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KJ-TVET

The Technical and Vocational Education and Training Authority acquired the publication rights of the Kenya Journal of Technical and Vocational Education and Training ISSN 2227 – 5088 in February, 2020. Technical and Vocational Education and Training Authority is a state corporation established by TVET Act, 2013 to regulate and coordinate Technical and Vocational Training in Kenya. The Authority was established to address emerging trends and reforms in the TVET sector, provide overall regulatory services to all TVET providers and promote access, equity, quality and relevance. The mandate of TVET Authority includes *inter alia* advising and making recommendations to the Cabinet Secretary on matters related to training; Promoting access and relevance of training programmes within the framework of overall national socio-economic development plans and policies; Establishing training system which meets the needs of formal and informal sectors; Collecting, examining and publishing information relating to training; Assuring quality and relevance in programmes of training; Liaising with the national and county governments, public and private sector on matters relating to training. In order to achieve these mandates, the Authority needs data to make informed decisions and recommendations. The Authority plans to promote TVET research and dissemination of the findings through annual publication of KJ-TVET.

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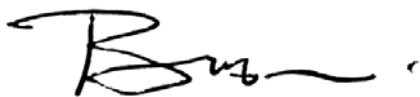
MESSAGE FROM THE CHIEF EDITOR

On Behalf of the KJ-TVET Editorial Board and TVETA Secretariat, I wish to commend all the authors whose papers met the conditions set by the Editorial Board. Special congratulations to all authors and reviewers for consistently working within the set timelines.

The KJ-TVET is a peer reviewed journal of TVET applied research, policy and data published by Technical and Vocational Education and Training Authority. The Vol. 4 of the KJ-TVET is the inaugural edition of the journal published by Technical and Vocational Education and Training Authority. The first three volumes of the KJ-TVET were published by Rift Valley Technical Training Institute.

The theme of this publication was **Relevance of TVET in Changing Times** while the sub-themes were TVET Innovative responses in the COVID-19 era, ODeL in TVET, TVET and the changing expectations of the world of work, TVET and Entrepreneurship: The Missing Link, and TVET and Employment Creation. In this volume, fourteen papers sent by authors were recommended for publication.

The findings and recommendations from papers published in this Journal are expected to provide appropriate information that can be used for decision making and policy formulation in the TVET sector. I welcome all researchers and stakeholders in TVET to read the journal and consider sending their research papers to be considered for publication in the subsequent volume of the journal.



Prof. Bonaventure W. Kerre, PhD

Chief Editor, Kenya Journal of TVET

1

TVET AND CHANGING EXPECTATIONS OF THE WORLD OF WORK

THE EFFECT OF TRAINER COMPETENCIES ON TRAINING EFFECTIVENESS: A SURVEY OF PUBLIC TVET INSTITUTIONS IN KENYA

K. Langat, D. B. Omboto, A. M. Ambuli and J. K. Ngeno

Technical and Vocational Education and Training Authority,

P. O. Box 35625 – 00100, Nairobi.

Abstract

This study investigated the effect of trainer competencies on training effectiveness in Public TVET institutions in Kenya. The specific objectives of the study were; to determine the effect of trainer level of education, trainer continuous professional development (CPD) and trainer pedagogical skills on training effectiveness of trainers in public TVET institutions in Kenya. The research adopted a descriptive research design where registrars, deputy principals and principals of National Polytechnics and Public Technical and Vocational Colleges (TVCs), who number 181, were targeted. The study sampled 55 of the 181 National Polytechnics and TVCs in which either, a registrar, deputy principal or principal was included in the sample depending on availability and accessibility. Stratified random sampling was used to obtain proportionate samples from National Polytechnics and Technical and Vocational Colleges. Questionnaires were used for data collection. Questionnaires were content and face validated, and reliability was determined using Cronbach's alpha. Data from questionnaires was analysed using descriptive and inferential statistics. Descriptive statistics included mean and standard deviation while inferential statistics included Pearson correlation and regression analysis. The study found a positive significant relationship between trainer academic qualification, trainer CPD, trainer pedagogy and training effectiveness. The study, therefore, concluded that trainer academic qualification, trainer CPD and trainer pedagogy influence the competencies of a trainer. It was recommended that the government should invest in trainer professional development to improve the effectiveness of trainers in TVET institutions in Kenya.

Key words: Trainer competencies, training effectiveness.

Introduction

Technical and vocational education and training provides an important pathway for developing an effectively co-ordinated and harmonised TVET system that is capable of producing quality skilled workforce, with the right attitude and values required for growth and prosperity of various sectors of the economy. This goal can be realised in part, by the quality of trainers. Quality of education is strongly dependent on the quality of teachers, a function of their knowledge and mastery of subject matter content, appropriate teaching methods and professional values (Barrera-Pedemonte, 2016). A study by Hanafi and Ibrahim (2018) on the impact of employee skills on service performance revealed a significant positive relationship between employee skills and service performance. Similar findings were obtained by Omboto, Namusonge and Sakwa (2017) who studied the effect of human resources on strategy implementation in commercial banks in Kenya. The study found a positive significant relationship between employee knowledge, skills and attitudes on the successful implementation of banking strategies in Kenya.

Kenya currently faces the challenge of ensuring that there is sufficient supply of well-equipped trainers to propel the nation to industrialised nation status. TVET training competencies are integrated sets of technical competencies, learning and methodology competence, and human and social competence that are needed for effective performance in various teaching concepts and didactic approach. Nevertheless, in the global context, changes and innovation in education are needed in order to ensure competent training personnel who are able to deliver quality training (Wan Nooraini & Mohammed Sani, 2010). This study examined the contribution of trainer qualifications, CPD and pedagogical skills training on effectiveness of training in public TVET institutions in Kenya.

Arifin and Rasdi (2017) defined competence as a combination of knowledge, skills, abilities, behaviours and personal characteristics to successfully perform critical work tasks, specific functions or operate in a given role or position. They further propose a model of vocational teacher's competence for 21st century TVET. The model consists of four constructs namely:

1. Teaching competence
2. Professional competence
3. Communication competence and
4. Personal competence.

A study by Salah (2014) investigated whether lecturers take into consideration those fundamental skills required by industry in their classes. The study also

examined the degree of industrial involvement in formulating vocational and technical curriculum, such as types of knowledge, skills and attitudes that need to be stressed in the classroom. The study concludes that trainers must emphasise and develop the needed knowledge, skills and attitudes required by industries in their course of instruction.

Ismael *et al.*, (2018) advanced a model aimed at defining the core competencies for TVET trainers that comprehensively prepare their trainees for the transition to employment. The model underscored the need for trainers to undergo continuous professional development, possess pedagogical skills and an appropriate mix of technical and soft skills.

Wan and Mohammed (2010) conducted a study on enhancing Malaysian Polytechnic Technical Lecturers' competence through the identification of CPD programmes. The study identified areas that needed to be enhanced such as professional knowledge and skills, instructional planning, instructional execution and instructional evaluation.

