



Access to Quality Technical Education Vocational and Training in the Context of the Post Covid-19 Pandemic in Kenya

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Abstract: Fundamental right to education and training has been well established and recognized within numerous political frameworks across the world. Young people and adults still face difficulties accessing or completing TVET programmes across the world. Systemic inequalities related to course materials, financial endowment, human resource, school infrastructure and teaching practices are examples of barriers affecting access in TVET programmes. Even if a second wave of infections is avoided, global economic activity is expected to fall, with average unemployment increasing considerably. Education is an area in which all governments intervene to fund, direct or regulate the provision of services. This paper focuses on access to financial resources and institutional infrastructure and physical facilities. Methodology adopted includes systematic review of literature from primary and secondary databases and featured articles. The findings shows that there was poor physical facilities; poor funding mechanism; inadequate teaching and learning materials and poor assessment methods. As there is no guarantee that markets will provide equitable access to educational opportunities, government funding of educational services is needed to ensure that education is not beyond the reach of some members of society. This paper concludes that although government funding on tertiary education often fluctuates in response to external shocks, slowdown in economic growth and it may be worse due to current Covid – 19 pandemic. Thus, it was recommended that the government and stakeholders should redouble their effort towards strengthening the process of access to TVET institutions.

Keywords: Accessibility, Education, Finance, Infrastructures, Teaching and Learning, Pandemic, Quality

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1. Introduction

Healthy socio-economic growth and development of societies and communities depends, to a great extent, upon the quality and effectiveness of their human resources development (HRD) systems. In the recent past, there has

been a shift to acknowledge the importance of such systems and their linkages with employment and labor market needs. The challenges of creating new jobs and higher living standards can only be addressed through an education system that can produce the right skills in a context of globalization, and increasingly complex

markets. Trade expansion, industrialization, and the employment market are becoming very demanding. The question for many in Africa has been, whether our education system is producing the right workers to serve in this changing environment. That there has been an increasing trend of unemployed people among the educated indicate an increasing mismatch between education and jobs, mainly occasioned by country's education and training system.

For example, in Kenya TVET remains fragmented and delivered by different providers at various qualification levels. The fragmentation has arisen from the un-coordinated actions of multiple government and non-government actors. Governmental TVET institutions under the education ministry have been concentrating on producing middle level technical workers. Meanwhile, in non-formal TVET programs, NGOs, and private institutions offer employment-oriented TVET programs to various target groups, including school leavers, people in employment, school drop outs and marginalized groups in the labor market. But unlike formal TVET, these programs are not yet systematically delivered. Informal on-the-job training is widespread, but due to the absence of a systematic assessment and certification system there are currently no mechanisms to recognize informal occupational learning. Traditional apprenticeships in the small and micro enterprise sector constitute another presumably important, yet entirely un-researched, training environment. As a result of these challenges, the Kenya government embarked on TVET reforms a decade ago. TVET reforms in Kenya reflects an important paradigm shift of recent years and place quality and relevance as its priority. The reforms focus on integrating global best practices to link to the TVET system outputs with labor sector requirements. TVET must respond to the competence, motivated and adaptable workforce capable of driving economic growth and development. The reforms have been majorly focusing on institutions, HRD, and improvement of the quality of teaching and training through infrastructural development and provision of equipment. Kenya hopes to achieve a TVET system which is relevant and flexible, effective, efficient, accessible, sustainable, and which fulfills its general obligations in an integrated training and working environment. TVET reforms aim to provide the Kenyan labor force with market-oriented training, a structural ability to adapt quickly to changing circumstances and market needs, high quality in teaching through comprehensive and continuous teacher training and system. The Constitution of Kenya 2010 and Vision 2030 acknowledges the need to reform education and training through sessional paper no. 14 of 2012. There is need for better integration between the basic, TVET and University sectors of our training. The TVET subsector focuses on providing skills that meet the workplace as well as self-employment guaranteeing human and economic development and therefore its outcomes must be human resources fit for the job market.

Technical and Vocational Education and Training is offered at two levels namely Technical and Vocational Colleges (TVCs) and Vocational Training Centres (VTCs). The TVCs constitute of Technical Training Institutions, Institutes of Technology, National Polytechnics and Technical Trainers Colleges whereas VTCs comprise the Youth Polytechnics.

