DETERMINANTS OF EFFICIENCY IN SKILLS DEVELOPMENT THROUGH VOCATIONAL EDUCATION AND TRAINING (VET) IN KISII COUNTY, KENYA.

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ABSTRACT

Training is an indispensable important process that has as the potentialities to shape and determine the destiny of a country's social-economic development agenda. This main objective of the study was to examine the influence of an enabling delivery environment on efficiency in skills development at Vocational Education Training (VET) institutions in Kisii County in Kenya. Data were collected from 317 participants in VET institutions as well as the county education officers through questionnaires. Qualitative and quantitative techniques were employed for data analysis. The findings showed that majority of the respondents were in agreement that there exists a strong positive relationship between an enabling delivery environment and efficiency in skills development at VET institutions. However, majority of the participants confirmed that these training institutions did not have adequate infrastructural facilities, instructional resources, tools and equipment, teaching and learning resources and facilities. The findings have implications on the key education stakeholders involved in designing TVET sector plans and policies. They have to consider provision of such resources and facilities when planning and implanting skills development programmes and activities.

Key Words: Training, enabling environment, skills and efficiency.

INTRODUCTION

Skills development fuels innovation, economic investment, social and occupational mobility. Therefore, training institutions focus on the production of graduates with practical knowledge, employable skills, values, and attitudes needed in modern sector firms and micro and small enterprises. In a report on report on *Indicators of Skills for Employment and Productivity,* UNESCO confirms that adequately trained and qualified human capital contributes significantly to increased productivity and economic returns (UNESCO, 2013).

Fundamentally, most developed and developing countries have made deliberate to strategically investment in the TVET sub sector to mitigate gaps in skills development process to respond to the changing labour market needs.

Consequently, investment in TVET is in line with Sustainable Development Goal 4 (SDG4) whose focus is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Among its priority targets by 2030 are to ensure equal access for all people to affordable and quality technical and vocational education; and to increase the number of youths and adults who have relevant technical and vocational skills for employment, decent jobs, and entrepreneurship (UNESCO, 2016). The implication in this context is that access to quality technical, vocational education and training education (TVET) is an important enabler for realization individual and societal goals and aspirations.

Researchers have confirmed that the motive behind investment in skills development by individuals and society is to reap economic and social returns in the future (Mincer, 1997; Shultz, 1993; and Becker, 1993) Therefore, the implication is that training institutions should provide a favourable training environment that can enable graduates to acquire practical knowledge, skills, attitudes and social values that can generate economic and social outcomes.

The TVET sector should promote quality training to ensure that the supply of skilled human capital meets the changing labour market needs. In a report on *Economic Return to Investment in Education and TVET,* UNDP demonstrates that investment in skills development is critical in enhancing the production of skilled and knowledgeable graduates needed in modern sector firms and micro and small enterprises. Consequently, it is imperative for countries to find suitable and sustainable strategies for mobilization of training inputs such as infrastructural facilities, instructional materials, tool and equipment, human and financial resources (UNDP, 2019).

In the same vein, Reports by European Commission and European Centre for the Development of Vocational Training confirm that these countries such as United States, Canada, Germany, Belgium, England, Finland, China, India, South Korea, and Singapore have adopted investments in TVET as a powerful strategy of supplying the economy with skilled human capital. As a result, the countries have achieved remarkable progress in economic growth, reduction of poverty, social inequality, and unemployment (European Commission, 2002; Cedefop, 2014).

However, the Cedefop Annual 2013 report notes that while the policy formulation process paid attention to the youths, findings of OECD's Programme for International Assessment of Adult Competencies (PIAAC) survey confirmed that serious skills deficits among Europe's working age population. Consequently, the report noted that there was need to strategically address the skills mismatch as well as deal with provide capacity building initiatives to retool the ageing labour force t with technological and organisational developments.

In a report on *Learning to Realize Education's Promise* World Bank confirms that vocational and technical skills are required in almost 80% of occupations and employment related opportunities. Similarly, the TVET graduates are absorbed into the labour market faster than those with general higher education. Similarly, graduates with TVET qualifications are more likely to get employment opportunities immediately after graduation compared to those with general education with same qualifications (World Bank, 2018). In view of the role of TVET in employment, a study conducted by UNDP (2019) on the relationship between the economic returns of investments in education and technical vocational education and training revealed that a TVET graduates with a bachelor in civil engineering earn an average monthly wage of US$467 whilst a graduate with general higher education earns an average monthly wage of US$573.

The implication of these studies is that the quality of the training in technical and vocational institutions is critical in enhance economic returns to individuals and society in general. A study conducted by Audu at. El. (2013) on *Provision of Workshop Tools and Equipment* confirms that TVET is globally acknowledged as strategic training that can enhance sustainable development. In this context, private and social benefits that accrue from investments in the TVET sector can only be enjoyed if the quality of skills developed meet the labour market needs. Therefore, this situation calls for availing appropriate instructional resources, workshop tools and equipment that are essential to promote, nurture and develop the skills and competencies needed in the labour market through effective implementation the TVET curriculum.

These findings agree with Rothschild (2013) and Azemati et al. (2013) who argue that TVET institutions need to have adequate infrastructural facilities, instructional materials, tools, equipment, human and financial resources m to enable them to have the capacity to nurture and develop practical knowledge skills and competencies. Countries such as Canada, Colombia, India, and Israel have made remarkable efforts to leverage private financing to channel resources to the provision of social services

like education. Hence, these efforts have led to the emerging of social impact bonds and human capital performance bonds. In such cases, the governments allow the private sector players to create social impact through their investments in education and TVET while realizing economic or financial returns.

