how certain firms are better than others, in imperfect competition. If access to complete information is defective, then the distinctive, character of neoclassical entrepreneurship rests on the ability to provide the TVET with guidelines to manage. Neoclassical entrepreneurship extinguishes profit opportunities instead of generating new information allowing for potentially more opportunities. Ironically, in the neoclassical world, entrepreneurship makes markets more stagnated instead of more dynamic, Atanasov(2015).

The theory is of the view that everyone conducting a particular business gets a particular profit margin in line with his or her levels of labour Chou (2017). Hence, this means that entrepreneurs who work very hard at their various businesses will get more than those who don't. The theory also views the level of knowledge of an entrepreneur as an important factor in whether or not that person will make a lot of profits. This means that if one entrepreneur profits have more knowledge in the type of business that he or she is doing than another entrepreneur, then that particular entrepreneur will be more successful. They have the capacity to adopt their styles in order to get the maximum out of people. They view other people as their greatest resource and realize that they cannot

accomplish goals without them and their skills. Training was therefore possible by knowing how to motivate, direct and lead people Henrekson (2014).

An entrepreneur should be hard working self-disciplined, confident, determined, innovative, visionary, risk-taking, consistent, independent, leadership qualities, amenable to change or flexible and God fearing. Taking everything into account, entrepreneurship is vital part of a nation's economic development strategy, and professional vocational training gives knowledge and abilities that empower people who goes through the training procedure to venture into the world of business opportunities after completing their TVET studies Zimmermann (2014). In this way, entrepreneurship education ought to be embedded in the TVET educational curriculum either directly or indirectly. The motivation behind incorporating the educational programs is to empower graduates to contend in the job market and in this manner make independent work.

Most nations trust TVET framework is equipped for delivering gifted specialists and fit for making elective work by urging understudies to wander into business. On the off chance that the understudies don't progress toward becoming business people, at any rate they will get the advantages of an enterprise training that encourages them to be inventive and creative at critical thinking , development and causes them adjust to changes. These theories include teachability and learnability theories of entrepreneurship (Njoroge, 2017). Learnability theory focuses on the learners as the main subjects of entrepreneurial education. In this theory, learner's aspirations of studying entrepreneurship education are examined. The theory is grouped into two parts. The first one focuses on those learners whose aim is to study entrepreneurship. This is studying entrepreneurship with the purpose of understanding the role of an entrepreneur in the society (Pinkwart, 2009).The

second one was theoretical, academic and scientifically motivational. Neo-classical theory of Entrepreneurship develops into management theory of Entrepreneurship which was relevant to the management of TVET for the achievement of quality services using efficacy levels to make the institution efficient and effective in transforming practical skills in trainees.

2.6.2 Innovative theory of entrepreneurship.

The innovative theory was propelled by Schumpeter, in 1991 who analyzed the theory proposed by Marshal, and he inferred that the theory wasn't right. Schumpter trusts that innovativeness or advancement is the key factor in any entrepreneur's field of specialization. He contended that knowledge can just be a way of helping a business entrepreneur to become successful and effective. Notwithstanding, Schumpeter saw innovation alongside knowledge as the main propelling forces for successful business enterprise. He trusted that inventiveness was essential if a business person was to accumulate a great deal of benefits in a heavily competitive market. Many business entrepreneurs support this theory, and thus its popularity over the theories of entrepreneurship Kirchberger (2008).

The innovative theory is one of the famous theories of entrepreneurship; use around the world, Schumpeter believes that creativity or innovation is the key factor in any TVETs field of specialization. He urges that knowledge can only go a long way in helping TVET to become successful Parker (2012). TVET need to come up with creative answers to solve certain problems in their learning. Many times they will face problems that don't seem to go away. They need to think outside the box to find answers they have never

come up with. This way they can make their products, store their inventory and find creative solution making their learning better. TVETs ever feel that they are bogged down with work and struggle to get everything done; it is time that they should become more productive. To do this TVET should start finding new processes.

Entrepreneurship as a whole contributes to social wealth by creating new markets, new industries, new technology, new institutional forms, new jobs and net increases in real productivity. The jobs created through their activities in turn lead to equitable distribution of income which culminates in higher standards of living for the populace. In this way, the resources available to the government will likewise increase and hence enable it to offer social services like hospitals and schools develop the infrastructure and keep law and order Parker (2012).

Kenya is yet to embrace fully TVET education system with the country focus on job creation, manufacturing, housing, food security and universal healthcare in order to attain the vision 2030 goals. The question thus; is the Kenya education TVET system and its institutions and programmes fit for the purpose is a very historical one and needs addressing if Kenya is to take off. And considering that Kenyan youth will pose the biggest challenge to the country in the next five years, it is important to plan for the youth to acquire the requisite skills and knowledge relevant to economic expansion Henrekson (2014). With the expansion of primary and secondary sub-sectors, TVET remains the next sub-sector for expansion through infrastructure and equipment, ICT and refocusing the curriculum to the demands of vision 2030. The theory view innovation along with knowledge as a catalyst of entrepreneurship. It was a way of adopting innovative skills culture and innovative apprenticeship of which trainees and trainers were linked to usable

skills in industries. Innovative theory of Entrepreneurship is a theory that relates to invention, creativity, and innovation in TVET .TVET used the innovative apprenticeship system in which trainees were on the Job-training earning wages and doing productive work-while taking courses for the acquisition of knowledge for usable skills, while trainers go for practical skills.

2.6.3 Alert theory of entrepreneurship.

The theory was first founded by Kirzner (1997) who wanted to bring together the other theories of entrepreneurship advanced by Marshall and Schumpeter. But, that the market itself played the most important role in whether an entrepreneur would be successful or not. Hence he came up with his own view of entrepreneurship which he called 'alert'. The theory states that understanding the market is the key to being a successful entrepreneur. This is presumably the most questionable of all speculations of business enterprise.

ICT is powerful means to increase access to quality and lifelong TVET and enhance the relevance and authenticity of learning, and it enables workplaces to be brought into learning. Although hands-on practical training cannot be replaced by technologies, modern technologies are able to enhance the acquisition of practical skills, under a fundamental assumption that learning is essentially a social phenomenon Chen (2017). Entrepreneurship alertness is seen to be the application of unique schemata that allow the TVET to input, meaning to environmentally change that would not be inputted by other managers. It is argued, that alertness that allows TVET to see opportunities where others

do not see. Entrepreneurial alertness plays an important role in the process of opportunity exploration and exploitation.

Learning analytics, on the other hand, process student log data generated by learning management systems, allowing TVET to customize learning paths that are unique to respondents' learning needs, style, strengths and weaknesses, rather than forcing respondents to go through a standard curriculum and path Waweru (2011). ICT can enhance learning engagement and social learning with blended and 'flipped classroom's techniques, ICT can enable learners to prepare at home for classroom discussions and activities to exchange ideas, networking and deepen knowledge. In addition, online social networks enable just-in-time learning from peers and a wider network of experts. The alert theory bring together the other theories advance by Marshal and Schumpeter of which he states that market understanding was the key to being successful entrepreneurs in TVET. This means ICT is the new field in TVET for doing marketing knowledge in order to achieve entrepreneurial effectiveness globally and locally.

Alert theory of Entrepreneurship was theory that deals in marketing of digital knowledge, on-line learning and Internet. TVET institution competes in employment market for trainees joining industries according to the forces of demand and supply. TVET could do branding by starting Digital marketing business to bridge the usable skills in ICT and quality gaps that exists in the local digital marketing industry and elevate the craft to standards similar those in the UK .Digital marketing involves content creation website development, organic search influencer marketing, online campaigns and training ,as well as online advertisement and other transferable skills Mwinzi (2010).