Problem Statement

Vocational and technical education has not adequately met the needs of the labour market, especially in developing countries where trainers in TVET institutions have limited industry experience, lack pedagogical skills and rarely undergo continuous professional development (Salah, 2014). This study investigated the effect of trainer qualifications, CPD and pedagogical skills training on effectiveness of training in public TVET institutions in Kenya.

Research Objectives

- (i) To determine the effect of level of education of Trainers on training effectiveness in public TVET institutions in Kenya.
- (ii) To determine the effect of trainer CPD on training effectiveness in public TVET institutions in Kenya
- (iii) To evaluate the effect of pedagogical skills training on training effectiveness in Public TVET institutions in Kenya.

Conceptual Framework

The main idea of this research could be conceptualised as follows; that there is a direct and positive relationship between level of education, CPD, pedagogical training and training effectiveness. According to our proposed theory, level of education, continuous professional development and pedagogical training as independent variables have an impact on training effectiveness. The conceptualisation is supported by findings of Ismael *et al.*, (2018) and Arifin and Rasdi (2017) as discussed in the literature.

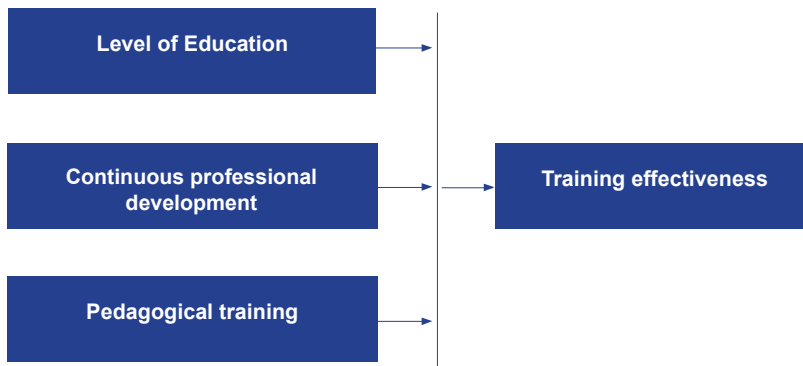


Figure 1: Conceptual Framework

Research Methodology

The study adopted a descriptive research design where primary and secondary data were collected. Primary data was collected from registrars, deputy principals and principals by use of a questionnaire, while secondary data was obtained from data existing in the TVET Authority database. Out of the 181 National Polytechnics and public TVCs in Kenya, a sample size of 55 institutions representing 30% of the population was chosen. Forty questionnaires, (response rate of 72.7%) were collected. Data was analysed using descriptive and inferential statistics, mainly by use of mean, standard deviation, correlation and regression analysis.

Results and Discussions

Effect level of education of Trainers on training effectiveness in public TVET institutions in Kenya

Respondents were asked to give responses to a range of questions on the effect of the level of education of trainers on training effectiveness in public TVET institutions in Kenya. The responses obtained are shown in Table 1.

Table 1: Trainer's levels of education

Statement	N	Mean	Std. Dev.
Trainers teach a level higher than their highest level of education	40	3.7500	1.83
Trainers with higher qualifications teach better than those with low qualifications	40	3.3500	1.14
The college has the right trainers in terms of academic qualifications	40	4.3500	.59
Trainers continuously upgrade their academic qualifications	40	3.8000	.83
Valid N (listwise)	40		
Average		3.8125	1.10

From Table 1, respondents agreed that trainers teach a level higher than their

highest level of education (M= 3.7500, SD= 1.83174). On whether trainers with higher qualifications teach better than those with low qualifications, a mean of 3.3500 (neutral) with a SD of 1.1367 was obtained. On whether the college has the right trainers in terms of academic qualifications, respondents agreed with a mean of 4.3500 and SD of .58714. Finally, respondents agreed that trainers continuously upgrade their academic qualifications (M=3.8000, SD =.8335). Overall, level of education scored a mean of 3.8125 (agreed) and a SD of 1.097. Findings from this study are similar to Mutua, Mulwa and Kimiti (2019) whose study examined the extent to which trainers’ qualifications in CBET implementation influence the acquisition of employability skills among visually impaired learners in TVET institutions in Kenya. The study concluded that the trainer’s qualifications had a considerable impact on the level of acquisition of employability skills and among visually impaired learners.

The findings are also in line with a 2019 census survey by TVET Authority which established that 1.13% of trainers in National Polytechnics and TVCs hold PhD degrees, 19.84% hold masters degrees, 49.77% bachelor’s degrees, 7.55% hold HNDs, 19.68% hold diplomas, 1.08% hold craft certificates while 0.97% hold qualifications below craft certificates (TVET Authority, 2019). In terms of trainer qualifications, it can be concluded that trainers in Kenya’s National Polytechnics and public technical and vocational colleges have fairly sufficient qualifications since the TVET trainer qualification framework has set the minimum trainer qualification at craft level.

Effect of trainer continuous professional development (CPD) on training effectiveness in public TVET institutions in Kenya

Respondents were requested to respond on establishment of CPD programmes in their institutions. Responses obtained were as shown on Table.

Table 2: Trainers Continuous Professional Development (CPD)

Statement	N	Mean	Std. Dev.
Trainers undergo CPD	40	3.2500	1.12
Existence of annual budget for CPD	40	2.9000	1.41
Trainer CPD enables trainers to abreast themselves with industry trends	40	4.5500	.51
Trainers appreciate the importance of CPD	40	4.2500	.85
Valid N (listwise)	40		
Average		3.7375	.97

Respondents were neutral on whether trainers undergo CPD (M= 3.2500, SD= 1.11803) and whether there is an annual budget for trainer CPD (M= 2.9000,

SD=1.41). However, the administrators admitted that trainer CPD enables trainers to abreast themselves with industry trends (M= 4.5500, SD= .51042) and trainers generally appreciate the importance of CPD (M= 4.2500, SD= .85). Some respondents observed that the government had invested in expensive teaching equipment, yet trainers haven't been trained to operate and maintain them. From the findings, it can be concluded that managers of TVET institutions understand the importance of trainer CPD but they have not set aside resources for the same.

The findings from this study compared very well with those of Chikali, Rudhumbu and Sivotwa (2015) who studied the effect of lecturer CPD on the performance of lecturers in private higher education institutions in Botswana. The study found that lecturers viewed CPD positively and regarded it as a panacea for professional growth, efficiency and teaching effectiveness. Gaikhorst *et al.*, (2015) proposed that CPD provides teachers with the ability to maintain and improve quality while dealing with the challenges of teaching. However, in Kenya, a large number of TVET graduates lack adequate skills, experience, industry exposure and modern technology (Oduor *et al.*, 2018). In a study on professional development for TVET teachers in Kenya, Njenga (2018) observed that policy recommendations on TVET trainer CPD have been proposed but unfortunately none of those recommendations have been implemented.