However, studies have shown that in many Sub-Saharan Africa countries the TVET sector is underfunded. Uzoagulu (1993) study in Nigeria revealed that insufficient budgetary allocations by the Federal government to the TVET sector has been one of the causes of inadequate workshop facilities. Hence, practical skills cannot be acquired in training institutions that are characterized by inadequate non-functional workshops without appropriate tools, equipment, and machines. These findings are further supported by Adekunle's that was study conducted in 2019 *on funding effectiveness of TVET in Nigeria* which established that the country would continue to face problems in addressing unemployment and bridging the skills gaps unless special attention is given the provision of quality education especially TVET. Therefore, it is explicit that the provision of financial resources is paramount to enable vocational training institutions to acquire the necessary facilities and instructional materials required to improve the quality of the graduates.

A study conducted on *trends and issues in technical and vocational education and training by* Oketch in 2007 in some selected countries in Africa found out that governments are the major financiers of TVET programmes. The study further noted that provision of adequate qualified staff, instructional materials, and equipment depend on adequate funding of the TVET sector. Nonetheless, a study conducted by Monika in 2012 on *Technical and Vocational Education and Training* showed that the TVET sector is underfunded in majority of countries in Sub Saharan Africa. The findings further revealed that low public sector budgets for skills development have made it difficult to provide adequate human resources, physical infrastructural facilities, and training equipment.

The Government of Kenya recognizes the strategic role the education and skills development play in overall national development. The *Kenya Vision 2030* is anchored on the premise that the country needs to become a newly industrialized middle-income country providing high quality of life to all citizens. Consequently, the vision underscored that strategic investment in skills development is critical in the government's efforts towards revamping and revitalizing the industrial, manufacturing and agro- processing sectors of the economy (RoK, 2008).

In addition, strategic investment in skills development is within the framework of the National Education Sector plan (NESP) 2013 to 2017. The plan underscores that the youths and adults will receive quality education and lifelong services which are relevant and responsive to the changing labour market needs (RoK, 2014). Therefore, to enhance the effective realization of the national development goals and priorities, it is critical to have a strong focus on providing opportunities for access to technical, vocational and other specialized skills for all.

On the education reform implementation agenda, the NESP 2018 to 2022 focuses on improving access and participation, equity and inclusiveness, quality and relevance. This strategic plan confirms that the national government allocated about 5.3% of the GDP to the education sector. This commitment by the government led to a remarkable increase in the number of TVET institutions from 700 in 2013 to 1,300 in 2018. Similarly, enrolment grew by 92.5% from 148,009 in 2013 to 363,884 in 2018. Similarly, over the same period, enrolment in Vocational Training Centres alone grew from 71,569 in 2013 to 114,484 in 2018. However, *Sessional paper No. 1 of 2019* demonstrates that the TVET sub sector has not been able to produce adequate and well-trained middle level human capital needed to ensure effective execution of the engineering and technology function within the Kenyan economy. Asa a matter of fact, the capacity of these vocational education and training institutions to provide training opportunities for all deserving potential trainees' is wanting. A number of Ministry of Education reports referred herein have revealed the available most TVET institutions have inadequate training facilities, irrelevant curriculum and financial resources to meet the demand of potential trainees (RoK 2009; MoEST 2012; RoK 2014).

> In Kisii County, anecdotal evidence showed that majority of the vocational education and training institutions have inadequate instructional resources, basic infrastructural facilities such as workshops, classrooms toilets, tools and equipment. A baseline survey conducted on *strengthening vocational education and training in Kisii County* also found out that majority of the VTCs had inadequate human and financial resources, and dilapidated infrastructural facilities (Riechi et al, 2014). In addition, a review of the *2015/2016 Kenya Integrated Household Budget Survey* (KIHBS) report revealed that Kisii County is ranked to be one of the poorest counties in Kenya with a poverty index of 44.5% compared to the national figure of 32%. The *2020/2021 Kisii County Annual Development Plan* report revealed that of poverty and unemployment remain the main challenges.

However, despite these evidence, skills development was not one of the five strategic areas that was identified in the *2020/2021 Kisii County Annual Development Plan* as a key driver to spur economic growth to enhance socioeconomic development (County Government of Kisii (2019). In this regard, there are serious gaps in the existing information to inform policy and decision-making process to enhance effective investment in skills development in the county. Similarly, lack of prioritisation of the vocational education and training by the County Government has serious implications on budgetary allocations to the VET institutions which if not urgently addressed is likely to negatively affect both the recurrent and capital expenditure. As a result, the vocational education and training institutions would lack the financial muscle to provide infrastructural facilities as well as improve dilapidated ones, capacity to provide sufficient instructional resources, tools and equipment needed to ensure quality training.

In this regard, the study focused on determinants that influence efficiency in skills in Kisii County in Kenya, Hence, data on delivery environment were collected and analysed. The aim was to provide recommendations that could assist in enhancing efficiency in development of skills at VET institutions in the County.

Because, unless urgent interventions are made, skills development will remain a dream for many years with far reaching ramifications.