2.7 Conceptual Framework

The conceptual framework illustrates the interaction between the independent and dependent variables. The quality technical training which consists of curriculum design and delivery, efficacy levels, Innovation includes innovative skills culture , reengineering, and ICT knowledge composed of, Digital learning, Internet usage are independent variables while entrepreneurial development comprises of the elements such as, transferable skills, new processes, usable skills, Networking are dependent variables. If the Trainees were taken through such education training they would likely improve on entrepreneurial skills development.

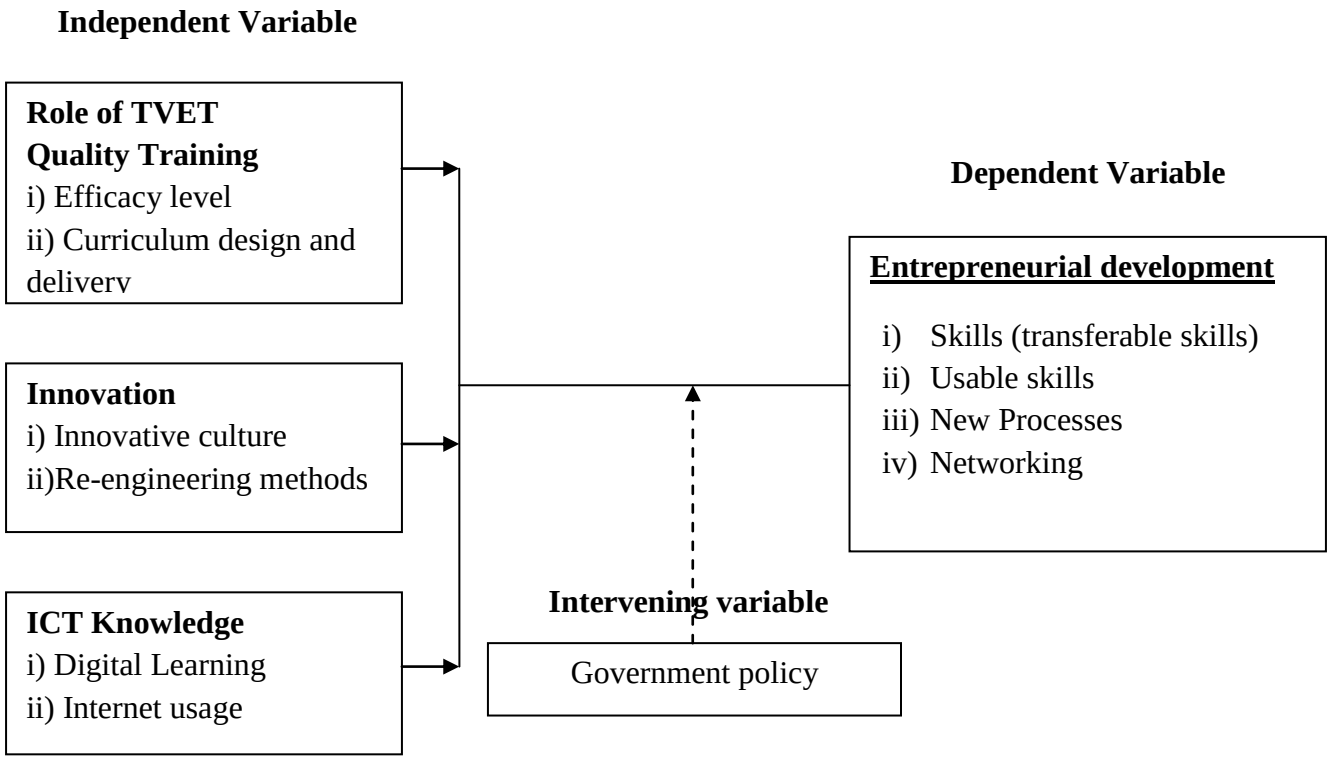

Figure 2.1 Conceptual Framework

Source: Research Data (2021)

TVET institutions are guided by government policy in decision making and ought to lead to positive results that enhance the TVET or any other academic unit. Government policies are inform of laws, or regulations, or the set of all the law and regulation that govern some particular issues or problems, all policies contained the reasons things are to be done in a certain way and use to direct how TVET institution can be governed. TVET development can be influence also by the political atmosphere, social, economic and environmental pillars prevailing in the society.

2.8 Identification of Knowledge Gap

Kollinger (2012) did a research on TVET quality training, innovation and with the use of ICT knowledge found that there is an extend of limited resources and its influence needs to be studied in training TVET workforce on quality management implementation has benefits. In Kenya as well as South Rift region we continue to observe a large gap in the demand and supply of technical and vocational skills most of the TVET has been underinvested and face considerable challenges with small enrollment rates, low quality training and relevance. It lack skilled technical personnel in all our TVET, the reason the government was ever dependent on imported large force from Asians countries such as China and for example they were given contract on SGR Railway such as from Mombasa to Kisumu through Nairobi, Narok, Bomet and Kericho.

The government of Kenya lack expertise on entrepreneurship techniques and not like china contractors who have won admiration from Kenya Government due to efficacy levels and speed, which have help lift the country dilapidated roads network in recent years through projects such as the Thika super highway and the Nairobi express way being built by the Chinese contractor known as China Road and Bridge corporation (CRBC) among other major projects. Typically the Chinese contractors employ Kenyan personnel, but many as laborers and Chinese firms have elbowed out our local contractors in road construction as most of our local contractors do not have the technical muscles to complete such extensive projects, neither is their work rate and work ethics a match to the Chinese. The Chinese post exemplary work ethics, efficiency, speed, liability and physical discipline through timeline, hence they are winning contracts even from World Bank and other global heavy weights. China post one of the best TVET model in the

world going to the fact that they as global suppliers of the technical job market Hao (2012).

In summary this are the Chinese model of TVET not found in our country/county which is seen as the gap. South Rift TVET institution lack a demand driven TVET system, that is due to lack of a "top- down" and "bottom-up" approach in conjunction with the growing economy, our TVET do not emphasis on quality training and relevance, not applying innovative apprenticeship and do not use internet fully. They do not use industry-education Corporation and they do not strengthen on TVET teacher development of which our TVET tutors (trainers) are not double qualified with both academic and practical skills qualifications. They do not use a model TVET institution of which they competitively select a model number of TVET for reforms, innovations, computerized system and do not provide concentrated financial and technical assistance. Not like Chinese TVETs which were highly rated in entrepreneurial development of which, still remain a large gap in our local TVET Hao (2012). In Kenya and in South Rift Counties, Bomet, Narok and Kericho they continue to observe a large gap in the demand and supply of technical, vocational and entrepreneurial skills on entrepreneurial development.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This is description of methods to be applied in carrying out the research study. This section highlights the research design, study location, target population, sample size and sampling procedure, data collection instruments, validity and reliability of research instruments, data collection procedure, data analysis and presentation, and ethical consideration.

3.2 Research Design

The research design employed in this study was used. It is the structure of the research. It is the glue that holds the elements in a research. The study was done on the research project in TVETs for entrepreneurial development in South Rift region. The methodology used approach of quality training, innovation and use of ICT which was reliable in conducting research Mugenda and Mugenda, (2014). Descriptive research design or statistics was used as its seeks to describe the state of affairs of the subject of respondent as it exist in TVET. It is collecting information by interviewing or administering questionnaires to the respondent. It can also be used to collect information about people's attitudes, habits or other social issues as the institution is a social entity.