Evaluating the effect of pedagogical skills training on trainer effectiveness in Public TVET institutions in Kenya

Respondents were asked to give their opinion on the effect of pedagogical skills training on training effectiveness in public TVET institutions in Kenya. Responses provided are as shown on Table 3.

Table 3: Pedagogical skills

Statement	N	Mean	Std. Dev
All trainers have pedagogy	40	2.8000	1.15
Trainers with pedagogy train better than those without	40	4.2500	.72
Pedagogy skills enable trainers to plan well for the training	40	4.5000	.51
Trainers with pedagogy are more committed to their work	40	3.8500	.75
Valid N (listwise)	40		
Average		3.8500	.78

On whether all trainers had pedagogy, respondents were neutral (M= 2.8000, SD= 1.15166). They generally agreed that trainers with pedagogy train better than those without (M=4.2500, SD= .71635) and that pedagogy skills enable trainers to plan well for the training (M= 4.5000, SD= .51299). Respondents



also agreed that trainers with pedagogy are more committed to their work than their counterparts who do not have pedagogy (M=3.8500, SD=.74516).

From the findings, it could be concluded that pedagogy played an important role in the competence of a trainer; however, not all trainers are trained in pedagogy in public TVET institutions. Some respondents expressed concern that the government recently employed trainers without pedagogy and a lot of effort is being used to induct them into the training career. Findings from this study were consistent with those of Aziz and Akhtar (2014) who studied the impact of pedagogy on teachers’ competencies. The competencies of trainers with and those without pedagogy were compared. Trained teachers showed a significant difference in pedagogical competencies, management and assessment competencies and research competencies compared to their untrained counterparts.

Training Effectiveness

Respondents were asked to respond to questions which were intended to measure the competencies of trainers in public TVET institutions. Responses obtained are shown on Table 4.

Table 4: Training effectiveness

Statement	N	Mean	Std. Dev
Trainers maintain all professional documents	40	3.7500	1.21
Our graduates are highly demanded in the job market	40	4.0000	.73
Trainees are satisfied with the competences of trainers	40	3.9500	.83
Trainers offer competence-based training	40	3.5000	.76
Valid N (listwise)	40		
Average		3.8000	.88

The findings in Table 4 showed that trainers maintained all professional documents (M= 3.7500, SD= 1.21). On the marketability of graduates, respondents stated that their graduates had a high demand in the job market (M= 4.0000, SD= .73) and trainees were satisfied with the competencies of trainers (M= 3.9500, SD= .83). On the other hand, respondents were of the opinion that trainers offer competency-based training to trainees (M= 3.5000, SD= .76). Findings from this study agree with Mutua *et al.*, (2019) who found that trainers in two special TVET colleges in Kenya, which were the focus of their study, were moderately prepared to offer competency-based training.

Correlation between trainer competence variables and training effectiveness in public TVET institutions in Kenya
 Correlation analysis was undertaken to determine whether there was a significant

association between the three competence variables studied (i.e., trainer level of education, trainer CPD and pedagogical skills training) on training effectiveness in public TVET institutions in Kenya.

Table 5 : Correlation between trainer competencies and training effectiveness

		Education	Development	Pedagogy	Effective
Education	Pearson Correlation	1	.496*	.635**	.553*
	Sig. (2-tailed)		.026	.003	.011
	N	40	40	40	40
Development	Pearson Correlation		1	.603**	.628**
	Sig. (2-tailed)			.005	.003
	N		40	40	40
Pedagogy	Pearson Correlation			1	.732**
	Sig. (2-tailed)				.000
	N			40	40

The study found a strong, positive and significant relation between the three independent variables studied and the dependent variable(training effectiveness) with trainer level of education ($r= 0.553, p=0.000, p<0.05$), CPD ($r= 0.628, p=0.000, p<0.05$) and trainer pedagogical skills($r= 0.732, 0.000, p=0.05$). The findings implied that trainer competence variables of level of education, CPD and pedagogical skills training changed in the same direction with training effectiveness. Findings from this study confirm Njenga’s (2018) assertion that TVET teachers must be competent in content and knowledge of their fields, have hands-on experience in their trade and have pedagogical competencies to present that content and its application in forms that are comprehensible and appropriate to their learners.

Regression analysis between trainer competencies and training effectiveness

Regression analysis was carried out to establish the relationship that existed between trainer competence variables (trainer level of education, trainer CPD and pedagogical skills training) and training effectiveness. This enabled quantification of the effect of the trainers’ competences on training effectiveness by the trainers.

Model Summary

The model summary results presented in table 6 showed that the three competence variables of level of education, CPD and pedagogical skills training accounted for a significant variation in training effectiveness in public TVET institutions in Kenya. This was demonstrated by an R square of 0.596 which meant that 59.6% of the variation in training effectiveness was accounted for by the three independent variables taken together.



Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.772 ^a	.596	.520	109.19610	3.168

A. Predictors: (Constant), Pedagogy, Development, Education

B. Dependent Variable: Effective

The remaining 40.4% of training effectiveness was contributed by factors that were not considered in the model. The findings implied that trainer level of education, CPD and pedagogical skills training were significant variables in explaining training effectiveness in public TVET institutions in Kenya.

Model Fitness

The model fitness results presented in Table 7 showed that the link between trainer competency variables and training effectiveness in public TVET institutions in Kenya was significant given $F(3, 16) = 7.855, p = 0.000 < 0.05$. The findings showed that trainer level of education, CPD and pedagogical skills training are significant predictors of training effectiveness in public TVET institutions in Kenya.

Table 7: Model Fitness Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	280987.946	3	93662.649	7.855	.002 ^b
	Residual	190780.604	16	11923.788		
	Total	471768.550	19			

A. Dependent Variable: Effective

B. Predictors: (Constant), Pedagogy, Development, Education

Regression coefficient for trainers' competencies in public TVET institutions

The regression coefficient output displayed in Table 8 showed that training effectiveness in public TVET institutions was positively and significantly affected by trainer competencies in public TVET institutions in Kenya given $\beta = 50.127, t = 1.107, p = 0.000, p < 0.05$. The findings implied that a unit increase in trainer level of education will result in 0.435 increase in training effectiveness, a unit increase in CPD will lead to 1.115 increase in training effectiveness and a unit increase in pedagogical skills training will lead to 2.745 increase in training effectiveness holding all other factors constant. These findings led to a conclusion that training effectiveness was significantly affected by trainer qualifications, CPD and pedagogical skills training. The following model was fitted:

Training effectiveness = 50.127 + 0.435, trainer qualification + 1.115CPD + 2.745 pedagogical skills training

Table 8: Regression coefficients

Coefficients ^a					
Model	Unstandardised Coefficients			Standardised Coefficients	
	B	Std. Error	Beta	t	Sig.
1 (Constant)	50.127		45.262	1.107	.284
Education	.435		.190	.048	.458
Development	1.115		.164	.1385	1.366
Pedagogy	2.745		.248	2.52	2.212

a. Dependent Variable: EFFECTIVE

These findings collaborate with Barrera-Pedemonte (2016) who found that quality of education is strongly dependent on the quality of teachers, a function of their knowledge and mastery of subject matter content, appropriate teaching methods and professional values.