Pakistan ranks at the 146th position out of 187 countries in the Human Development Index (HDI), due to its low literacy rate, low per capita income and poor health conditions (UNDP, 2013). Pakistan requires a shift in national priorities like a greater share of the resources to the education and vocational and technical training for its development. All of this is possible by the changing in the thinking of the policymakers and additional allocations of financial resources. In Pakistan Technical Education and Vocational Training (TEVT) are offered by a number of Provincial, Federal and Private organizations. The Vocational Training is skill rigorous and is presented in 27 trades for boys and 18 trades for girls by institutions both in public and private sectors. The controlling authorities for these institutions are of Federal Labour and Manpower Division, Provincial Departments of Education/Labour Women Division, and Manpower Training, Social Welfare, Small Industries, Ex-Servicemen Welfare, WAPDA, Railways, POF, SMEDA, Agriculture, NGOs, Agency for Barani Area Development (ABAD) and private ownership. In 1980 first time the National Training Board (NT Board) was established at the national level and further which was restructured in 2002.

The principal objective of TVET is to train youths and adults alike, readying them for the labor market. With technical revolution and innovations in science and technology, labor market needs have significantly evolved. New challenges must be met in order to match the education proposed with vocational demands. In that regard, several countries are in the process of reforming their education system, with a view to training youths to meet national, regional or international market needs

The concept of quality has been one of the most important concepts in contemporary educational terminology (Sessional Paper No.1 Of 2019). In terms of general concept, quality is defined by Ong'ondo and Jwan (2020) as the ability or degree with which a product, service, or phenomenon conforms, to an established standard, and which make it to be relatively superior to other. According to Adegbesan, (2010) quality is not just a feature of a finished product or services but involves a focus on internal processes and outputs which includes; the reduction of waste and the improvement of productivity. With respect to education, African Union (2007) stated that quality is a multidimensional concept, embracing all functions and activities of education system. The include teaching and academic programmes, research and scholarship, staffing, students, buildings, facilities, equipment, services to the community, academic environment; taking into account national cultural values

and circumstances and international dimensions such as exchange of knowledge, interactive networking, mobility of teachers and students, and international research projects. Similarly, Oyebade, Oladpo and Adetoro (2012) opined that quality in education may be considered on the basis of how good and efficient the teachers are; how adequate and accessible the facilities and materials needed for effective teaching and learning are; and how prepared the graduates are for meeting the challenges of life and for solving the social problems. In TVET, quality is directly related to the achievement of the learning outcomes (knowledge, skills and competence achieved at the end of the learning process) that fulfils the key stakeholders' expectations: - students, parents, employers and community in general (Romanian Ministry of Education, Research, and Youth, n.d.). Continuous enhancement of the quality of TVET system is a key priority to any nation that desires to reap the benefits of this all important aspect of education system.

Education is recognized as a fundamental pillar of human rights, democracy, sustainable development and peace. Therefore governments and households alike, invest massively to ensure that education becomes accessible to all throughout life so that society reaps the maximum benefits of investing in education. Indeed, the numerous studies on the benefits on education have consistently found positive social and private returns to education at all levels. In Kenya policy documents have identified provision of accessible, quality and relevant education as a key foundation for spurring development and social cohesion. The Kenya vision 2030 emphasizes the need to provide critical skills required to drive the various sectors of the economy.

The Dakar Framework for Action on Education for All not only envisaged provision of education for all, but also aimed at imparting life skills to both children and adults through vocational training. In addition the introduction of Free Primary Education (FPE) and Free Day Secondary (FDSE) subsidy programs by the Government of Kenya (GoK) means that the expected graduates from the successive primary and secondary school cohorts will require to attend further training so that they can be prepared to join the job market to which TVET provides an avenue