3.3 Location of the Study

The study was done in TVET institutions of South Rift region, Bomet and Narok Counties in Kenya. The study used selected TVET institutions; Sot TTI, Konoin TTI, Sotik TTI, Maasai Mara TTI, Narok West TTI and Emurua Dikirr TTI. There are three counties in South Rift Region it has a total of 50 technical training institute and vocational training colleges that is in Bomet and Narok which is the area of study.

3.4 Target Population

The target populations for the research were 10,000 in total, in the principals, tutors and respondents of TVET from two counties Bomet and Narok.

Table 3.1

Target Population

TVET	Student Total population	Instructor/ Population	Principals	Total	%
Sot TTI	1994	5	1	2000	20.0%
Konoin TTI	1477	12	1	1490	14.9%
Sotik TTI	2180	19	1	2200	22.0%
Narok West TTI	2067	18	1	2086	20.9%
Maasai Mara TTI	1320	12	1	1333	13.3%
Emurua Dikirr TTI	880	10	1	891	8.9%
Total	9918	76	6	10000	100.0%

Source: **Researcher (2021)**

3.5 Sample Size and Sampling Procedures

The study employed was multi staged stratification with the first stage being stratification by county then a simple random sampling procedure to select the six most populated TVET institutions from the two counties with a sample size of 384. The pilot study was done in the third county Kericho at Bureti technical training institute and another in Bomet County at Solyot Vocational Training College. A sample is a smaller group obtains from the accessible population. Each member or case in the sample is referred as a subject; sometimes the term "respondent" or "interviewees" are used. Sampling is the process of selecting a number of individuals for a study in search away the individual selected represent the large group from which they were selected. The individuals selected from the sample and the large group from which they were selected is the population. By using simple random sampling which involves simple random selection of respondent for example putting names in a hat, flips of coins, or using the stratified random sampling which involves dividing the population into strata or categories and then take a simple random sample from each group. I also use the departmental selection of respondents which form a considerable variable and arriving at the number of population is diverse and very reliable.

An effective population sample possess qualitative of diversity as it should be diverse as possible that comprises of the characteristics of the population for example gender, age, social class etc. it should be all inclusive and presenting all characteristics of the population. It should be accessible and easily reached and have some ideas of what is being investigated

It ended up with the final sample size for the study at hand; using sloven's formula given as;

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

Where N is the population size, e is the tolerance where we want to be 95 percent confident that the data is going to be reflective of the entire population hence e is (1-0.95) = 0.05 and n is the sample size for the study.

$$n = \frac{10000}{1 + 10000\ x\ 0.05^2} = 384$$

In a finite population, when the original sample collected is more than 5% of the population size, the sample size is determined by using the Sloven's formula which gave a sample size of 384 respondents who participated in the study. The principals for all the TVET institutions were included in the sample as a census, since each institution had only one principal.

The sample per institution was generated based on proportional allocation of the population with each of the three groups (trainers/ tutor and respondents) being considered as a stratum. The principals and tutors population are of degree holders and most tutors are diploma holders, respondents take courses in short courses, artisan, craft, diploma and higher diplomas.

Table 3.2

Sample Size Population

Institution	Principal	Instructors	Respondents	Total
Sot TTI	1	4	63	68
Konoin TTI	1	10	47	58
Sotik TTI	1	16	69	86
Narok West TTI	1	16	66	83
Maasai Mara TTI	1	10	41	52
Emurua Dikir TTI	1	8	28	37
Total	6	64	314	384

Source: **Researcher (2021)**

3.6 Data Collection Instruments.

The data was obtained through the use of structured questionnaires. The advantages of using close ended questions are easier to analyze since they are in immediate usable form. They are easier to administer because each item is followed by alternative answers. They are economical in terms of time and money. The questionnaires were used in pilot and main-study.

3.6.1 Validity of research instrument

Validity is the extent to which an instrument measures what it ought to measure Mugenda and Mugenda (2014). Face validity is the extent to which a test is substantively viewed as covering the concept it purports to measure.

It refers to transparency of relevance of test as it appears to test participants. Tests where the purpose is clear, even to naïve respondents, are said to have high face validity. An expert opinion was sought so as to reduce on questionnaire ambiguity before development of the final tool. Relevant questions were asked the experts and feedback was integrated after pretesting by use of literature review.

3.6.2 Reliability of research instrument

According to (Mugenda & Mugenda, 2014) reliability has to do with the quality of measurements. Reliability was assessed using Cronbach Apha. According to Creswell 10% of the sample size should be selected for pilot test. Bureti Technical Training Institute was chosen by the researcher for piloting because it had similar characteristics with the target population. Data from the pilot study was analyzed where a Cronbach alpha coefficient value of 0.876 in all the variables was achieved as shown in Table 3.3. This indicated that the research instrument was reliable (Cohen, Manion and Morrison, 2005).

Table 3.3

Reliability Test

Variable	**No. of Items**	**Reliability value**
Quality Training	5	0.875
Innovative skills	5	0.867
ICT usage	5	0.795
Average	**21**	**0.846**

Source: **Research Data, (2021)**

3.7 Data Collection Procedures

The data collection procedure was carried out by well-trained rresearch aassistants. They recruited respondents based on unbiased sample The consent form was explained to the participants and they were requested to sign. The participants were given a questionnaire to fill and the research assistant had to wait for about 40 minutes and thereafter the completed questionnaires were checked for errors. Before a participant left, they were given chance to ask questions.

3.8 Data Analysis and Presentation

Mugenda and Mugenda (2014) describes data analysis techniques as the examination of what will be gathered in an exploration and making reasoning. As by Kothari (2009), data analysis will have to satisfy inquiries about the objective and give reasons to the research questions. The data analysis methodology relies upon how the procedures are to be for the study purposes and size of the sampled population Kolinger (2012).

Descriptive data analysis and measures of dispersion, analysis were generated from the data set collected with the aid of the SPSS software. The descriptive analysis used frequency, mean, mode, tables, percentages and standard deviation, coefficient of standard deviation and coefficient of variation. The independent variables were considered together in one equation as predictions that relates to dependent variables.

3.9 Ethical Considerations

The researcher collected the data from the selected respondents after receiving permission from the Board of graduates studies and NACOSTI. Permission was sorted also from the management of the sampled TVET institutions in south rift region for collection of data from their respondents. Confidentiality was strictly observed in the course of this research to prevent respondent's physical or psychological harm. The participants were assured that the information obtained from them was kept confidential and was only for the purpose of the research alone. The participants were assured that the data was used only for the stated purpose of the research and that no undesirable person accessed the data. The identity and privacy of the individual was protected.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter dealt with data analysis and interpretation of the findings based on the research objectives. Collected data was analyzed both qualitatively and quantitatively. It was then presented in tables, mean, percentages, standard deviation and frequency distribution tables.

4.2 Response Rate

Out of the 384 questionnaires that were administered, all questionnaires were properly filled and returned back. This indicated a response rate of 100 %. Chen (1996) argues that the larger the response rate, the smaller the non-response error.

4.3 Demographics Information of the Respondents

This section presents and discusses results of descriptive statistics of the demographic characteristics of the respondents. Frequencies and percentages were used to examine the distribution of the respondents.

4.3.1 Age of respondents

Respondents were asked to indicate their ages and their response were as per Table 4.1

Table 4.1

Age of Respondents

Age	Frequency	Percentage (%)
Below 25Years	230	60
25 – 35 Years	104	27
Above 35 Years	50	13
Total	384	100

Source: Research Data (2021)

Table 4.1 shows that a majority of the respondents were of below 25 years of age, with few individuals being above 35 years of age, this depicts that most of the respondents within the TVET institution are youths as described by the constitution that youth is someone below the age of 35 and above 18 years. This demonstrate that majority of youth have joined Technical Institutions to seek for knowledge and skills so as to be able to start up or manage an enterprise.