Conclusions and Recommendations

The results from this study showed that trainer qualifications, CPD and pedagogical skills training have a significant positive effect on training effectiveness. The study, therefore, recommends that policies should be put in place to ensure that trainers undergo CPD and undertake pedagogical skills training since these had a positive significant effect on training effectiveness.

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THE IMPACT OF INDUSTRIAL ATTACHMENT IN TVET INSTITUTIONS; A CASE STUDY OF ENGINEERING DEPARTMENTS IN MASAI TECHNICAL TRAINING INSTITUTE IN KAJIADO, KENYA

A. Otieno and M. Onyango

Masai Technical Training Institute,

P. O. Box 125 – 01100, Kajiado, Kenya

Abstract

Technical Training Institutions are key organisations in the provision of personnel in any country's technical workforce. This workforce requires specialised skills that are integrated between the theoretical classroom and industry-based training. Therefore, building collaborations between Technical Training Institutions and labour market cannot be overlooked. This study sought to assess the impact of industrial attachment in technical training institutions. It was guided by two objectives; to determine the benefits of industrial attachment to technical training and to examine the attachment placement procedures. The research design employed was simple random sampling method with a sample population of 108 comprising trainees drawn from Masai Technical Training Institute engineering departments; Mechanical engineering respondents, Electrical and Electronics respondents, Civil Engineering respondents and respondents from the labour market. The findings of this research indicated that through industrial attachment, more than 80% of the trainees acquired necessary skills that prepared them for the labour market. It also emerged that there were limited attachment placement areas. It was also found that industrial attachment solved the problems of shortage of personnel in the organisations. This research recommended that there is a need to develop partnerships with the labour market to ease the placement of trainees.

Key words: Labour market, TVET institutions, Industrial attachment.

Introduction

Education brings about an inherent and permanent change in a person's thinking and capacity to do things. Technical and Vocational Education and Training (TVET) institutions play a vital role in the education system. TVET education and training provides knowledge and skills for employment. TVET is recognised to be a crucial vehicle for social equity, inclusion and sustainable development.

Industrial attachment is a very essential part of a trainee's academic programme. It is a time of hands-on work experience in a relevant industrial setting. The industrial attachment is meant to provide practical skills to trainees and for them to appreciate the work in the industry before being fully employed after completing their studies. The industrial attachment also builds a relationship between industry and the trainees' training institutions. This is so as the industry's supervisor helps the trainees in a step by step industrial training building on what the training institutions had done earlier. Ukwuoma and Akanwa (2008) observed that effective training brings about an increase in the knowledge required in the job, knowledge of the structures and business arms of the organisation. This implies that the knowledge base of the practitioner increases in proportion to the training acquired.

Training according to Ajidahun (2007) is an integral part of vocational or career development and it is fast becoming a global and pervasive phenomenon in any establishments, the absence of which spells doom for such an institution and the presence of which determines the success of any enterprise. Ezeali and Esiagu(2009) say that training is an organised, co-ordinated development of knowledge skills and attitudes needed by an industrial worker to master a given situation or perform a certain task within an organisation setting.

Matamande *et al*, 2013 stated that industrial attachment has become an important element of training as employers continue to demand well trained graduates because it provides a platform to assimilate theory into practice. This study was driven by the fact that industrial attachment is such an important exercise that needs to be given more attention in all TVET institutions in Kenya and in particular in Masai Technical Training Institute in Kajiado, Kenya.

Masai Technical Training Institute is a Government institution under Technical, Vocational Education and Training Authority (TVETA) under the Ministry of Education. It is situated in Kajiado Town (along Nairobi–Namanga Road) 70 Km from Nairobi. It has a huge staff of fully qualified Trainers in their respective fields. The institute started offering Technical courses in 1986. Since then, the institute has registered more than twelve thousand (12,000) trainees.

Benefits of Industrial Attachment

Industrial attachment has several benefits to the trainees and industries where they are attached. Leslie (1991) provided several benefits of industrial attachment to the trainee in his study. He stated that a trainee on industrial attachment gets opportunities to examine theory through practice and enhance possibilities of integration; he went ahead and noted that there will be a broader knowledge through increased awareness of the opportunities available; the trainee will also have an understanding of the diversity of the industry sector. Benefits concerning personal development, for example, communication skills, working with others, self-discipline, presentation of self, and where applicable working away from home and learning to stand on one's feet, are some of the benefits that a trainee gets while on industrial attachment.

Dondofema J. *et al.*, (2020), divided the benefits derived from the industrial attachment programme into four. They indicated that there are benefits to the trainees, host organizations/companies, training institutions and employers. Employers fall in the same category with the host organizations/companies since they share the same benefits. Organisations and employers may enjoy competent labour if they choose well-trained trainees/students. They further indicated that the tertiary institutions are complemented in areas they are weak by bridging the gap between the produced graduates and what the industry needs thereby creating confidence and strong linkages for institutions to remain relevant. Williams, S. M., *et al.*, (1993), pointed out that an average of 80% job prospect as a benefit to trainees/students who go through the industrial attachment training. They further stated that trainees should participate in industrial attachment with the seriousness it deserves.

The industries benefit quite a lot and that is why they accept to enter into a partnership with the training institutions. The benefit could be of business-related and that is why industries accept trainees. Reichheld and Teal (2001), says that employers benefit tremendously because a well-trained student employee contributes to the profitability of a business. According to them, the industry lacks personnel in certain situations and industrial attachment fills these vacancies. VanEgmond and Erkelens (2007), in their study, states that industrial attachment programmes are capable of solving problems of shortage of personnel in firms and industry. This is because when students go on attachment, even though they are undergoing training, they do real jobs that bring income to these companies. In instances where some personnel are not

present in their areas, they are covered by these students on attachment. This is a confirmation of researchers; Reichheld and Teal.

Attachment Placement Procedures

National Industrial Training Authority (NITA) was established under an amendment Act of Parliament of October 2011, CAP 237 Laws of Kenya with a vision of being the leading National Agency in spearheading integrated industrial training at all levels in the industry. Its mission is to promote the highest standards in the quality and efficiency of industrial training in Kenya and ensure an adequate supply of properly trained manpower at all levels in the industry. ITAP is a web portal designed to link training institutions to the Industry. It is targeted at reducing the duration taken to attach students to attachment places, though the number of trainees seeking placement keeps growing hence becomes a challenge for NITA.