REVIEW OF RELATED LITERATURE

TVET plays a vital role in human capital development of a country. A study conducted on *Aid for Skills Development* in South Korea by Hong and Kyu in 2012 found out that expansion of TVET institutions, provision of state of the earth training equipment, and conversion of policies regarding TVET through legislation has been instrumental in promoting skills development in South Korea. As a result, the country has moved from being one of the poorest nations in the world in the 1960s to become the world's largest economy. In the same vein, a report by ADB in 2012 on *Innovative Strategies for Accelerated Human Resource Development* pointed out that strategic investments in skills development through provision of adequate teaching learning resources and infrastructural facilities over the years has yielded positive outcomes in East Asian tiger economies and OCD countries. Consequently, the supply of skilled labour force has played a significant role in sustaining high economic growth and gradual transition to a knowledge economy in these countries.

Further, a study conducted on *teaching and teacher education* in 2016 by Darling-Hammond found out that pedagogical methods employed by instructors during the implementation of the TVET curriculum plays a key role in influencing the quality of training. The findings further confirmed that the effectiveness of all education systems depends critically on the quality of teaching and learning in the classrooms, workshops, laboratories and other spaces in which the education takes place.

This position of improving the quality of training through employing appropriate pedagogical methods in agreement with Mangwiro's 2016 study in Zimbambwe on *implementation of Competency Based Education and Training (CBET) curricula.* The study findings revealed that teaching and learning in TVET ought to be applied with the best teaching methods for effective result. These studies have shown that employing suitable learner-centered pedagogical techniques by trainers is critical in enhancing attainment of learning outcomes.

However, Ahmed's study in 2011 in Sudan on capacity building of teachers revealed that just like other African countries, TVET teachers are recruited from artisans, tradesmen, technicians and engineers. The findings pointed out that majority of these teachers have not undertaken a diploma in education to adequately prepare them for teaching the subjects. The study recommends that there is need for teacher professional development policy formulation, planning and development by the top notch trained TVET experts. Therefore, it can be deduced that it is instrumental for trainers to employ innovative pedagogical methods to assist the trainees to in depth knowledge, practical skills, competencies, attitudes and values. Although skills development is considered a key element in promoting sustainable development in all African countries, most countries have not made adequate investment in the TVET sector.

A comparative analysis study conducted on *Technical and Vocational Education and Training Policy* by Arfo in 2015 revealed that, in South TVET graduates were not adequately equipped with relevant skills to meet the changing labour market need and expectations. This situation was associated to inadequate teaching learning facilities and qualified teachers. Afro's comparative study also found out that Ghana's TVET philosophy was based on the development of a training system capable of producing responsive and internationally competitive workforce through Competency-Based TVET Approach. However, the findings revealed that TVET lecturers were not prepared for the competency-based education and training.

As a result, skills acquired by graduates of technical and vocational education and training were not responsive to the needs of the industry. The findings further revealed that in Nigeria that most of the training institutions experienced shortage of instructional resources, facilities and adequately trained instructors. As a result, the TVET systems did not adequately prepare the graduates to meet the labour market needs and aspirations.

A study conducted in Nigeria on repositioning of facilities s in 2010 by Umar and Ma'aji established that the training facilities such as tool and equipment were in dilapidated state and poorly maintained. The findings further revealed that there were no plans to acquire new ones by either the federal government or other key education actors. A study conducted on teaching and learning facilities in Nigeria by Momo (2012) revealed that the inferior quality of TVE was attributed to lack of modern physical infrastructural facilities such as laboratories and workshops in almost 60% of the institutions. These findings were supported by Afro (2015) study in Nigeria which revealed that most of the training institutions experienced shortage of instructional resources, facilities and adequately trained instructors. As a result, the TVET systems did not adequately prepare the graduates to meet the labour market needs and aspirations.

Further, Okolie and Asfa (2017) in their study in Nigeria also noted that most of the TVET institutions experienced huge shortages of qualified academic staff more particularly in science and technology disciplines. These finding were reinforced by s study conducted on improving TVET graduate outcomes in Nigeria in by Okolie at.el. 2019 pointed out that low academic achievements and inferior quality of training by student was attributed to inadequate tools, equipment and funding for technical colleges by the federal government.

According to Asiyai, (2012). Physical facilities are essential in enhancing teaching and learning. These facilities enable effective realization of institutional education and training objectives. Hence the facilities enable the institutions to achieve meaning results and outcomes. A study conducted on Provision of Workshop Tools and Equipment by Audu, et el., (2013) demonstrated that infrastructural and instructional resources play an important part in supporting and enhancing the delivery of quality training. The findings further revealed that instructional resources are considered critical for effective implementation of the TVET curriculum in Nigeria. Therefore, adequacy of facilities and resources can assist for TVET institutions to improve the academic performance as well acquisition of demonstrative skills required in the world of work.