4.3.2 Gender distribution

Respondents were asked to indicate their gender and the response are as per Table 4.2

Table 4.2

Gender of Respondents

Gender	Frequency	Percentage (%)
Male	211	55
Female	173	45
Total	384	100

Source: Research Data (2021)

The research study utilized a sample that constituted a majority of the male gender (55%), with only 45% being of female gender. This shows that TVET conforms to the two third gender rule as stipulated in the Constitution of Kenya 2010.

4.3.3 Level of education

Respondents were asked to indicate the level of their education and the responses are as per Table 4.3.

Table 4.3

Level of Education

Level of Education	Frequency	Percentage (%)
Primary	100	26.04
Secondary	214	55.73
Diploma and graduates (Principals and tutors)	70	18.23
Total	384	100

Source: Research Data (2021)

The study further found out that the respondents within the TVET institution were majorly secondary school graduates who were 55.73% with only 26.04% being of primary level graduates and the principals and tutors who were diplomas and graduates made a total of 18.23%.

4.3.4 Distribution of respondents by institution

Table 4.4

Distribution of Respondents by Institution

	Sample size		Male		Female	
Institute	Frequency	%	Frequency	%	Frequency	%
Sot TTI	68	17.71	38	55.88	30	44.12
Sotik TTI	86	22.4	50	58.14	36	41.86
Konoin	58	15.1	30	51.72	28	48.28
Maasai TTI	52	13.54	29	55.77	23	44.23
Narok west TTI	83	21.61	49	59.04	34	40.96
Emurua Dikirr TTI	37	9.64	22	59.46	15	40.54
Total	384		218		166	

Source: **Researcher (2021)**

The sample was distributed in the six sampled institutes as in the table 4.4, with majority being from Sotik TTI (22.40%), followed by Narok west TTI (21.61%), the least being those from Emurua Dikirr TTI (9.64%). All the six institutions had male respondents as majority, Emurua Dikirr had the largest gender gap of 18.92%, (Male=59.46%, Female=40.96%), whereas Konoin TTI had the lowest gender gap of 3.44% (male=51.72%, female=48.28%)

4.3.5 Length of course

Respondents were asked to indicate whether the courses were offered in their TVET and the course duration and their response is as per Table 4.5.

Table 4.5

Length of TVET Course

Duration of Course	Courses	Frequency	Percentage (%)
Below 1 years	Short courses	62	15
1 – 2 years	Artisans, craft and certificates	177	48
3 – 4 years	Diplomas	107	28
4 – 6 years	High diploma	38	9
Total		384	100

Source: Research Data (2021)

Majority of the courses within the TVET institution were found to take between 1 and 2 years; 177(48%), followed by courses that take between 3 to 4 years; 107(28%), then those that take below 1 year; 62(15%) and the least being those that take between 4 and 6 years; 38(9%). The higher national diploma takes 4-6 years as required and the length of the courses determines the quality of training on innovative apprenticeship.

4.4 TVET Quality Training

The first objective was to establish the quality of TVET training offered on entrepreneurial development through the GoK entrepreneurial support. Respondents were asked to respond on the extent to which they agreed with the following statement on quality of TVET training. Respondents were asked to indicate the extent to which they

agree with the statements on quality training where responses were rated on a 5 point likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of strongly disagree and disagree were taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of agree and strongly agree was taken to represent a statement highly agreed upon equivalent to a mean score of 2.6 to 5.0. The response is as per Table 4.6.

Table 4.6 reveals that majority of the respondents who were 303 (78.9%) agreed that TVET institutions provide respondents with quality training in their respective areas of specialization with usable skills for entrepreneurial development through GoK entrepreneurial support. The respondents who were 43 (11.2%) disagreed while 38 (9.9%) of the respondents were undecided. The mean for the findings was 3.34 and the standard deviation was 1.52 which implies that TVET institutions provide respondents with quality training in their respective areas of specialization with usable skills for entrepreneurial development.

Majority of the respondents who were 316 (82.3%) agreed that TVET institutions adopt and induce young scholars with research and development skills which are transferable to entrepreneurial development. Respondents who were 36 (9.4%) disagreed and 32 (8.3%) respondents were undecided. The mean of 3.58 and the standard deviation of 1.54 imply that those TVET institutions adopt and induce young scholars with research and development which is transferable skills on entrepreneurial development.

Table 4.6

Quality Training and Entrepreneurial Skills Development

Statement	SD	D	N	A	SA	N	Min	Max	Mean	Std. Dev
TVET institutions provide respondents with quality training in their respective areas of specialization with usable skills for entrepreneurial development through GoK entrepreneurial support.	10 (2.6%)	33 (8.6%)	38 (9.9%)	185 (48.2%)	118 (30.7%)	384	1	5	3.34	1.52
TVET institutions adopt and induce young scholars with research and development skills which is transferable to entrepreneurial development through GoK entrepreneurial support.	7 (1.8%)	29 (7.6%)	32 (8.3%)	186 (48.5%)	130 (33.8%)	384	1	5	3.58	1.54
TVET institutions instill learners with knowledge with technical skills using the right curriculum for entrepreneurial development through GoK entrepreneurial support.	7 (1.8%)	29 (7.6%)	25 (6.5%)	202 (52.5%)	121 (31.4%)	384	1	5	3.62	1.54
TVET institutions use creativity and innovation teaching methodology for entrepreneurial development skills through GoK entrepreneurial support	3 (0.8%)	29 (7.6%)	28 (7.3%)	189 (49.2%)	135 (35.2%)	384	1	5	3.45	1.53
TVET institutions enable learners get usable skills for job creation and self-employment on entrepreneurial development through GoK entrepreneurial support.	7 (1.8%)	29 (7.5%)	39 (10.1%)	183 (47.5%)	126 (32.7%)	384	1	5	3.67	1.51

Source: Research Data (2021)

Respondents who were 323 (83.9%) agreed that TVET institutions instill learners with knowledge with technical skills using the right curriculum for entrepreneurial development while respondents who were 36 (0.4%) disagreed and 25 (6.5%) of the respondents were undecided. The findings of mean were 3.62 and the standard deviation was1.54 which imply that TVET institutions instill learners with knowledge with technical and usable skills using the right curriculum for entrepreneurial development through GoK entrepreneurial support.

TVET institutions use creativity and innovation teaching methodology for entrepreneurial development skills; this is true since majority of the respondents who were 324 (84.4%). Respondents who were 32 (8.4%) disagreed while 28 (7.3%) were undecided. The mean findings of 3.45 and a standard deviation of 1.53 implies that TVET institutions use creativity and innovation teaching methodology for usable skills on entrepreneurial development.

Majority of the respondents who were 309 (80.2%) agreed that TVET institutions enable learners get usable skills for job creation and self-employment on entrepreneurial development. The respondents who were 36 (9.3%) disagreed while 39 (10.1%) of the respondents were undecided. The mean findings of 3.67 and the standard deviation of 1.51 implies that TVET institutions enable learners get usable skills for job creation and self-employment on entrepreneurial development through GoK entrepreneurial support.

4.5 TVET Innovative Skills` Culture

The second objective was to establish the innovative mechanism of TVET training on entrepreneurial development. Respondents were asked to indicate the extent to which

they agree with the statements on innovation where responses were rated on a 5-point likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of strongly disagree and disagree were taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of agree and strongly agree was taken to represent a statement highly agreed upon equivalent to a mean score of 2.6 to 5.0. The response is as per Table 4.7.