The findings of a study in Ghana by Ayarkwa *et al.*, (2012), and by Edziwa and Chivheya (2013) stated that academic institutions should organise and promote the placement of students in private and other organisations to foster work experience so that students will attain the necessary skills to supplement theoretical training. Gill and Lashine (2003) opine that while students are still in the university, it should be the responsibility of the university to organise Industrial Attachment since it can help students develop a core of global market skills such as communication, time management, self-confidence and self-motivation that are now considered requirements for employment. Therefore, Industrial Liaison offices need to help TVET trainees to seek attachment placement.

Research Objectives

This study was guided by two research objectives, and these were:

1. To determine the benefits of industrial attachment to technical training.
2. To examine attachment placement procedures.

Methodology

This research study is non-experimental hence the researchers used an explanatory survey method. Surveys are designed to collect information that describes, explore and help an investigator understand social life. Surveys attempt to quantify social phenomena particularly issues, conditions and problems that are prevalent in society (Mugenda, 2008). This research method was hence found

to be suitable for this study. The study population for this research consisted of trainees from engineering departments in Masai Technical Training Institute. These departments included Mechanical, Electrical & Electronics, and Civil Engineering. A simple random sampling technique was employed and a sample population of 95 trainees was used in this study. Table 1 gives a summary of the study population of trainee respondents.

Table 1: Selection of study sample (trainee respondents)

Engineering Departments	Number of Trainees Selected
Mechanical	27
Electrical & Electronics	30
Civil Engineering	38
Total	95

These trainees were out on attachment between September 2018 and March 2019. An addition of 13 supervisors from the labour market were also randomly selected from the various organisations where these trainees had undertaken their attachment. The table below gives a summary of the study population of supervisors from the labour market.

Table 2: Selection of study sample (industry supervisors)

Name of Company	Number of Supervisors Selected
Subaru Kenya	4
County Government of Kajiado	4
Kengen Olkaria Naivasha	5
Total	13

Findings and Discussion

This study sought to find out the impact of industrial attachment in technical training institutes, therefore the researchers picked various items to assess the impact of industrial attachment (IA). The trainee respondents consisted of 32% female and 68% male. One of the items was to find out what the trainees liked most during IA which are also benefits of Industrial Attachment, 64% of the respondents liked the fact that they gained work experience and understood workplace expectations, 20% responded that it helped them to have a continuity learning of classroom work while 16% liked the exposure to the industry. Watty (2005) realised that the attachment period exposes students to various working relationships with their seniors and peer workers and in the process, they get

to learn about the type of work that they are involved in and this is in line with King (1994) who says, the student uses the attachment to gauge whether he/she is prepared to work with the prospective employer.

Edziwa and Chivheya (2013) indicate that this further enhances professional practice as the student would be better able to go out and contribute meaningfully in society and at the workplace. The student directly encounters the phenomena studied as opposed to visualising. This accords the learner room to construct knowledge, skills and values from direct experience. Figure 2 gives a summary of the same.

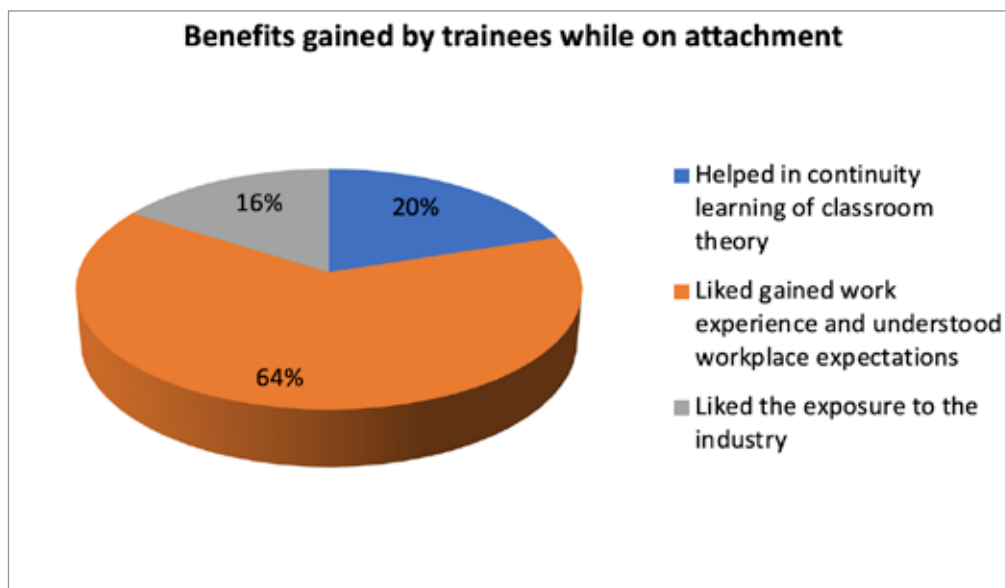


Figure 1: Summary of the benefits gained while on attachment

The study findings showed that 59% of the trainee respondents did their search for places of attachment. Twenty percent of the respondents got their attachment placement through the office of the industrial liaison and National Industrial Training Authority (NITA) while 21% engaged their friends and relatives to help them search for organisations where they were attached. Ayarkwa J, *et al.*, in their study finds out that the major contribution of the teaching departments has been the area of issuance of introductory letters to prospective trainees (94%). They say that the issuance of introductory letters only does not contribute much to students' chances of obtaining placement for their industrial training. This is corroborated by the fact that 60% of the respondents in the study indicated their dissatisfaction with the current placement method. Their study findings indicate that Forty-two percent (42%) of respondents received a placement through their relatives and 38% through their friends. Fourteen percent (14%) of the respondents, however, received a placement through their efforts and only 5%

received a placement through their respective teaching departments. This result suggests very little involvement in the teaching departments in the placement of prospective trainees. Mihail (2006) stated that academic institutions should actively organise and promote the placement of students in private enterprises and other organisations to foster work experience so that students will attain the necessary skills to supplement their theoretical training. The bar chart below gives a summary of these findings:

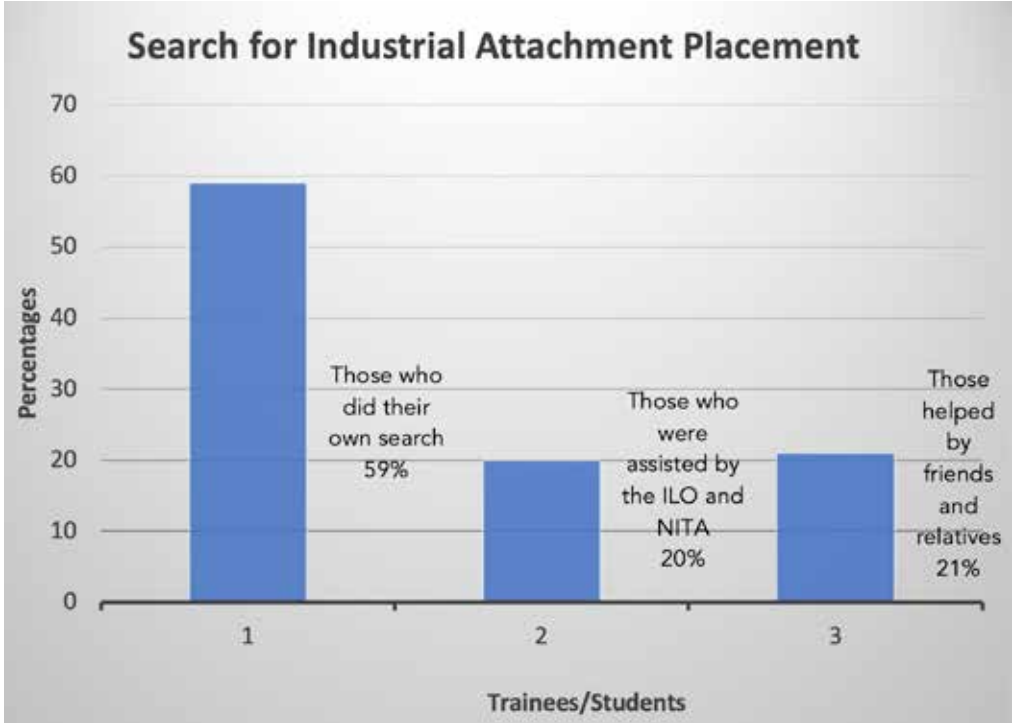


Figure 2: Ways by which trainees found their Industrial Attachment Placement

When asked the problems that they faced while in search of organisations for attachment, 57% of the respondents answered that they faced the problem of lack of funds for moving around various organisations, 30% faced the problem of organisations having no enough working space for trainees on attachment while 13% faced other problems which they never mentioned. In an article in the *Standard Newspaper* on 15th August 2019, the author enumerated the challenges trainees/students face while in search of industrial attachment placement. She said that a trainee/student looking for industrial attachment placement usually faces many obstacles including a lack of knowledge on how the industry operates, scarcity of opportunities and stringent requirements from the industry. Many trainees have reported to the industrial liaison officers and supervisors that they usually experience financial challenges during the attachment periods.

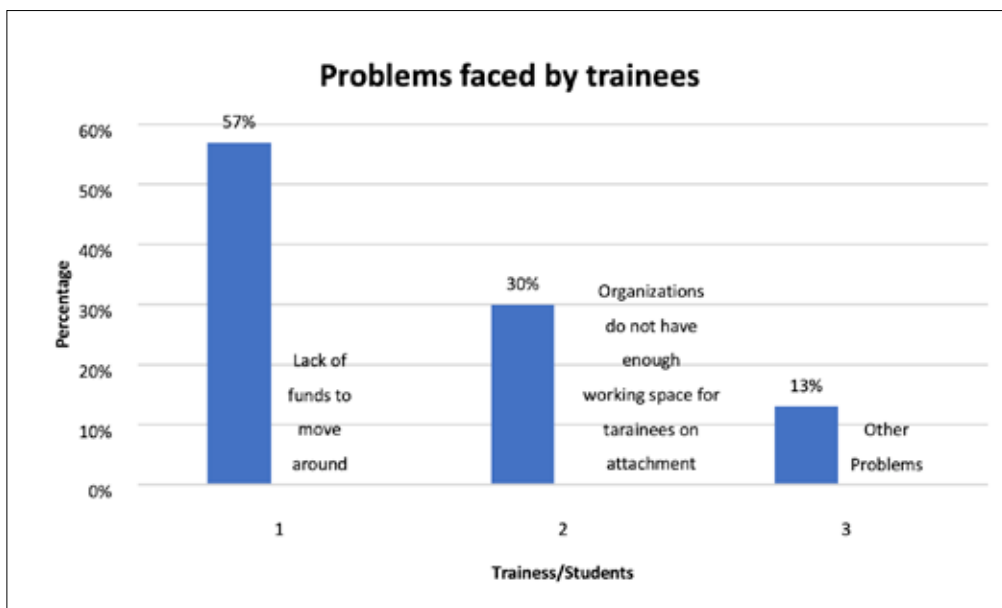


Figure 3: Problems faced by trainees while in search of attachment placement

All the trainee respondents agreed that industrial attachment adequately helped trainees acquire necessary skills that prepared them for the labour market.

The following organisations were involved in this study; Subaru Kenya, the County Government of Kajiado and Kengen Olkaria, Naivasha. Some of the trainees were attached to these organizations and during trainees' assessment, their respective supervisors were interviewed and the findings indicated that 79% of the respondents accepted the fact that industrial attachment exercises do solve problems of shortage of personnel in firms and industry. This was because while trainees were on attachment, they did actual jobs which would otherwise be performed by other full-time employees; hence generating income to the various organisations. The respondents also indicated that organisations always benefit by reducing recruitment and training costs. These findings are confirmed by Hammer, *et al.* (2003) when they stated that the industrial attachment programmes are capable of solving problems of shortage of personnel in firms and industry. It has also been found that organisations that attach trainees/students do gain new perspectives and technologies with the scope of student's programme and the students can also develop what is on the ground implementing what they have learned. This was seen to benefit the organisation with an average of 5%, (Mgaya & Mbekomize, 2014).

Ayarkwar J, *et al.*, (2012) stated that by hosting trainees on attachment, the host organisation could identify potential employees whom they could retain

after completion thereby recruiting people who are already familiar with the organisation. Edziwa and Chivheya (2015), indicated that some companies/ organisations engaged trainees on attachment as a way of providing cheap labour, hence reducing their wage bill by 10 to 15% which is quite significant. Hence the host organisation or the employer channel the savings to other areas for expansion and sustenance of their business.

Table 3 indicates the number and percentage of response to the interview question on whether Industrial attachment solves problems of personnel shortage in industries.

Table 3: *Industrial attachment solves the problem of personnel shortage in industries*

Response	Frequency	Percentage of Response
Yes	10	79%
No	03	21%

Table 4 shows that most organisations do cut costs on recruitment and training when trainees on attachment are in the industries.

Table 4: *Recruitment and Training Costs are reduced*

Response	Frequency	Percentage of Response
Yes	13	100%

Conclusion

This research study, therefore, concludes that industrial attachment has several benefits to TVET trainees. These benefits included helping the trainees to have an application of classroom theory with practical training in the industry; gaining work experience and understanding workplace expectations and being exposed to the industry. The majority of TVET trainees do their search of attachment placements with a few being placed by NITA and the institutions' Industrial Liaison Office while others get assisted by friends and relatives. The trainees encounter challenges while in search of attachment placements.

Recommendations

This study recommends that there is a need for a national industrial liaison office at the state department of vocational and technical training in Kenya to co-ordinate attachment placements. This office should have its regional co-coordinators

liaise with the TVET institutions on matters of industrial attachment. There is a need for institutions to create partnerships with attachment providers to aid placements.