In Kenya, Technical Vocational Education and Training institutions have also been characterized by insufficient physical training facilities, human and financial resources. Hence, the country efforts to improve the processes of skills development for realization *Kenya 2030 Vision* remains a major challenge. In the Government report *on a rapid appraisal on the status of technical and vocational education and training* the objective of TVET was to provide requisite technical knowledge and vocational skills to enable the youths participate in national development (GoK, *2003).*

Similarly, *Sessional Paper No.1of 2005 on A Policy Framework for Education, Training and Research emphasizes that* the objective of TIVET is to provide and promote lifelong education and training for self-reliance (GoK, *2005).* However, *Sessional Paper No.1* of 2019 noted that some the problems experienced in training institutions is inadequate facilities, inadequately trained instructors, insufficient and dilapidated physical facilities, tools and equipment. Despite the policy interventions that were recommended to mitigate these problems, implementation has been viewed to be slow, inadequate and inconsistent (GoK, *2005;* (GoK, *2019).*

On the other hand, a study conducted on *stakeholders' perceptions towards TVET* in Kenya by Ngure in 2013 revealed that inadequate infrastructural facilities, poor working condition, insufficient tools and equipment TVET institutions hindered effective transfer of practical knowledge and employable skills from training institutions to the world of work. In addition, the *Sessional Paper No. 1 OF 2019 on a Policy Framework for Reforming Education and Training for Sustainable Development in Kenya* provided further emphasis that the TVET subsector provided opportunities for the youths to acquire skills needed to enhance industrialization. However, the paper revealed that despite the milestones made in promoting access and quality, subsector is characterized by low enrolment and retention rates, insufficient TVET institutions and inadequate instructional materials, tools and equipment. Nonetheless, the government has not adequately managed to implement the proposed policy intervention to enhance equitable access and quality.

Further, the ADB (2020) project on Technical and Vocational Education and Entrepreneurship in Kenya was designed to enhance access, quality and relevance. The project was envisaged to address specific needs in the TVET subsector with an aim of enhancing employability and competiveness of youths in Kenya through improving inclusive access and quality of training. Consequently, the project focuses on

increasing the number of workshops, classroom and other facilities by 2025. However, anecdotal evidence has shown that majority of the vocational education and training are still inadequately equipped to mitigate the quality concerns of the VET institutions.

In view of this observations, it can be deduced that TVET delivery environments are inappropriate in promoting skills development in Kenya in particular, and many developing countries in general. Basically, several studies have demonstrated that provision of adequate instructional materials and resources, state of the earth physical facilities, and equipment require huge sums of financial resources. Teachers who are competent and knowledgeable in both practical and theory play a significant role in skills development. Pedagogical skills enable the teacher to organize the entire teaching learning process more logically and interactively to enhance skills acquisition. Employing unqualified teachers, therefore, is likely to result into the production of unqualified graduates. Unless this situation is urgently addressed, skills development will remain a mirage (Audu, at el., 2013; ADB, 2020)

In summary, these studies have revealed that that the poor quality of training in TVE systems in various countries can be attributed to insufficient qualified instructors, outdated tools and equipment, and inadequate instructional in essence therefore, effective implementation of the TVET curriculum can be enhanced through the provision of adequate and qualified instructors, suitable workshop tools and equipment, and sufficient and relevant instructional materials. Therefore, infrastructural facilities, human resources, tools and equipment in TVET institutions serve as strong pillars of support for quality and effective teaching and learning processes. Review of relevant related literature revealed that there was not adequate documented evidence in Kisii County to demonstrate the commitment of the government to address the problems affecting skills development at vocational education and training institutions.

METHODS AND MATERIALS

The study employed a correlational research design. The main purpose of a correlational study is to determine relationships between variables, and if a relationship exists, to determine a regression equation that could be used make predictions to a population. This design assisted in collection of significant amounts of data from the population using structured questionnaires, interviews, and document analysis guide, The process of data collection was comprehensive which assisted in doing an in-depth description and analysis of the opinions, comprehension and attitudes

of the respondents without manipulation of the study variables. The total sample size was 317 participants. Questionnaires were used to collect data from principals, instructors and trainees from seventeen vocational education and training institutions. On the other hand, structured interview schedules were used to collect data from the County Executive Committee Member for Education, the County and Sub County Directors of Education, and the School Auditors. Qualitative and quantitative techniques were employed for data analysis.

RESULTS AND DISCUSSIONS

The purpose of the study was to examine the influence of an enabling delivery environment on efficiency in skills development at vocational education and training institutions in Kisii County in Kenya. The study sought responses from the respondents on human resources, physical facilities, tools and equipment, workshops, laboratories and libraries to determine their effects on enrolment rates, participation rates and quality of training at VTCs.

In this respect, the study sought to establish the instructors' views on the following statements regarding an enabling delivery environment in Public TVET institutions. The instructor's findings are presented in Table 1.

Table 1: Instructors' Views on Enabling Delivery Environment in TVET

Statement	**N**	**Mean**	**Std. Deviation**
The centre has suitable facilities	51	3.1902	.70349
The instructors are highly qualified technical workforce	51	3.3137	.54736
There is good management	51	3.1176	.68256
The internship programmes are good	52	3.3269	1.06128
The curriculum adequately prepares students for the job market	52	3.1923	.68709
There is inadequate provision of teaching-learning materials	51	4.2157	.90142
Government policies ensure adequate funding for VET	48	4.1923	.68709
There is adequate provision of equipment and tools	51	3.1667	.08934
Valid N	**52**		

Scale Mean	**Description**
1.00 to 1.79	Strongly Disagree
1.80 to 2.59	Disagree
2.60 to 3.39	Moderate
3.40 to 4.19	Agree
4.20 to 5.00	Strongly Agree

The findings in Table 1 also demonstrates that majority of the instructors agreed that most of the vocational education and training institutions did not have adequate teaching and learning materials as demonstrated by mean of 4.1923 and supported by standard deviation of 0.90142. This finding is compatible with TVET (2018) that confirmed that the low-quality training could be attributed to inadequate equipment and instructional resources. Similarly, the result concurs with that Kailani, Gyallesu & Yaro's (2017 that found out that of provision of adequate and appropriate training tools and materials, facilities and equipment is critical in enhancing quality in skills development.