Table 4.7 reveals that majority of the respondents who were 320 (83.3%) agreed that TVET institution provide a culture of continuous innovation improving on usable skills on entrepreneurial development. The respondents who were 35 (9.2%) disagreed while 29 (7.6%) respondents were undecided. The mean findings of 3.89 and a standard deviation of 1.79 implies that TVET institution provide a culture of continuous innovation improving on usable skills on entrepreneurial development through GoK entrepreneurial support.

All TVET staffs facilitate learners to acquire technical knowledge and skills on entrepreneurial development; this is true as per the majority of the respondents who were 324 (84.3%) who agreed. The respondents who were 38 (9.9% were disagreed while 22 (5.7%) were undecided. The mean of the findings was 3.83 with a standard deviation of 1.72 which implies that all TVET staffs facilitate learners to acquire technical knowledge and skills on entrepreneurial development through GoK entrepreneurial support.

Table 4.7

Innovative Skills and Entrepreneurial Skills Development

Statement	SD	D	U	A	SA	N	Min	Max	Mean	Std. Dev
TVET institution provides a culture of continuous innovation improving on usable skills on entrepreneurial development through GoK entrepreneurial support.	6 (1.6%)	29 (7.6%)	29 (7.6%)	190 (49.5%)	130 (33.8%)	384	1	5	3.89	1.79
All TVET staffs facilitate learners to acquire technical knowledge and skills on entrepreneurial development through GoK entrepreneurial support.	2 (0.5%)	36 (9.4%)	22 (5.7%)	201 (52.3%)	123 (32.0%)	384	1	5	3.83	1.72
TVET institutions provide learners with varied products innovations through entrepreneurial development through GoK entrepreneurial support.	6 (1.5%)	31 (8.1%)	30 (7.7%)	193 (49.9%)	124 (32.0%)	384	1	5	3.86	1.73
TVET instructors undertake innovation by adopting new processes for developing quality goods and services for entrepreneurial development through GoK entrepreneurial support.	7 (1.8%)	25 (6.5%)	33 (8.6%)	194 (50.5%)	125 (32.6%)	384	1	5	3.95	1.74
TVET instructors make use of re-engineering methods in order to safeguard value preposition in all processes towards entrepreneurial development through GoK entrepreneurial support.	3 (0.8%)	34 (8.8%)	32 (8.3%)	175 (45.6%)	140 (36.5%)	384	1	5	3.79	1.82

Source: **Researcher (2021)**

Majority of the respondents who were 317 (81.9%) agreed that a TVET institution provides learners with varied products innovations through entrepreneurial development. The respondents who were 37 (9.6%) disagreed while 30 (7.7%) of the respondents were undecided. The findings had a mean of 3.86 and a standard deviation of 1.73 which implies that TVET institutions provides learners with varied products innovations through entrepreneurial development through GoK entrepreneurial support

The respondents who were 319 (83.1%) agreed that TVET instructors undertake innovation by adopting new processes for developing quality goods and services for entrepreneurial development. The respondents who were 32 (8.3%) disagreed while 33 (8.6%) of the respondents were undecided. The findings of mean was 3.95 and a standard deviation of 1.74 which implies that TVET instructors undertake innovation by adopting new processes for developing quality goods and services for entrepreneurial development.

Most of the respondents who were 315 (82.1%) agreed that TVET instructors make use of re-engineering methods in order to safeguard value preposition in all processes towards entrepreneurial development. The respondents who were 38 (9.6%) disagreed while 32 (8.3%) of the respondents were undecided. The mean findings of 3.79 and the standard deviation of 1.82 implies that TVET instructors make use of re-engineering methods in order to safeguard value preposition in all processes towards entrepreneurial development through GoK entrepreneurial support.

4.6 ICT Usage for Entrepreneurial Skills Development.

The third objective was to establish the ICT usage of TVET training on entrepreneurial development through GoK entrepreneurial support. Respondents were asked to indicate the extent to which they agree with the statements on ICT usage where responses were rated on a 5-point likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of strongly disagree and disagree were taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of agree and strongly agree was taken to represent a statement highly agreed upon equivalent to a mean score of 2.6 to 5.0. The response is as per Table 4.8.

Table 4.8

ICT Usage on Entrepreneurial Skills Development

Statement	SD	D	N	A	SA	N	Min	Max	Mean	Std. Dev
TVET institutions utilize ICT for knowledge transfer on critical thinking for entrepreneurial development	14 (3.6%)	12 (3.1%)	41 (10.7%)	186 (48.4%)	131 (34.2%)	384	1	5	3.78	1.36
TVET institution have ICT policies used in their curriculum for gaining usable skills on entrepreneurial development	32 (8.3%)	28 (7.3%)	29 (7.6%)	184 (47.9%)	111 (28.9%)	384	1	5	3.33	1.32
TVET institutions have good ICT infrastructure which has led to reduce costs of training on entrepreneurial development	26 (6.8%)	23 (6.0%)	34 (8.9%)	188 (48.9%)	113 (29.4%)	384	1	5	3.39	1.23
TVET institutions use ICT for collaboration and exchange of ideas and transferable skills on entrepreneurial development.	34 (8.6%)	29 (7.6%)	15 (3.9%)	179 (46.7%)	127 (33.2%)	384	1	5	3.81	1.54
TVET institutions make use of ICT on public private partnership linkages for entrepreneurial development	38 (9.9%)	33 (8.6%)	22 (5.7%)	186 (48.4%)	105 (27.4%)	384	1	5	3.29	1.56

Source: **Researcher (2021)**

According to table 4.8 majority of the respondents who were 317 (82.6%) agreed that TVET institutions utilize ICT for knowledge transfer on critical thinking for entrepreneurial development. The respondents who were 26 (6.7%) disagreed while 41 (10.7%) of the respondents were undecided. Mean was 3.78 and standard deviation was 1.36 implying that TVET institutions utilize ICT for knowledge transfer on critical thinking for entrepreneurial development through GoK entrepreneurial support.

Majority of the respondents who were 295 (76.8%) agreed that TVET institution have ICT policies used in their curriculum for gaining usable skills on entrepreneurial development. The respondents who were 60 (15.6%) disagreed while 29 (7.6%) were undecided. The findings had a mean of 3.33 and standard deviation 0f 1.32 which implies that TVET institution have ICT policies used in their curriculum for gaining usable skills on entrepreneurial development.

The respondents who were 301 (78.3%) agreed that TVET institutions have good ICT infrastructure which has led to reduce costs of training on entrepreneurial development. The respondents who were 49 (12.8%) disagreed while 34 (8.9%) of the respondents were undecided. The findings had a mean of 3.39 and a standard deviation of 1.23 which implies that TVET institutions have good ICT infrastructure which has led to reduce costs of training on entrepreneurial development.

Majority of the respondents who were 306 (79.9%) agreed that TVET institutions use ICT for collaboration and exchange of ideas and transferable skills on entrepreneurial development. The respondents who were 63 (16.2%) disagreed while 15 (3.9%) of the respondents were undecided. The findings had a mean of 3.81 and a standard deviation of

1.56 which implies that TVET institutions use ICT for collaboration and exchange of ideas and transferable skills on entrepreneurial development through GoK entrepreneurial support.

Majority of the respondents who were 291 (75.8%) agreed that TVET institutions make use of ICT on public private partnership linkages for entrepreneurial development. Respondents who were 71 (18.5%) disagreed while 22 (5.7%) of the respondents were undecided. The findings mean was 3.29 and a standard deviation of 1.56 which reveals that TVET institutions make use of ICT on public private partnership linkages for entrepreneurial development through GoK entrepreneurial support.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This Chapter dealt with the summary of the study findings, discussion, conclusion, recommendations and the areas recommended for further study in light of data collected and the analysis thereof.