Acknowledgements

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INFLUENCE OF TECHNICAL, VOCATIONAL EDUCATION AND TRAINING ON GRADUATES' EMPLOYABILITY IN KENYA: AN INHERENT CONCERN

C. L. Nyongesa and L. Makokha

Kisiwa Technical Training Institute,

P. O. Box 657 – 50200, Bungoma, Kenya

Abstract

On basis of evidence from countries that had recorded marked development trajectories, Kenya has embraced Technical, Vocational Education and Training (TVET) as a key agent for her manpower development. As such, the Country embarked on various reforms at TVET institutions to modernise the relevance of TVET Training. Among the four pillars identified in Beijing Conference of 2006 for a modern TVET system were demand driven courses and recognised certification. The study evaluated the influence of TVET graduates on basis of evidence from 15 Public TVET institutions in Western Kenya. Influence of employability of graduates was evaluated based on nature of courses pursued and examination attainment in Standardised examination, a basis of certification. Correlation research design was used for the study. Document analysis and interview schedule were the principal instruments for data collection. The study established that majority of Trainees were pursuing Courses oriented to Mathematics, Information, Natural Sciences and Technology (MINT) which are critical component of TVET, inclined with labour market demands. However, pass rate in examination in these courses which form a basis of certification courses ranged between 13.5 and 33 per cent for MINT courses. This meant that at least over 65 per cent of Trainees failed to have certification. The study also further revealed marked disparity in enrollment based on gender. From the study, it is concluded that TVET institutions were unlikely to be able to promote employability of TVET graduates. The study recommends raising of minimum requirement for admission into MINT courses to ensure that only students with certain prerequisite knowledge are admitted as opposed to current trend where minimum overall mean grade is set as minimum requirement.

Key words: Certification, Employability, TVET, MINT Courses.

Introduction

Technical and Vocational Education and Training has become a priority area of skill development in the recent past aimed at promoting graduates' employability and facilitation of Certification (Lucas & Claxton, 2009). According to Bennell(2000), most African governments in the past had rendered limited significance to donor financing systems and discourse, leading to restricted attachment of TVET in main stream schooling structure. However, in recent years, TVET has become a fundamental part of the "Education for All" international initiative due its role in promotion of individual's employability and general development of a country learning (Garba, Dawha & Sini, 2020 quoting UNESCO/ILO, 2002). As such, Kenya as a signatory to International Conventions such as Sustainable Development Goals has made TVET a priority sector for her Human Resource Development.

However, despite embracing TVET, its ability to facilitate skill development lies in the quality of skill created as defined by courses offered and pass rate in standardised examination, a measure of certification. A study by the Asian Development Bank(ADB, 2008) on TVET and unemployment, established that mismatches between TVET skills development and labour market demands is occasioned by:

- (i) Types of courses offered,
- (ii) Skills developed in view of industrial needs , and
- (iii) Practical exposure for trainees.

Skill mismatch is a product of training programmes that are developed without regular and systematic assessment of labor market needs. The study states that relevance of TVET can only be felt if TVET supply is linked to economic demands. This can only be achieved, if TVET is linked to economic development strategies, a situation that can be attained by matching skills supply with demand.

A study done by Stone (2010) noted that the ability of any training programme to promote employability depends on viability of the same, a situation that can be achieved by undertaking Training Needs Analysis (TNA). Need Analysis is used as basis of formation of skill inventory, a foundation for development of guidelines for the undertaking of any effective training programmes (ibid). World Bank (2010), authored a report entitled "*Stepping up skills for more jobs and higher productivity*" where it was observed that skills mismatch in view of

demand and supply is one of the current global issues to be addressed. It was interestingly observed that there was prevailing unemployment more so among the youth, alongside labour shortages in some sectors, a situation that was traced to irrelevancy in the courses undertaken during training.

The Organisation for Economic Co-operation and Development's (OECD) Better Skills Report (OECD, 2012) acknowledge the importance of quality skills in development of any nation. Technical and Vocation Education and Training has ability to empower and transform individuals and communities by inculcating skills such as functional, analytical and innovative abilities that are critical for promotion of productivity (Murgor, 2013). On the other hand, the United Nations Education Programme (UNEP, 2011) advance that there are competencies that are pre-condition for economic growth such as skills that accrue in pursuance of Mathematics, Information Technology, Natural Sciences and Technology (MINT). For instance, there has had been an outcry of declining interest of the youth in MINT subject in European Union (UN) states as it was not only leading to decline in productivity and competitiveness of EU member states but it also had negative effect on transition to green economy (BMZ, 2013).

According to Munro (2007), TVET aims at promoting acquisition of skills and attitudes that ensures the success of individuals at the workplace by focusing on enhancement of equity and access to skill development opportunities and social accountability through promotion of entrepreneurial spirit. Atchoarena and Delluc (2001) define TVET as . . . *Education that majorly involves advancement of development of hands-on oriented skills, knowledge and attitudes that are vital for performance in a certain field of occupation, business or group of industries.*

Affirming the relevance of courses and training, World Bank (2017) observed that effective TVET has been critical in the promotion of social economic advancement of South Eastern Asian countries through advancement and support of knowledge-based economies, skills development that are in tandem with modern and emerging technological advancements.

Rice (2003) in a study on importance of employee on performance established that certified employees had superior performance compared to an employee who did not have similar qualification. Certification is undertaken by a recognised body, on completion of a certain course with a sign of quality assurance. A similar study by Ajibola, Adeleye and Adeola (2018) entitled "Impact of Educational, Professional Qualification and Years of Experience on Accountants' Job Performance" explored the effect of educational attainment and professional

qualification on workers occupation performance. The outcomes confirmed that educational and proficient credentials considerably impact employee’s job performance amongst bursary workforce.

Chen (2010) observed that training institutions or licensing bodies usually specify and instil the required capabilities, skills set and information desired in particular work occupations before certification. Therefore, Certification arrangement is not only used for quality control by ensuring that the staff have certain level of professional competencies and are trained for the job, but it is a basis of job inspiration and training for advanced work obligation when attained by an employee. More recent research has, however, shown that certification does not always imply having the competences, leading to the ‘skills mismatch debate’.

One would argue that certification is not the most important thing, but having the skills. But for skilled people, however, certification leads to employability, and is key even for the recognition of prior skills acquired in the world of work (Rodrigues, Butler & Guest, 2020). Therefore, it is not odd to use educational certification when making decisions, regarding whom to employ during hiring process in an organisation (Chen, 2010). This implies that poor performance of a trainee in standardised examination locks out the trainee from tapping on benefits that accrue on certification.

This study aimed at establishing how TVET institutions were impacting on graduate employability on basis of evidence from 15 public TVET institutions in Western Kenya.

Objectives of the Study

The specific objectives were to:

- Establish the level of enrollment of trainees in various courses in Public TVET institutions in Western Kenya.
- Find out achievement of trainees in various standardised courses in Public TVET institutions in Western Kenya.
- On the basis of study findings, establish correlation between the level of enrollment in MINT Courses, trainees’ academic achievement courses and certification in Public TVET institutions in Western Kenya.