On the same vein, majority of the instructors confirmed that that the County Government did not have well designed policies to ensure adequate funding for VET institutions. These findings mean that insufficient instructional materials could be attributed to the fact the vocational education and training institutions lacked the financial capacity due to low funding from the County Government. The findings also imply that instructors with the necessary pedagogical skills and competencies may not have the necessary capacity to promote quality instruction and training in the absence of the required teaching materials. These findings agree with Darling-Hammond, (2016) who affirmed that the effectiveness of all education systems depends critically on the quality of teaching and learning in the classrooms, workshops, and laboratories. Therefore, the provision of adequate instructional resources is critical in enabling the instructors to effectively execute their mandate.

Based on these findings, it could be argued that well trained instructors can improve learning outcomes when provided with sufficient training materials that are useful in enabling the trainees to effectively acquire relevant and functional knowledge, practical skills, competencies, attitudes, and values. Therefore, the instructors with adequate teaching materials could have the capacity to actively engage, guide, and encourage the trainees in VET institutions during the training process. Hence, making it possible to facilitate effective acquisition of marketable and useful skills and competencies necessary for preparing them for the labour market.

The study further sought to establish the adequacy of physical facilities in VTCs. The instructors' views were tabulated as in Table 4.2.

Table 2 Instructors' Responses on Adequacy of Physical Facilities

Physical facilities	Not available		Inadequate		Adequate	
	f	%	f	%	F	%
Adequacy of physical laboratories	42	84.0	7	14.0	1	2.0
Adequacy of physical internet serving rooms	40	81.6	6	12.2	3	6.1
Adequacy of preparation rooms	36	72.0	13	26.0	1	2.0
Adequacy of physical libraries	30	61.2	10	20.4	9	18.4
Adequacy of physical computer rooms	27	52.9	13	25.5	11	21.6
Adequacy of demonstration rooms	21	41.2	18	35.3	12	23.5
Adequacy of physical workshop	5	9.8	34	66.7	12	23.5
Adequacy of physical classrooms	3	6.0	28	56.0	19	38.0

Valid N=52

The results in Table 2 shows that 84%, 82% and 72% of instructors respectively indicated that physical laboratories, physical internet serving rooms and preparation rooms were not available. These findings demonstrated that majority of the training institutions in the county lack these important infrastructural facilities. Hence, the institutions may not be having a strong institutional capacity to provide quality training. In addition, the results further indicated that 67% and 56% of instructors respectively further confirmed that physical workshop and physical classrooms were inadequate. These findings revealed that the training institutions did not have the financial capacity to provide these important physical facilities to enhance the quality of skills development.

The results in Table 2 further shows that 66.7% of the instructors indicated that the workshops were insufficient whilst the other 9.8% of them indicated that some of the VET institutions did not have workshops. In addition, 56% of the instructors indicated that the classrooms were not adequate whilst the other 6% of them indicated that some of the VET institutions the classrooms were not available. These findings implied that majority of public VET institutions in Kisii County do not have the necessary capacity to provide opportunities for trainees to engage in important scientific experiments and activities. Such teaching and learning delivery environment fails to provide instructors with appropriate and adequate physical facilities to facilitate the instructional process to enable the trainees to have stimulating opportunities to enhance acquisition of fundamental scientific,

innovative, creative, and problem-solving skills, knowledge and competencies.

Further, these findings implied that majority of the VET institutions are not Information Communication Technology (ICT) complaint. For example, internet services are considered critical in enabling staff and trainees to access important educational information and materials. Therefore, the internet provides significant platforms to access wealth of information and teaching and learning resources. It also provides more avenues for learning in and beyond the classrooms. These findings are supported by Ala-Mutka & Kirsti (2009) who confirm that the Internet significantly expand the boundaries of learning through visualization, data and concepts which facilitates the comprehension and the assimilation of information.

On the other hand, the study sought information from instructors to establish the adequacy of workshop tools and equipment in public TVET, the obtained results are depicted in Table 4.3.

Table 3: Instructors' Responses on Adequacy of Workshops, Tools and Equipment

Tools & Equipment	Not available		Inadequate		Adequate	
	f	%	f	%	f	%
Adequacy of the computers	19	36.5	18	34.6	15	28.8
Adequacy of the photocopier	13	26	25	50	12	24
Adequacy of the machinery	8	16.0	32	64.0	10	20
Adequacy of the workshop equipment	2	3.8	32	61.5	18	34.6
Adequacy of the workshop	1	2.0	52	49.0	25	49.0

In addition, the results Table 3 further showed that 64%, 61.5% and 49% of instructors respectively revealed that the training institutions did not have sufficient machinery, workshop equipment and workshop. Similarly, the results also revealed that 50% of the instructors confirmed that the photocopier machines were inadequate. As a result, the final year technician trainees were not able to acquire necessary practical skills.

Therefore, the findings implied that majority of the vocational education training institutions in Kisii County did not have the capacity to adequately produce paper copies of instructional materials and other important office documents.

This result is compatible to Okemwa's (2022) study on *The Influence of Electronics Laboratory Practices on Skill Acquisition by Technician Trainees in Nairobi County, Kenya* that found out that the TVET institutions lacked proper and adequate training laboratories, equipment, tools and materials.

On the other hand, the study sought to determine the state and condition of tools and equipment in the VTCs. The principals' views on adequacy and appropriateness of physical facilities in vocational training institutions were computed and results was presented in Table 4.4.