5.2 Summary

The purpose of this study was to establish the role of the technical and vocational education training on entrepreneurial development in south rift region, Kenya. The researcher formulated three objectives. The first objective focused on determining the role of quality training offered by TVET on entrepreneurial development. The second one was to assess the role of innovation mechanisms adopted by TVET institutions on entrepreneurial development and the last one was to examine the extent to which ICT usage by TVET ways a role on entrepreneurial development through GoK entrepreneurial support.

5.2.1 Role of quality training

The findings showed that TVET institutions provide respondents with quality training in their respective areas of specialization with usable skills for entrepreneurial development; they adopt and induce young scholars with research and development skills which is transferable to entrepreneurial development; they instill learners with knowledge with technical skills using the right curriculum for entrepreneurial development; they use

creativity and innovation teaching methodology for entrepreneurial development skills; they use creativity and innovation teaching methodology for entrepreneurial development skills they enable learners get usable skills for job creation and self-employment on entrepreneurial development and that they enable learners get usable skills for job creation and self-employment on entrepreneurial development through GoK entrepreneurial support.

5.2.2 Role of innovative mechanism

The findings showed that TVET institution provide a culture of continuous innovation improving on usable skills on entrepreneurial development; TVET staffs facilitate learners to acquire technical knowledge and skills on entrepreneurial development; they provides learners with varied products innovations through entrepreneurial development; TVET instructors undertake innovation by adopting new processes for developing quality goods and services for entrepreneurial development; they make use of re-engineering methods in order to safeguard value preposition in all processes towards entrepreneurial development; and that they make use of re-engineering methods in order to safeguard value preposition in all processes towards entrepreneurial development through GoK entrepreneurial support.

5.2.3 ICT usage

The findings reveals that TVET institutions utilize ICT for knowledge transfer on critical thinking for entrepreneurial development; they have ICT policies used in their curriculum for gaining usable skills on entrepreneurial development; they have good ICT infrastructure which has led to reduce costs of training on entrepreneurial development;

they use ICT for collaboration and exchange of ideas and transferable skills on entrepreneurial development and that they make use of ICT on public private partnership linkages for entrepreneurial development through GoK entrepreneurial support.

5.3 Conclusions

The study makes the following conclusions;

1. The study concludes that TVET institutions provide quality training in various areas of specialization with usable skills for entrepreneurial development; induce young scholars with research and development skills; instill learners with knowledge with technical; use creativity and innovation teaching methodology that enable learners get usable skills for job creation and self-employment through GoK entrepreneurial support.

2. The study concludes that TVET institution provide a culture of continuous innovation on usable skills; TVET staffs facilitate learners to acquire technical knowledge and skills on entrepreneurial development; they provide learners with varied products innovations; undertake innovation by adopting new processes for developing quality goods and services; they make use of re-engineering methods in order to safeguard value preposition in all processes towards entrepreneurial development.

3. The study concludes that TVET institutions utilize ICT on critical thinking; ICT policies are used in curriculum for gaining usable skills on entrepreneurial development; they have good ICT infrastructure which has led to reduce costs of

training and for collaboration and exchange of ideas through public private partnership linkages for entrepreneurial development.

5.4 Recommendations

The study recommends that;

1. TVET institutions should provide quality training; induce young scholars with research and development skills; instill learners with technical knowledge, creativity and innovation usable skills for job creation and self-employment.

2. The study recommends that TVET institution should provide a culture of continuous innovation on usable skills; provide learners with varied products innovations by adopting new processes for developing quality goods and services through use of re-engineering methods in all processes towards entrepreneurial development through GoK entrepreneurial support.

3. TVET institutions should utilize ICT for critical thinking; adopt ICT policies in curriculum delivery; improve ICT infrastructure in TVET institutions so as to reduce on costs of training and should do collaboration and exchange of ideas through public private partnership linkages so as to strengthen entrepreneurial development.

5.5 Suggestion for Further Studies

Future research could expand the scope of the study and underscore the effects of the research variables individually to deepen knowledge in other government institution such as Universities, research and development centres in the field of entrepreneurial education.

REFERENCES

Abebe (2012). Self-perception of teachers as adult learners and professionals; implications to their practices and professional development. *Ethiopia Journal of a quality and relevant Higher Education and Training*.1 (2).

Adebambo, P. O., Akinlami, J. O., Afolabi, T. A., Karazhanov, S. Z., Ceresoli, D., & Adebayo, G. A. (2017). Elastic constants and mechanical properties of PEDOT from first principles calculations. *Computational Materials Science*, *139*, 234-242.

Akala, W. J., & Changilwa, (2018). Status of Technical and Vocational Education and Training TVET) in Post-secondary Education in Kenya. *Journal of Popular Education in Africa*, *2*(7).

Akumu, C. E., & McLaughlin, J. W. (2014). Modeling peatland carbon stock in a delineated portion of the Nayshkootayaow river watershed in Far North, Ontario using an integrated GIS and remote sensing approach. *Catena*, *121*, 297-306.

Anane, C,A (2013). Competency Based Training: Quality delivery for technical and vocational education and training (TVET) institutions. *Educational Research International*, 2(2).

Anderson, J. R. (2014). *Rules of the mind*. Psychology Press.

Arnstein., Tong, D. C., ... & Forbes, J. M. (2007). Combination therapy with the advanced glycation end product cross-link breaker, alagebrium, and angiotensin converting enzyme inhibitors in diabetes: synergy or redundancy?. *Endocrinology*, *148*(2), 886-895.

Atanasov, A. G., Waltenberger, & Rollinger, J. M. (2015). Discovery and resupply of pharmacologically active plant-derived natural products.

Bagheri, H. (2011). Removal of some cationic dyes from aqueous solutions using magnetic-modified multi-walled carbon nanotubes. *Journal of hazardous materials*, *196*, 109-114.

Basu, A., & Virick, M. (2008). Assessing entrepreneurial intentions amongst respondents: A comparative study. In *Venture Well. Proceedings of Open, the Annual Conference* (79). National Collegiate Inventors & Innovators Alliance.

Blackwell, L., Keech, A., Simes, J., Barnes, E. H., ... & Baigent, C. (2012). The effects of lowering LDL cholesterol with statin therapy in people at low risk of vascular disease: meta-analysis of individual data from 27 randomised trials. *Lancet (London, England)*, *380*(9841), 581-590.

Bunyi, G.W & Mumo K.D. (2015). Competency-based education in Kenya: contending with the imperative for successful implementation. *International conference on "Re-engineering Education for sustainable development*.

Cheng, Y. C. (2006). *New paradigm for re-engineering education: Globalization, localization and individualization* (Vol. 6). Springer Science & Business Media.

Chou, C. & Chen, S. C. (2017). Tertiary respondents' entrepreneurial career intentions of entrepreneurship-embedded internship programs. *Studies in Higher Education*

Constant, A. F., & Zimmermann, K. F. (2014). Self-employ against employment or unemployment: Markov transitions across the business cycle. *Eurasian Business Review*.

European Union (2012). Endgame: glybera finally recommended for approval as the first gene therapy drug in the European union. *Molecular Therapy*, *20*(10), 1831-1832.

Faria, J. R. (2015). Entrepreneurship and business cycles: technological innovations and unemployment. *International Entrepreneurship and Management Journal*.

Ferej, A. Kitainge & Ooko Z. (2012). Reform of TVET teacher education in Kenya overcoming the challenges of quality and relevance. Triennale on education and training in Africa.

Gichuru, M. (2016). The teacher efficacy for inclusive practices (TEIP) scale: Dimensionality and factor structure. *Journal of Research in Special Educational Needs*, *16*(1), 2-12.

GOK (2019) The government encourage the 100% transition of all students in primary school transiting to secondary school in Kenya.