Despite the growth in the TVET sector, both in enrolment and funding, the sector faces a number of challenges including poor perception that has made the sector branded as a choice of last resort for those who fail to attain test grades required to join university education. Granted, the progress made over the last decade in enhancing access, retention, quality, completion rates and gender parity in education and training is remarkable. Nonetheless, the TVET sector continues to face many challenges. These include an insufficient number of trainers with pedagogical competency, inadequate number of TVET centres, limited availability of customized teaching and learning materials, limited industry

participation and inadequate research support services. Other challenges include poor geographical distribution of TVET institutions, low enrolment for females in Science Engineering and Technology (SET) courses and unfriendly environment for people with special needs

1.2 Statement of the Problem

Fundamental right to education and training has been breached within the context of Covid -19 Pandemic as most institutions remained closed and trainers are left to their own fate. Numerous political framework and strategies have been presented to counter the increasing volatile situation amidst the demand for re-opening of the TVET sub –sector. Young people and adults still face difficulties accessing or completing TVET programmes across the world and Kenya is not an exception. Systemic inequalities related to course materials, financial endowment, human resource, school infrastructure and teaching practices are examples of barriers affecting access in TVET programmes. Even if a second and third wave of infections is avoided, global economic activity is expected to fall, with average unemployment increasing considerably. Education is an area in which all governments intervene to fund, direct or regulate the provision of services. The Government of Kenya has committed to provide relevant and adequate skills and competencies in strategic disciplines by 2020 (GoK 2012b). To achieve this the government has supported the growth of the TVET sector by increasing resource allocation and providing incentives for investment and participation in skills training in the country. The government has therefore set the annual increase in number of TVET graduates as a Key Performance Indicator (KPI) for the TVET sector (GoK, 2009). In spite of the increasing focus on TVET, Covid -19 Pandemic has opened a new set of protocol to be following exacerbating already fluid situation within the TVET Sub –sector. This paper therefore focuses on access to financial resources and institutional infrastructure and physical facilities.

1.3 Objectives of the Study

This paper focuses on access to quality TVET with the following objectives:

1. To examine the trend of enrolment in TVET sector in Kenya.
2. To establish the level of financing of TIVET sector in Kenya.
3. To assess the state of institutional infrastructure and physical facilities in the TVET sector in Kenya.

2. Literature Review

Kenya TVET Quality Assurance Framework (2019), agree that quality vocational education is important to industry because employers see a skilled workforce as

fundamental to getting and maintaining a competitive advantage. They assert that

“Industries want students who can understand their work, their product or their services, be creative and adaptable, and capable of becoming multi-skilled. Industries demand that vocational graduates possess vocational knowledge, skills and attitudes that are central to industrial innovation and practice. Industry needs relevant and high quality vocational education based on recent technological innovations. Quality of vocational education is important to both government and the general public. (p. 116)”

The emphasis on quality in TVET has been focusing on measured achievement. Therefore, quality is being defined in terms of outcomes, the most important of which is qualifications. It is argued that any programme which leads to qualifications that are recognized and valued must have some quality components imbedded in it. It is also recognized that quality does not necessarily guarantee a good experience. The need to provide better quality is due, in part, to much greater demand from learners, a greater level of scrutiny from the public, and the need for justification for public expenditure from funding sources. This leads to the need to have quality assurance mechanisms to determine benchmarks and standards.

According to the definition by UNESCO and the International Labor Organization (ILO), TVET refers to “aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupants in various sectors of economic and social life” (UNESCO and ILO, 2001). In addition to technical knowledge and aptitude, increasing emphasis is on “softer” skills – communication, negotiation and teamwork. TVET is dispensed in public and private educational establishments, or other forms of formal or informal instruction aimed at granting all segments of the society access to life-long learning resources. The indicators are: Relevance of quality assurance systems for VET (Vocational Education and Training) providers; Investment in training of teachers and trainers; Participation rate in VET programmes; Completion rate in VET programmes; Placement rate in VET programmes