Table 4: Principals' Views on Adequacy and Appropriateness of Physical Facilities

Physical facilities		**Not available**		**Inadequate**
	f	%	f	%
Adequacy of modern laboratories	12	92.3	1	7.7
Adequacy of libraries	11	84.6	2	15.4
adequacy of preparation rooms for practical lessons	11	84.6	2	15.4
Adequacy of physical internet serving rooms	11	84.6	2	15.4
Adequacy of demonstration rooms	9	69.2	3	23.1
Adequacy of physical computer rooms	7	53.8	5	38.5
Valid N	**14**			

The results in Table 4 showed that 92.3% of the principals revealed that majority of the VTCs do not have functional and established laboratories. This finding implies that science and technology related courses are theoretically taught. Most of the VET institutions in the county do not have laboratories that can support digitalization of Vocational Education and Training (VET). Such a situation denies trainees access to digital content during practical sessions. Thus, it may not be possible to adequately prepare and equip trainees with digital skills that are required in the changing labour market. The success of any VET programme or trade is the focus on skills development that is grounded on hands-on training. This learning experience is critical in assisting trainees to acquire practical knowledge, skills and competencies that are useful in the world of work.

The findings further revealed that the county government has not adequately invested in the construction and equipping laboratories in majority of the VTCs to promote hands-on training in these institutions. This implies that since most of the VTCs do not have laboratories, it is not possible to use digital education tools such as computers and online learning management systems that are important in providing digital-TVET solutions to overcome emerging issues and challenges.

For example, the COVID-19 pandemic has caused disruptions in all education and training institutions globally.

Most of the training institutions have been forced to resort to start using digital educations tools like online and offline learning management systems to overcome challenges brought about by the COVID-19 pandemic. If the evidence provided by the principals about lack of laboratories is something to go by, then the pandemic has caused negative consequences in majority of the VET institutions in the county. It is difficulty to visualize to a return to normalcy anytime soon. Unfortunately, majority of the VTCs in the county cannot access well established laboratories for effective and efficient use of digital education tools to enhance online and offline training management systems. This type of engagements is not possible since inadequate funds allocated to all VTCs for digitalizing the teaching-learning process in the VTCs. The county government need to initiate and develop robust strategies of mitigating the existing digital divide that is real and prevalent in most of these training institutions.

The results in Table 4.4 further showed that 84.6% of the principals revealed that majority of the VTCs do not have physical internet serving rooms. This implies that majority of trainees in these VTCs are not able to access a wealth of digital information, knowledge and other useful education and training resource materials. This age of digitalization of education and training requires that all VTCs need to internet serving room spaces to house computers, tablets, and other ICT-related devices to promote internet-enabled learning. These finding is in agreement with Efstratios P *et al* (2010) study *The Contribution of the Internet into Learning* in Greece which found out that more than the 50% of the students believe that the Internet helps to improve their academic performance, increases their motivation for learning and permits and facilitates independent learning similarly, the study noted that Internet learning and enhances their critical thinking and self-esteem, and satisfies learners' needs and interests more effectively. Therefore, construction and maintaining of secure internet serving rooms in VTCs require capital and operational expenditures. Lack of internet serving rooms in most of the VTCs reveals that the county government has not been factoring these funds into its annual budget.

The results in Table 4 showed that majority of the principals constituting of 84.6% confirm that many of the VTCs do not have preparation rooms for practical lessons. The implication is that these centers have no extra room space allocated to instructors to facilitate effective preparation for practical

applied VET. This kind of environment cannot be conducive for thorough preparation by the instructors before engaging trainees in practical work. It could be important for designing appropriate strategies of raising funds that could be used to construct the missing preparation rooms in the VTCs.

On the other hand, the results in Table 4 also showed that 84.6% of the principals revealed that majority of the VTCs do not have physical libraries. This implied that these VTCs do not have space for storing instructional and training material resources. The quality of education and training is likely to be compromised given the fact that libraries complement the VTC by offering access to a variety of teaching-learning materials for both instructors and trainees. Similarly, a well-established and equipped library is instrumental in encouraging private study by both instructors and trainees. Such a library can also be important for providing opportunities for developing a solid foundation for a good reading culture by both the instructors and trainees.

The findings suggest that it is critical for VTCs to be assisted financially to be able to have well-established and equipped libraries. This financing strategy could be critical in enabling libraries to complement VTCs in enhancing effective acquisitions of necessary knowledge, employability skills, competences and attitudes needed in the future world of work.

The results from Table 4.4 showed 69.2% of the VTCs do not have sufficient demonstration rooms. This finding implies that trainees do not have adequate opportunities to learn through making observations. The finding is compatible with Sweeder and Jeffery's (2013) finding that demonstrations, if planned properly, and if they are effectively integrated into the learning process can enrich the learner's understanding of subject. Similarly, the result agrees with Ahmad, Naji, & Aviv's (2016) finding that established that the use of demonstrations helps students to better understand the subject of matter, improves their , and enhances their academic achievements.

In this regard, demonstration technique is an important training strategy in aiding trainees to develop in-depth comprehension of the subject area. The technique also helps trainees to be actively engaged in the teaching-learning process.

Therefore, demonstration is a powerful method of learning that can enhance permanent and reflective learning. In this connection, since majority of the VET institutions do not have enough demonstration rooms, the trainees are mostly exposed to theoretical training. As a result, the institutions may be lacking appropriate

learning environment to enhance effective acquisition of practical and applied skills.