Gordon, J. I., & Knight, R. (2009). Bacterial community variation in human body habitats across space and time. *science*, *326*(5960), 1694-1697.

Guo, Z., & Lamb, S. (2010). *International comparisons of China's technical and vocational education and training system* (Vol. 12). Springer Science & Business Media.

Hao, Y. (2012). *Antennas and propagation for body-centric wireless communications*. Artech house.

Henrekson, (2014). Small business activity does not measure entrepreneurship. *Proceedings of the National Academy of Sciences*.

Hicks, D. G., Dowsett, M., McShane, L. M., Allison, K. H., ... & Hayes, D. F. (2014). Recommendations for human epidermal growth factor receptor 2 testing in breast cancer: American Society of Clinical Oncology/College of American Pathologists clinical practice guideline update. *Archives of Pathology and Laboratory Medicine*, *138*(2), 241-256.

Hooker S. Waweru and D. Clark (2011). TVET ICT baseline survey report 2011 TVET institutions Kenya.

Kaaya, P.B (2012). The importance of competency based education and training (CBET) on collaboration conference program. Arusha Tanzania.

Kamau, S.M. (2013). Challenges affecting the technical and vocational education training youth polytechnics in Kiambu, Kenya. *International Journal of Human Resource and procurement* .

Kelemba, J. K., Konayuma, G. S., Phiri, M. L., & Simiyu, J. W. (2010). Integrating sustainable development in technical and vocational education and training. In *Six Case Studies from Southern and Eastern Africa*. UNESDOC Digital Library.

Kintu, D., Kitainge, K. & Ferej, A. (2019). An exploration of strategies for facilitating graduates' transition to the world of work: a case of technical, vocational education and training graduates in Uganda.

Kirchberger, S., Tjaden, J., & Ekkehard Neuhaus, H. (2008). Characterization of the Arabidopsis Brittle1 transport protein and impact of reduced activity on plant metabolism. *The Plant Journal*, *56*(1), 51-63.

Koellinger, & Roy Thurik, A. (2012). Entrepreneurship and the business cycle. *Review of Economics and Statistics*.

Koellinger, P. D., & Roy Thurik, A. (2012). Entrepreneurship and the business cycle. *Review of Economics and Statistics*, *94*(4), 1143-1156.

Koellinger, P., & Minniti, M. (2009). Unemployment benefits crowd out nascent entrepreneurial activity. *Economics Letters*.

Lamballais & Thurik, A. R. (2012). The relation between different kinds of nascent entrepreneurship and the business cycle. In *Entrepreneurship, Norms and the Business Cycle, Swedish Entrepreneurship Forum Report*.

Lauren K. (2014. Factors influencing female and respondents' enrolment in technical course; A case of Matili Nairobi.

Locke, E. A. (2007). The case for inductive theory building. *Journal of management*, *33*(6), 867-890.

Makari-Judson, G., Braun, B., Jerry, D. J., & Mertens, W. C. (2014). Weight gain following breast cancer diagnosis: implication and proposed mechanisms. *World journal of clinical oncology*, *5*(3), 272.

Mbiti, I. M. (2014). Effects of school quality on student achievement: Discontinuity evidence from kenya. *American Economic Journal: Applied Economics*, *6*(3), 234-63.

Medugu, J. & Abubakar, B. (2013). Employers' perception of the role of technical vocational education and training in sustainable development in Nigeria Vocational and technology education programme.

Mohonja, E. (2011). Factors influencing low female respondents enrollment in science based course in tertiary institutions in Western Province.

Mokhtar, & Zainuddin, Y. (2016). Psychological Characteristic and Entrepreneurial Intention: The Mediation Effect of TPB. In *6th National Conference on Education Technical And Vocational in Education And Training.*

Moktar., Ithoi, I., Abdulsalam, A. M., Dawaki, S., Nasr, N. A., ... & Surin, J. (2016). A tale of two communities: intestinal polyparasitism among Orang Asli and Malay communities in rural Terengganu, Malaysia. *Parasites & vectors*, *9*(1), 1-17.

Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological science*, *25*(6), 1159-1168.

Mueller, S., & Anderson, A. R. (2014). Understanding the entrepreneurial learning process and its impact on respondents' personal development: A European perspective. *The International Journal of Management Education*.

Mugenda O. and A. Mugenda.[2014]Research Methods of Quantitative and Qualitative Approaches. Nairobi; Acts Press, 2003, 55-83.

Mumo, M., Holleran, J., ... & Yenesew, A. (2015). Rotenoids, flavonoids, and chalcones from the root bark of Millettia usaramensis. *Journal of natural products*, *78*(12), 2932-2939.

Muthima, P.W (2015). Private rates of return to investment in technical education; A case of manufacturing industries in Thika, Kiambu County, Kenyatta University; Unpublished thesis.

Mwangi, P.M (2011). Factors affecting respondents perceived brand quality of a technical Training institute a survey in Nairobi metropolitan, Nairobi; University of Nairobi.

Mwengi, E. M. & Karimi, P. N. (2019). Antihypertensive therapy and adequacy of blood pressure control among adult hypertensive diabetic patients with chronic kidney disease in a tertiary referral hospital. *Hospital Practice*, *47*(3), 136-142.

Mwinzi, & Kelemba (2010). Access to and retention of early school leavers in basic technical education in Kenya. In *The burden of educational exclusion* 241-256.

Nalianya, R.M (2011). Factors influencing career choices by respondents in tertiary institutions in Kenya. A case of youth polytechnics in Bungoma County Kenya. Nairobi.

Nasharudin, N., & Harun, H. (2010). Entrepreneurial career aspirations among IPTA respondents. *Journal Pendidikan Malaysia| Malaysian Journal of Education*.

Nduku, S., Maleche-Obimbo, E., Jaoko, W., Babigumira, J., ... & Rao, D. (2017). Stakeholder perspectives for optimization of tuberculosis contact investigation in a high-burden setting. *PloS one*, *12*(9), e0183749.

Ngatia, C. M. (2012). Assessment of grain damage and weight loss on farm stored maize in highlands areas of Bungoma district, Kenya. *Journal of Agricultural Science and Technology. B*, *2*(3B), 349.

Ngatia, P., Settle, D., ... & Al Shorbaji, N. (2013). Leveraging information technology to bridge the health workforce gap. *Bulletin of the World Health Organization*, *91*, 890-892.

Ngatiah, (2006) Postsecondary technical and vocational education institutions in Kenya; Needs and challenges, *International journal of vocational educational and training*.14 (I).

Ngure, S.W. (2013). Stakeholder's perceptions of technical, vocational education and training the case of Kenya Micro and small enterprises in the minor vehicle service and repair industry unpublished MA thesis. Edith Cowan University.

Njoroge, W. F. (2017). Impact of postpartum mental illness upon infant development. *Current psychiatry reports*, *19*(12), 1-6.

Njuguna, B.G (2011). Secondary school student's attitudes towards enrolment in youth polytechnics. The case of Bibirioni location –Limuru. Nairobi; University of Nairobi.

Ocharo, R. M. (2019). Social Isolation and Food Insecurity: The Case of Rural Old People in Yatta Constituency, Kenya.

Ogola, S., & Umuro, M. (2014). Prevalence and incidence of HIV infection, trends, and risk factors among persons aged 15–64 years in Kenya: results from a nationally representative study. *Journal of acquired immune deficiency syndromes (1999)*, *66*(Suppl 1), S13.

Ollila, Williams Middleton, K. (2011). The venture creation approach: integrating entrepreneurial education and incubation at the university. *International Journal of Entrepreneurship and Innovation Management*.