Technical Vocational Education and Training (TVET) and quality assurance are two widely discussed concepts in particular education. TVET is a particular education intended to empower learners through the improvement of their technical skills, human talents, cognitive accepting, attitudes and work behaviour in order to prepare learners effectively for the world of work or situated them practically for self-employment after graduation (Winer, 2000, Oni, 2007). Maclean (2011) claims that TVET if well located could cooperate multi-dimensional characters of inspiring economic development, social growth, recovering conventional education, empowerment, wealth

formation, poverty reduction and skills improvement. In a nation with return ingrates of youth restlessness, TVET is well appropriate to aid youths and adults become self-dependent and independent. For those functioning in the industry, TVET is cooperative in the regions of skills development, improvement of high job turnover and risks of obsolescence (Okolocha, 2012). As creditable as the philosophy of TVET is, it is misunderstood by different people in the society. The parents and wards view vocational education as a variety of education intended for failures and those found to be less intelligent (ETF, 2005; Ladipo et al, 2013). The negative perception of TVET implication low societal estimation of TVET in the society, gross gender imbalance in TVET implementation and inadequate human, material and financial resources for TVET institutions.

Kingombe (2011:34) points out that Ethiopia has achieved the highest increase of 5.565% in TVET enrolment from 1999 to 2007 and ranks second in the countries of Africa in terms of number of training institutions. He also points out that huge part of talent nurturing occurs through technical education. Technical and Vocational Education and Training was one of the surest ways to stem the tide of graduate and youth unemployment. He further says that many technical and academic reports have given impetus to the fact that technical and vocational education and training is one of the most effective human resource development strategies that a developing economy needs to embrace in order to train and modernize the technical workforce for rapid industrialization, job creation and overall national development. Hailu (2012) establishes that in Ethiopia TVET enrolment in both government and non-government ownership has increased, the total enrolment in TVET in the year 2007 was only 191,157 and in 2011, enrolment had increased to 371,347 (Hailu 2012:76). The increase is an assumption that TVET programme would offer relevant and demand driven training that corresponds to the needs of economic and social sectors for self-employment. With the intention of making TVET graduates self-employed, the number of TVET institutions as well as trainees is increasing considerably.

3. Methodology

3.1 Research Design

The design of the study was descriptive survey. Gray, (2009) states that, a descriptive survey is a system for collecting information to describe, compare, explains knowledge, attitudes and behavior. Kamau et al, (2019) points out that, the concern of descriptive survey is to either describe and interpret existing relationships, attitudes, practices, processes and trends or compare variables. Surveys are used to ascertain the nature of a phenomenon from a relatively large number of cases. Cohen and Manion, (2006) state that, a combination of methods compensates for inadequacies that an individual

method might have. This study used questionnaires to gather information from principals, registrars, HODs and students. Questionnaires are preferred because of their ability to ensure confidentiality of responses from the respondents (Saunders, 2003). Questionnaires were considered ideal for collecting data from principals because they can individually read, interpret and fill them. They allow information to be collected from a large number of respondents within a short time and ensure anonymity and eliminate interviewer's bias (Ong'ondo and Jwan, 2020)

3.2 Validity and Reliability

A pilot study involving 1 principal, 1 Registrar, 3 HODs and 50 Students were sampled from the study population to test the reliability of the instruments. Test-retest method (administering the same instrument twice to the same

group of subject,) was used in the study to measure the reliability of the instruments. Pearson's Correlation coefficient was used to test whereby reliability coefficient of above 0.7 for the questionnaires was used. Validity of instruments was determined by the expert judgment.

3.3 Sample and sampling procedures

The post-secondary TVET institutions, principals, Registrars, HoDs and the Technical Diploma students were purposively sampled for use in the study. The criterion was, only the principals and Registrars whose institutions had the required departments and the specified Technical Diploma students were used for the study. In post-secondary TVET institutions category, simple random sampling was also used to determine the respondents for the study. This gave every item of the population an equal and independent chance of inclusion in the sample.

Table 1. TVET Institutions and participant's sample survey frame

Category	Population (Total (N))	Sample size n(%)	Sampling Technique
Principals	06	05 (83%)	- Purposive
Registrars	06	05 (83%)	- Purposive
HODs	30	26 (87)	- Purposive
Students	2,895	351 (12%)	- Multi-stage

3.4 Data Analysis procedures

Tables and figures are useful in presenting findings because they can summarize a lot of information in a small space. Data analysis entails separation of data into constituent parts or elements and examination of the data to distinguish its component parts or elements separately and in relation to the whole. The raw data obtained by the researcher were coded and analyzed using Statistical Package for Social Sciences (SPSS) version 20. After coding the data, the researcher stored the data in both the electronic form and non-electronic (paper) form. Data was summarized using descriptive statistics such as frequencies, means and percentages and presented using tables and pie charts.