The study sought to establish the principals' responses on training resources, facilities and equipment that are not available but which they considered to be important for VTC. In this regard, the principals were asked to indicate the unavailable physical facilities and equipment in public vocational training institutions. The obtained data was calculated, and the results are demonstrated in Figure 4.1

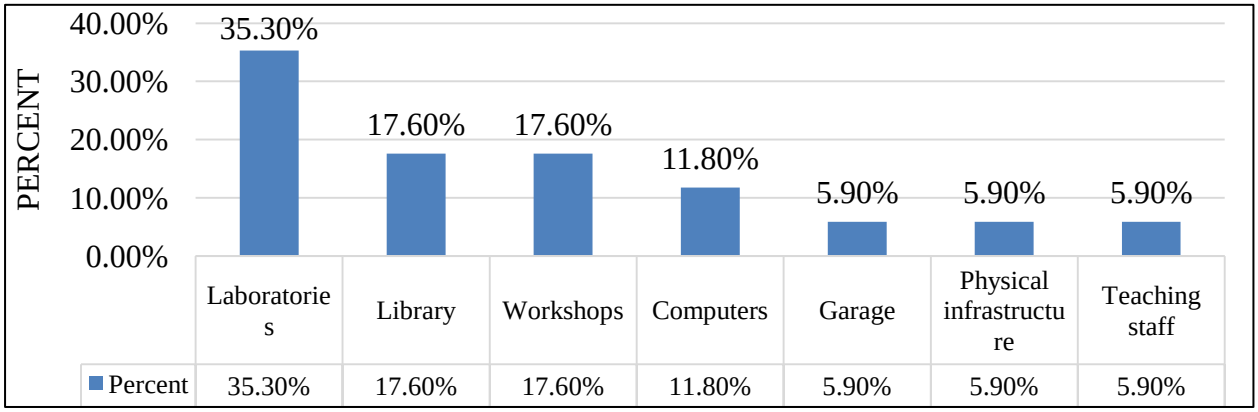

Figure 4.1: Principals' Views on Unavailable Physical Facilities and Equipment in VET institutions

The results in Figure 4.1 showed 35.3%, 17.6% and 17.6% of the principals respectively revealed that some of the VETC institutions do not have laboratories, libraries, and workshops. These findings implied that the institutions have no space and capacity to store and use the available tools, equipment, and machinery. This result

is supported by Okemwa's (2022) study on *The Influence of Electronics Laboratory Practices on Skill Acquisition by Technician Trainees in Nairobi County, Kenya* that found out that the TVET institutions lacked proper and adequate training laboratories. As a result, final year technician trainees were not able to acquire necessary practical skills.

The study sought information from principals on the inventions by TVET to address the inadequacy of training resources facilities in TVET. The obtained data from principals' views was computed and results are depicted in Table 4.5

Table 5: Principals' Interventions to Address the Inadequacy of Training Resource Facilities

Principals' interventions	**Responses**	
	N	**Percent**
The VCT to create Production Unit	5	35.7%
Put more infrastructure in place	5	35.7%
Training in shift	1	7.1%
Seek donor funding	1	7.1%
Income generating activities within institution	1	7.1%
Government funding	1	7.1%
Valid N	**14**	**100.0%**

The results in Table 5 showed that some of principals at 35.7% revealed that the inadequacy of training facilities and resources can addressed by creating production units by VTCs. These findings implied that initiating income generating projects by individual VTCs can assist raise extra revenue that can be used to procure adequate training facilities and resources. This initiative can assist VTCs reduce the high dependency on the revenue from the county and national governments.

The principals' views on the initiatives by stakeholders for expansion of infrastructural facilities in TVET. The analysis principal's data was illustrated in Table 4.6

Table 6: Principals' Responses on Stakeholders' initiatives on Expansion of Infrastructural Facilities

Stakeholders' Initiatives	Responses	
	N	Percent
Construction of workshop	5	27.8%
Bursaries and subsidy from local and National Government.	4	22.2%
Looking for well-wishers and Alumni	5	16.7%
Alumni fund drive	2	11.1%
Employ qualified trainers	2	11.1%
Production unit	1	5.6%
Build hostels for boarders	1	5.6%
Valid N	**14**	**100.0%**

Results in Table 6 demonstrated that principals' responses on stakeholders' initiatives on construction of workshop was 27.8%. Bursaries and subsidy from local and National Government was 22.2%. Looking for NGOs/well-wishers/partners was 16.7%. Alumni fund drive and employ qualified trainers at 11.1% each.

Further, Production unit and build hostels for boarders tied at 5.6% in public TVET in Kisii County.

The study sought views on strategies by County government for provision of resources and facilities in public TVET. The principals' views were presented in Table 7.

Table 7: Principals' Views on County Government's Strategies for Provision of Resources by to VTC

Strategies by County Government	Responses	
	N	Percent
To provide more funds for infrastructure	9	36.0%
To employ enough teaching staff	6	24.0%
To ensure that supervision in all areas is achieved	4	16.0%
More infrastructures to be added	5	20.0%
Campaign on the VTC	1	4.0%
Valid N	**14**	**100.0%**

The results in Table 7 showed principals revealed that County government should strategize to provide more funds for infrastructure at 36%.To employ enough teaching staff at 24.0%.To ensure that supervision in all areas is achieved at 16.0%.To provide more infrastructures to be added at 20.0%.