Ooko, J. A. (2012). *Challenges faced by the boy-child in education in Kibera Informal Settlement* (Doctoral dissertation, University of Nairobi, Kenya).

Parker, S. C. (2012). Theories of entrepreneurship, innovation and the business cycle. *Journal of Economic Surveys*.

Pinkwart, N., & Aleven, V. (2009). Concepts, structures, and goals: Redefining ill-definedness. *International Journal of Artificial Intelligence in Education*, *19*(3), 253-266.

Sbicca, J (2016). These bars can't hold us back: Plowing incarcerated geographies with restorative food justice.

Schumpeter, J. A. (1991). *The economics and sociology of capitalism*. Princeton University Press.

Shuria, H. A. (2015). *The influence of strategic leadership on humanitarian aid delivery effectiveness in Somalia* (Doctoral dissertation, United States International University-Africa).

Simiyu, J. W. (2009). Revitalizing a technical training institute in Kenya: A case study of Kaiboi technical training institute, Eldoret, Kenya. *Case studies of tvet in selected countries*.

Sulivan, R (2015) Curriculum based education and training (CBET).Vol.5,2, April-June (2015).

Tarno E.Simiyu and Rono A (2017). Emerging trends and challenges in TVET in Sub-Saharan Africa. Rift Valley Technical Training Institute.

UNESCO (2015). Girls and women in science, Technology, Engineering and mathematics in Asia. Korean Women's Development institute (KWDI); Bangkok, South Korea.

Wagah, G. G., Onyango, G. M., & Kibwage, J. K. (2010). Accessibility of water services in Kisumu municipality, Kenya.

Waweru, S. M., Connor, S. J., & Thomson, M. C. (2011). Raised temperatures over the Kericho tea estates: revisiting the climate in the East African highlands malaria debate. *Malaria Journal*, *10*(1), 1-16.

Weber, M. (2010). *La acción social: ensayos metodológicos*. Barcelona: Península, 1984.

Wheelahan, L., & Curtin, E. (2010). The quality of teaching in VET: overview. Melbourne, VIC: LH Martin Institute for Higher Education Leadership and Management, Melbourne Graduate School of Education.

Yasin, A. Y. M., Mahmood, (2011). Respondents' Entrepreneurial Inclination at a Malaysian Polytechnic: A Preliminary Investigation. *International Education Studies*.

Yuserrie, F. A. H., Abdul Munir, F. F., & Hasbullah, M. N. (2020). The Essential Items Needed in a Grab Bag by Flood Victims in Kuala Krai, Kelantan. In *Charting a Sustainable Future of ASEAN in Business and Social Sciences* (pp. 435-441). Springer, Singapore.

Zhou & Cai (2014). The Impact of Employee Competence on Organizational Agility: the Mediating Role of IT Alignment.

APPENDICES

Appendix I Questionnaires

Dear Respondent,

I am a Postgraduate student at University of Kabianga doing a research on the role of TVET in entrepreneurial development. I will be pleased to get your response to the following questions. The question will help in accomplishing the objective of the research.

Respond by ticking [ ] in the spaces provided as appropriate.

Your responses will be treated confidentially during and after the research.

Section A: Background Information

1. Your age? Below 25 years[ ] 25 – 35 [ ] Above 35yrs [ ]
2. Your gender? Please tick Male [ ] Female [ ]
3. What is the level of your education? Primary [ ] Secondary [ ]
4. In which institution are you in? ……..
5. How long do most courses take in your TVET?

   Below 1 year [ ]

   1 -2 years [ ]

   3 – 4 years [ ]

   4 – 6 years [ ]

SECTION B: Quality Training

Tick appropriately to responds to the following statement that reflect the quality training, innovative skills and ICT knowledge in TVET institutions. **Key**: (SD)-Strongly Disagree, (D)-Disagree, (U)-Undecided (A)-Agree, (SA)-Strongly Agree.

Statement	SD	D	U	A	SA
TVET institutions provide respondents with quality training in their respective areas of specialization with usable skills for entrepreneurial development through GoK entrepreneurial support.					
TVET institutions adopt and induce young scholars with research and development which is used to initiate transferable skills on entrepreneurial development through GoK entrepreneurial support					
TVET institutions instill learners with knowledge with technical skills and usable kills using the right curriculum on entrepreneurial development through GoK entrepreneurial support					
TVET institutions use creativity and innovation teaching methodology of new process on entrepreneurial development through GoK entrepreneurial support.					
TVET institutions enable learners get usable skills for job creation and self-employment on entrepreneurial development					

SECTION C: Innovative Skills

Statement	SD	D	U	A	SA
TVET institution provide a culture of continuous innovation improving on usable skills on entrepreneurial development					
All TVET staffs facilitate learners to acquire technical knowledge and usable skills on entrepreneurial development through GoK entrepreneurial support.					
TVET institutions provide learners with usable skills in making various products and services through innovations on entrepreneurial development through GoK entrepreneurial support.					
TVET instructors undertake innovation by adopting new processes for developing quality goods and services on entrepreneurial development					
TVET instructors make use of re-engineering methods in order to safeguard value preposition in all their processes towards entrepreneurial development through GoK entrepreneurial support.					

SECTION D: ICT Usage

Statement	SD	D	U	A	SA
TVET institutions utilize ICT for knowledge transferring skills on critical thinking for entrepreneurial development					
TVET institution have ICT policies used in their curriculum for gaining usable skills on entrepreneurial development through GoK entrepreneurial support					
TVET institutions have good ICT infrastructure which has led to reduce costs of training and networking on entrepreneurial development through GoK entrepreneurial support					
TVET institutions use ICT for collaboration and exchange of ideas and transferable skills on entrepreneurial development.					
TVET institutions make use of ICT on public private partnership linkages and networking on entrepreneurial development through GoK entrepreneurial support					

Appendix II Location of the study, Map of South Rift, Kenya

Appendix III Clearance Letter

UNIVERSITY OF KABIANGA

ISO 9001:2015 CERTIFIED

OFFICE OF THE DIRECTOR, BOARD OF GRADUATE STUDIES

REF: MBA/A/009/17 **Date: 10th December, 2020**

David Gideon Cheruiyot,
Marketing, Mgt Sci, Hospitality & Tourism Department,
University of Kabianga,
P.O Box 2030- 20200,
KERICHO.

Dear Mr. Cheruiyot,

RE: CLEARANCE TO COMMENCE FIELD WORK

I am glad to inform you that the Board of Graduate Studies during its meeting on 12th February, 2020 approved your research proposal entitled **"The Role of Technical and Vocational Education Training in Entrepreneurial Development in South Rift Region, Kenya."**

I am also acknowledging receipt of two copies of your corrected Proposal.

You are now free to commence your field work on condition that you obtain a research permit from NACOSTI.

Please note that, you are expected to publish at least one (1) paper in a peer reviewed journal before final examination (oral defence) of your Masters thesis.

Thank you.

Yours Sincerely,

UNIVERSITY OF KABIANGA BOARD OF GRADUATE STUDIES 10 DEC 2020

Prof. J. K. Kibett
DIRECTOR, BOARD OF GRADUATE STUDIES.

cc 1. Dean, SBE
2. HOD, Marketing, Mgt Sci, Hospitality & Tourism
3. Supervisors

Appendix IV Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **335833**

Date of Issue: **15/December/2020**

RESEARCH LICENSE

This is to Certify that Mr.. Duvid G Kipkoske Cheruiyot of University of Kabianga, has been licensed to conduct research in Bomet on the topic: The Role of Technical and Vocational Education Training in Entrepreneurial Development in South Rift Region, Kenya for the period ending : 15/December/2021.

License No: **NACOSTI/P/20/8242**

335833

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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Appendix V Publication