4. Results and Discussion

4.1 Trend of Enrolment in TVET sector in Kenya

4.1.1 Number of TVET Institutions

The number of TVET institutions grew by 10.3 per cent to 2,191 in 2019. The growth in TVET institutions is partly attributed to the ongoing construction of technical and vocational colleges across all constituencies (Kenya Economic Survey 2020).

Table 2: Number of Technical and Training Institutions 2015 -2020

Institutions	2015	2016	2017	2018	2019	2020
Public Vocational Training Centres	816	816	1,186	1,200	1200	1200
Private Vocational Institutions	-	29	47	47	47	47
Public Technical and Vocational Colleges	55	62	91	101	101	191
Private Technical and Vocational Colleges	-	382	627	628	742	749
National Polytechnics	3	11	11	11	11	11
Total						

4.1.2 Trend in Enrolment and Its Disparities

Table 3 shows data on student enrolment in Technical and Vocational Education and Training (TVET) institutions by sex from 2016 to 2020. Total enrolment in TVET

institutions increased by 4.8 per cent from 430.6 thousand reported in 2019 to 451.2 thousand in 2020. The enrolment of female students in TVET institutions accounted for 42.8 per cent of the total enrolment during the review period. Enrolment in national polytechnics declined by 14.7 per

cent to 87.1 thousand in 2020 from 102.1 thousand in 2019. In 2020, majority of national polytechnics recorded decline in student numbers. Enrolment in other TVET institutions increased from 328.5 thousand in 2019 to 364.1 thousand in 2020, representing an increase of 10.8 per cent. Enrolment of male students in Public Technical and Vocational Colleges rose by 16.9 per cent to 76.4 thousand in 2020, while that of female students grew by 14.7 per cent to 53.6 thousand in 2020. TVET in Kenya takes the form of Vocational Education and Training (VET) and Technical Education (TE). TVET institutions

comprise formal and informal (Jua-Kali) entities. There is, however, inadequate data in this sub sector. The exact numbers of institutions operating in this sector and the types of courses offered, as well as enrolments, are not known since some private owned institutions are not accredited/registered. Nevertheless, available data shows that, as at 2020, there were 2301 institutions, from 1300 in 2016. Similarly, trends in student enrolment show that the total enrolments in various TVET institutions rose from 202556 in 2016 to 451205 in 2020.

Table 3: Enrollment in Technical Training Colleges

	2016	2017	2018	2019	2020
National Polytechnics					
Male	22,754	29,290	47,171	60234	50126
Female	14,161	19,202	32,207	41844	36989
Total	36,915	48,492	79,378	102078	87115
Public Technical Vocational Colleges					
Male	17,584	29,584	49,454	65347	76416
Female	9,569	17,982	34,948	46763	53648
Total	27,158	47,566	84,402	112110	130064
Private Technical & Vocational Colleges					
Male	27,280	35,951	41,623	39484	41879
Female	30,298	38,689	43,997	41376	42446
Total	57,578	74,640	85,620	80860	84325
Vocational Training Colleges					
Male	46,340	54,756	66,894	81421	89663
Female	34,565	44,685	47,590	54129	60038
Total	80,905	104,441	114,484	135550	149701
Grand Total					
Male	113,963	154,581	205,142	246486	258084
Female	88,593	120,558	158,742	184112	193121
Total	202,556	275,139	363,884	430598	451205

Disparities in enrolment in technical colleges

The findings from the study show widening disparities in access to TVET education based on gender, nationality, disability, location (rural/urban) and region. Generally, access is particularly low among children with special needs and those from rural areas; those in urban informal settlements; those in ASAL and less endowed areas; conflict-prone regions; and those from poor households.

Participation by rural/urban shows that generally, children in rural areas are less likely to be in TVET compared to their counterparts in urban areas. However, an interaction of gender and location shows that rural boys have a lower chance of staying in TVET relative to their fellow boys in urban areas and girls from both rural and urban areas. It should not be lost that girls are disadvantaged if we consider the interaction between gender and location in the

case of ASAL areas, with significant impacts on girls' access to and completion of secondary education.