Further, to campaign and create awareness to public on TVET was 4%.

These findings implied if these strategies are implemented then the attitude towards TVET will change and becomes more attractive for trainees.

The study sought instructors' views on the strategies for provision of training resources

and facilities in TVET. The obtained information was presented in Table 4.8

Table 8 Instructors' Views on Strategies for Provision of Training facilities

Strategies	Frequency	Valid Percent
Funding by County government	23	52.3
To involve well-wishers, alumna & donations	5	20.5
Periodic audits by Government	4	9.1
Start income generating projects	3	6.8
More trained instructors	2	4.5
More equipment	1	2.3
Raise funds through fundraiser	1	2.3
Proper utilization of available funds	1	2.3
Total	**44**	**100.0**

Valid N=52

The results presented in Table 8 showed that 52.3% and 20.5% of the instructors revealed that funding by the county government, well-wishers, alumna and donations by other key stakeholder can serve as important strategic interventions in the provision of adequate training resources and facilities. The instructor felt that it is the social obligation of the county government to work closely in partnership of other key stakeholder in society to finance VET. Effective Implementation of CBET curriculum in VTCs order to meeting the Education 2030 agenda demands huge resources training and facilities. This strategic objective requires special attention to financing of VET institutions. Therefore, the county government and stakeholders need to innovatively plan on how to produce intelligent techniques for diversifying sources of revenue to help in the provision resources and facilities.

The study sought to establish the student-instructor ratio to understand the distribution of students against the instructors per course undertaken in public TVET. This aimed to understand the adequacy of instructors allocated per course in line with enabling delivery environment. The principals' responses were computed, and the results are tabulated in Table 4.9.

Table 9 Student-Instructor Ratio per Course

Course	Average Student-Instructor Ratio
Fashion design	17:1
Electric instalment	11:1
ICT course	17:1
Metal work	19:1
Motor Vehicle mechanic	11:1
Masonry	17:1
Carpentry	5:1
Hairdressing	18:1
Leather work	5:1
Plumbing	24:1
Food processing	3:1
Agri-business	15:1

Valid N=14

From Table 9 the study revealed that most of the principals indicated that the average student-instructor ratio was inadequate in TVET. This meant most of courses offered suffered from inadequate instructors as per the UNESCO guideline of 10:1 to enable a delivery environment in Public TVET. Therefore, as per the guideline only a few courses such as carpentry course, leather work course and food processing course fall under the standard ratio of 10:1 while as most of courses bleached the UNESCO ratio. According to the TVETA (2018), TVET training in Kenya is of low quality caused by inadequate trainers.

The study tested the Null Hypothesis (***H_0***) that stated, "*There exists no relationship between delivery environment and Efficiency in Skills Development''*. To achieve this, the study conducted Spearman's Correlation Test between the two variables and the results were illustrated in Table 4.26

Table 10: Delivery Environment and Efficiency in Skills Development

Spearman's rho		**Efficiency in skills development**	**Delivery environment**
Efficiency in skills development	Correlation Coefficient	1.000	.671
	Sig. (2-tailed)	.	.003**
	N	52	52
Delivery environment	Correlation Coefficient	.671	1.000
	Sig. (2-tailed)	.003**	.
	N	52	52

****. Correlation is significant at 0.05 level (2-tailed).**

Results in Table 10 showed that there exists a strong positive correlation between delivery environment and efficiency in skills development (Spearman's rho=.671, N=52, P Value=.003). This implied that the relationship between the two variables was statistically significant (P<.05). Further results in Table 10 implied that the two variables correlate in the same direction, as the delivery environment increases, the efficiency in skills development increases in public TVET institutions in Kisii County.

Notably, the inferential statistics obtained from instructors are supported by principals and trainees' descriptive statistics on delivery environment on efficiency in skills development in public TVET in Kisii County.

CONCLUSIONS

The findings confirmed majority of the VET institutions do not have an appropriate delivery environment that can promote access, participation and quality in skills development. The county government in partnership with other key stakeholders should pay special attention to the construction of modern workshops and rehabilitation of dilapidated ones in most VET institutions. It should also equip these workshops with adequate tools and equipment and make more budgetary allocations in order to provide adequate qualified instructors to all VET institutions. These strategic interventions are likely to boost the image of the training. The county government in partnership with development partners can plan to set up Digital Information Communication and Technology (DICT) Centres in all Vocational Training Centres as a strategic intervention to improve the image of TVET.

There is need to plan for capacity building for instructors. There is strong evidence from the study suggesting that pedagogical techniques have positive correlation with training outcomes. Continuous professional development of instructors therefore is a key prerequisite in enhancing efficiency in skills development. The professional training enables TVET teachers to acquire the needed pedagogical skills required to effectively engage and inspire trainees pursuing various trades and courses in VET institutions. There is need to ensure that the TVET teachers embrace innovative and creative methods of teaching in order to help improve learning outcomes.

RECOMMENDATIONS

Based on the findings of this study, the following policy recommendations were made.

The County Government of Kisii and National Government should make a commitment to design and implement sustainable legislations and policies on infrastructural development, provision of human, material, teaching and learning resources, tools, equipment and other relevant training facilities in all vocational training institutions. To enhance financial diversification and sustainability for vocational training institutions, the County and National Governments with support from key stake holders such as the private sector, development partners, donor community, NGOs and philanthropists can seek for financial, technical, human, and material resource assistance.

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