There are a number of factors that limit access to learning by girls, especially in ASAL areas with child marriage and early childbearing (teenage pregnancy) being among the major factors. According to a survey by the United Nations Population Fund (UNFPA), close to a quarter a million adolescent girls in Kenya aged between 10 and 19 years became pregnant between July 2016 and June 2017. Levels of early childbearing (teenage pregnancies) in Kenya are more worrying in some regions as compared to others. According to the Kenya Demographic Health Survey (KDHS) 2014 report, 4 out of 10 girls in Narok County got pregnant at a tender age. Other counties that have been put on the spotlight over teenage pregnancies include Homa Bay (33%), Kitui (36%), West Pokot (29%) Tana River (28%), Nyamira (28%), Samburu (26%),

Migori (24%), Kwale (24%) and Nairobi (21%). A recent report by the children’s affairs department shows that about 14,000 girls aged between 15 to 19 years got pregnant in 2018 in Kilifi County.

Evidence around the world shows that there are significant negative effects on girls themselves, their families, and the country resulting from child marriage and early childbearing. According to World Bank (2018) Girls who marry or drop out of school early, due to early marriage and/or early pregnancy, are more likely to have poor health, larger families, and earn less as adults. According to Nour (2006) In addition, girls who marry or have children at an early age and drop out of school are disempowered in ways that deprive them of their basic rights.

4.2 Level of Financing of TVET sector in Kenya

Trends in expenditure in TVET education

To support TVET the government through the responsible ministries provide grants for recurrent and capital expenditure in public TVET institutions. Total expenditure on recurrent stood at KES 2.6 billion in 2005/6 which was the same level of funding in 2007/2008 financial year. Expenditure on development rose from KES 284 million to KES 3.58 billion in 2011/12. The government also provides bursaries to needy students pursuing TVET education as an affirmative action towards equity in education. The Table 5 below shows the financing trend of technical education in the years 2001/2002 to 2005/2007.

Table 4: Trends in Financing TIVET Education in Kenya (2016-2021)

Kshs.Millions					
ITEM	2016/17	2017/18	2018/19	2019/20	2020/21
Reccurent Expenditure	2479.53	2511.60	7777.79	12517.11	18637.50
Development Expenditure	5746.18	8454.88	9245.20	5344.73	6293.71
Total	8225.71	10966.48	17022.99	17861.84	24931.21

Source: (Kenya Economic Survey, 2021)

From the table above, it could be observed that recurrent financing provision had been increasing especially since 2016/17. Development financing which was crucial for capacity development and expansion increased from 5.7 billion in 2016/17 to 6.2 billion in 2020/21 financial year. The amounts availed to TIVET institutions were however still low, hence the need to strategies for enhancing resource base for efficient and effective implementation of improved TIVET Programmes. The irregular remittance of funds by ministries and departments to the TIVET institutions necessitated the creation of National Skills Development Fund (NSDF). This was suggested by Republic of Kenya (2007) for NSDF to receive contributions from the government, industry, levy, development partners and tuition fees and a semi-autonomous body to manage and allocate funds to TIVET

institutions. It was hoped that NSDF would be able to prioritize the key development sectors in TIVET institutions in order to cope with industrialization demand for vision 2030.

Recurrent expenditure for the State Department for Vocational and Technical Training doubled from KSh 7.8 billion in 2018/19 to KSh 18.6 billion in 2020/21 partly due to recruitment of additional instructors for the TVET institutions. While the development expenditure that of State Department for Vocational and Technical Training grew by 5.9 per cent to KSh 6.2 billion in 2020/21. The rise in development expenditure for the two state departments is mainly due to increased funding to support infrastructure development in secondary schools and TVET institutions.

Table 5: Ministry of Education Expenditure Allocation for Tertiary education

		2015/16	2016/17	2017/18	2018/19	2019/20
Recurrent Expenditure	Vocational Education and Technical Training	2,308.13	2,479.53	2,516.60	7,777.79	17,100.89
	Post – Training & Skill Development	-	-	-	56.6	123.40
Development Expenditure	Vocational Education and Technical Training	4,248.17	5,746.18	8,454.88	9,345.20	9,787.14
	Post – Training & Skill Development	-	-	-	-	-

The table below shows how the students training was funded.

Table 6: Funding from Students

Sources	No. Students	Percent
Partial Scholarship	37	10.6
Full Scholarship	23	6.6
Bursary	97	27.7
Self-Sponsored	193	55.2
Total	350	100

Over 50% of the students were self-sponsored and this affected their training because more often they were sent back home to look for tuition and boarding fees and this affected their studies

4.3 Infrastructure and Physical Facilities

4.3.1 State of Physical Facilities

The TVET sector is faced by challenges of negative perception and is often seen as last choice and not a preferred option in tertiary education and training. The negative perception of TVET is attributed to lack of awareness of what is offered in TVET institutions, unclear admission and progression procedures and weak career guidance on TVET in basic education. In addition, the cost of TVET has also been a significant hindrance to accessing training services. The cost of departmental physical infrastructures ranged from 2million to 15million Kenya shillings.

It was found out that there were inadequate lecture rooms, workshops, laboratories, libraries and staffrooms. There was lack of adequate funds to put them up or to expand the existing buildings. It was only in computing and information technology departments in which were found to have had adequate physical facilities. Physical capacities are very important for access. The size of the lecture rooms, laboratories and workshops would determine the number of students who would be admitted into those departments. More important are the

departmental relevant machines and equipment availability and their usability. They were found to be wanting in relevance and were inadequate in numbers in most of the departments. A number of the buildings were rated average in suitability. Applied sciences, computing information and technology, building and civil engineering buildings were rated to be in good physical conditions and had some relevant machines and equipment. This could have been because these departments did not require very expensive machines and equipment.

There great need for expansion of the existing buildings or building of the new ones to allow for increased access in both institutions was important but funding implications delayed the same. The improvements of the infrastructures would only be possible if the concerned stakeholders prioritized access and relevance in their budget by allocating to them specific funds.

4.3.2 Water supply

There is adequate supply of water. The results are displayed and discussed in percentage frequencies as shown in Table 7:

Table 7: Observer's views on the adequacy of water supply (observation n= 26)

Item	SA	A	MA	D	SD	Mean	Std
Adequate Supply of water	3 (11.5%)	5 (19.2%)	6 (23.1%)	8 (30.8%)	4 (15.4%)	2.81	1.266

KEY: SA: strongly agree = 5; A: Agree = 4; MA: Moderately agree = 3; D: Disagree = 2; SD: strongly disagree = 1.

The investigation unveils that, average score of the observers views on the adequacy of water supply had a mean = 2.81 and standard deviation = 1.266. This outcome determines that, even though the observations held different views, they moderately agree that, there is adequate supply of water in the institutions.

4.3.3 Supply of Electricity

The observation sought to determine if there was adequate electricity supply. The findings are displayed in percentage frequencies in Table 7

Table 8: Observer’s views on the adequacy of electric power supply (observation n= 26)

Item	SA	A	MA	D	SD	Mean	Std
There is adequate	13	7	5	0	1		
Supply of electrical power	(50.0%)	(26.9%)	(19.2%)	(0.00%)	(0.00%)	4.19	1.021

KEY: SA: strongly agree = 5; A: Agree = 4; MA: Moderately agree = 3; D: Disagree = 2; SD: strongly disagree = 1

The study shows that, the average score of the observers views on the adequacy of electric power supply had a mean = 4.19 and standard deviation = 1.021. This result indicates that, although the observations have varied

views about the adequacy of electric power, they agree that, there is adequate supply of electric power in the institutions

4.3.4 Workshop space

Table show view on workshop space. The views were computed in percentage frequencies as shown in Table 8:

Table 9: Views of Respondents on Workshop space (Principals’ n= 06; HODs n= 26; students’ n= 354 and observations n= 26)

Item	SA	A	MA	D	SD	Mean	SD
Principal - workshop space a adequate for practical	0	0	3	3	0	2.5	0.548
HODs - workshop facility for Adequate for practical session	3	6	5	7	5	2.81	1.327
Students – Workshop space Adequate for practical sessions	50	54	107	89	54	2.88	1.253
Observers– Workshop space is adequate for practical session	9	4	7	5	1	3.58	1.27
Average score of workshop						2.65	1.344

The study shows that, the average score of the respondents views on workshop space had a mean = 2.65 and standard deviation = 1.344. This result indicates that, although the respondents have varied views about their workshop space, they moderately agree that, workshop space

available is adequate for practical sessions of all the TVET programs offered by their institutions

How adequate and serviceable are the workshop facilities in the department? The results are as shown in Table 4.6:

Table 10: HODs response on - How adequate and serviceable are the workshop facilities in the department?

	Frequency	Percent	Valid Percent	Cumulative Percent
Moderately adequate	3	11.5	11.5	11.5
Inadequate	3	11.5	11.5	23.0
Adequate and serviceable	10	38.5	38.5	61.5
Inadequate but serviceable	10	38.5	38.5	100.0
Total	26	100.0	100.0	

The responses in Table 9 were grouped into four categories. Table 9 shows that 38.5% HODs observe that, the workshop facilities in the departments are adequate and serviceable, while 38.5% HODs observe that, the workshop facilities are inadequate but serviceable. The results could be attributed to unequal donor funding in these institutions and differences in the department priorities set by the individual TVET institutions, because they all receive capitation from the government.

4.3.5 Classroom Space

In probing into challenges in the supply of the training programs, the respondents were given questionnaires in Likert scale, formed of items associated with classroom space, where they were asked to establish the extent of their agreement with given statements. The results are displayed and discussed in percentage frequencies as shown in Table 10:

Table 11: Views of Respondents on Classroom space (Principals' n= 06; HODs n= 26; students' n= 354 and observations n= 26)

Item	SA	A	MA	D	SD	Mean	SD
Principals – Adequate capacity	0	0	0	4	2		
	0	0	0	(66.7%)	(33.3%)	2.67	0.516
HOD - Adequate capacity	0	7	5	11	3		
	0	(26.9%)	(19.2%)	(42.3%)	(11.5%)	2.62	1.023
Students- Adequate Classrooms	38	45	65	95	111		
	(10.7%)	(12.7%)	(18.4%)	(26.8%)	(31.4%)	2.45	1.333
Observer – View on Classrooms capacity	3	7	5	6	5		
	(11.5%)	(26.9%)	(19.2%)	(23.1%)	(19.2%)	2.88	
Average respondents views on classroom space						2.49	1.31

KEY: SA: strongly agree = 5; A: Agree = 4; MA: Moderately agree = 3; D: Disagree = 2; SD: strongly disagree = 1.

The research suggests that, the average score of the respondents views on the adequacy of classroom space had a mean = 2.49 and standard deviation = 1.31. This result demonstrates that, even though the respondents held different views, they disagree that, there are adequacy classroom space for the accredited TVET practical based programs theory lessons.

5. Conclusion and Recommendations

5.1 Conclusion

There are disparities in enrolment at TVET level based on gender with more male than female students enrolled in TVET institutions, particularly in national polytechnics. Despite efforts put in place to ensure gender parity, the inequalities still persist due to a number of reasons: lack of basic pre-entry qualifications, low participation of female in STEM courses; costs of undertaking the courses and limited knowledge about the training benefits among others. Additionally, disparities exist for trainees with

special needs. Kenya has only four special needs TVET institutions with the capacity in these institutions being low relative to the number of students with special needs and disability in the country. The shift to CBET approach is likely to be slowed down by dilapidated physical infrastructure and obsolete equipment as well as inadequate facilities that characterize most TVET institutions across the country

5.2 Recommendation

The study recommends expansion and rehabilitation of equipment of TVET infrastructure in order to increase access, promote equity and improve quality and relevance of TVET training. The study also recommend provision of modern equipment to all TVET institutions. Lastly, the study recommends major financing of TVET institutions. HELB should be extended to all TVET student. Rebranding of all TVET programmes and repositioning TVET to make it a premier education pathway to train workers for the labour market.

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