Research Questions of The Study

To help examining the set objectives, the following research questions guided the study:

- (i) What is level of enrollment of trainees in various courses in public TVET institutions in Western Kenya?
- (ii) How is the achievement of trainees in various standardised courses in Public TVET institutions?
- (iii) What is correlation between level of enrollment in MINT Courses, trainee's academic achievement courses and certification in public TVET institutions in Western Kenya?

Significance of the Study

It is anticipated that the findings from the study may be beneficial to several stakeholders. First, the study sheds light on the study of enrollment in various and achievement of trainees in standardised examination. This information is critical for policy makers and planners as they may find information useful in development of intervention programmes to promote employability of TVET graduates. Secondly, it may form a ground on how to improve delivery of TVET institutions' service particularly on how to regulate admission in TVET institutions as a way of enhancing relevancy of TVET training. Thirdly, parents as part of education paradigm in view of their role in provision of financial resources stand guided in advising their children in making of career choices as well as demanding quality training for their children. Lastly, the findings form part of scholarship on issues related to TVET and employability of TVET graduates.

Methodology

The correlation research design was used in this study. A number of researchers Cohen and Marion (1983), Moore, (1983) and Saunders; Lewis and Thornhill (2007) observed that the correlation research design is appropriate for studies where random assignment of subjects to treatment and manipulative control

of independent variable is not possible. This design made it possible for the researchers to determine the influence of Technical, Vocational Education and Training on Graduates' Employability in Kenya as evidenced by Trainees' pass rate (a measure of certification). This design was appropriate for the study as it enabled the researcher to gather facts on capacity of TVET institutions to promote graduates employability. The study purposefully sampled 15 TVET institutions that had been operational for a period of at least 3 years. Document analysis, questionnaire and interview schedule guide were principal instruments that were used for data collection. The respondents included 60 Heads of Departments (HoDs) and 15 registrars of the study institutions. Interview was used to collect data from registrars of study institutions while the questionnaires was used to collect data from HoDs. Collected data was analysed using descriptive and inferential statistics.

Results and Discussions

Questionnaire Return Rate

A total of 60 questionnaires were given to 60 Heads of Department (HoDs) out of which 56 dully filled and returned giving response rate of 93.3 per cent. A response rate of above 70 per cent is considered as excellent to allow for undertaking further statistical analysis (Mugenda &Mugenda, 2003).

Descriptive Statistics

This section presents data analysis of the three variables under study that were investigated to establish the influence of Technical, Vocational Education and Training on Graduates' Employability in Kenya on basis of evidence from public TVET institutions in Western Kenya .The presentation is under study objectives namely: Establish the level of enrollment of Trainees in various courses in Public TVET institutions in Western Kenya, find out achievement of Trainees in in various courses standardised courses in Public TVET institutions in Western Kenya and on the basis of study findings, establish Correlation between the level of enrollment in MINT Courses, trainees academic achievement courses and Certification in Public TVET institutions in Western Kenya

Data to address these objectives was mainly captured from respondents from HoDs and registrars through the use of Questionnaire that was modelled on Likert scale. Items in the questionnaire were scored using (1) for Strongly Agreed running up to (5) for Strongly Disagree and interview schedule.

The study sought to establish enrollment in various courses in study institutions. The findings are shown in figure 1.

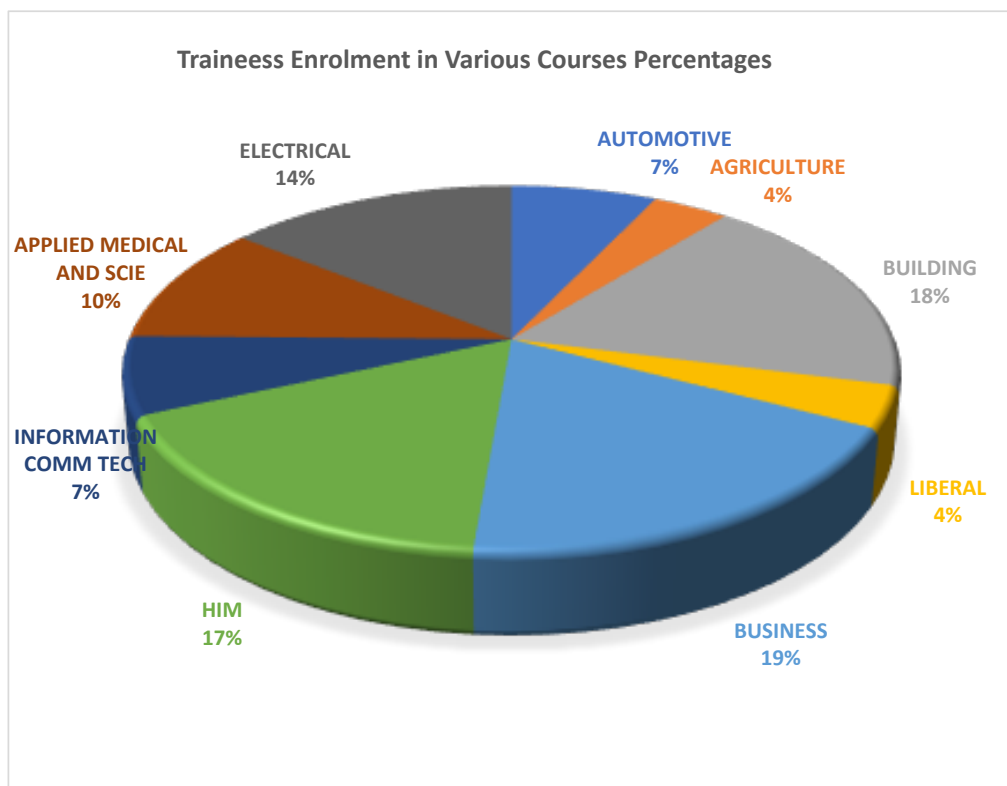


Figure 1: Trainees enrollment in Courses in Study Institutions

Figure 1 showed that Business courses were most popular of all the courses at study institutions as they accounted for about 20 per cent of student enrollment. However, Agriculture attracted the least enrollment of 4 per cent of total trainees at study institutions. The low enrollment in Agricultural Courses is likely to be a threat to the realisation of food security under Kenya's food security. However it was impressive to note that generally enrollment in MINT courses accounted for over 75 per cent of Trainees level of enrollment. This was positive as it is likely to imply that TVET institutions were likely to produce manpower in line with Country's development aspiration. United Nations Education Programme (UNEP, 2011) advance competencies that are pre-condition for economic growth as skills that accrue in pursuance of Mathematics, Information Technology, Natural Sciences and Technology (MINT).

However, it was also necessary to establish enrollment in various courses on basis of gender. This was aimed at establishing whether gender parity had been achieved in enrollment.

The study further sought to establish enrollment in various courses at study institutions. This was meant at establishing gender parity in enrollment. The findings are reflected in figure 2.

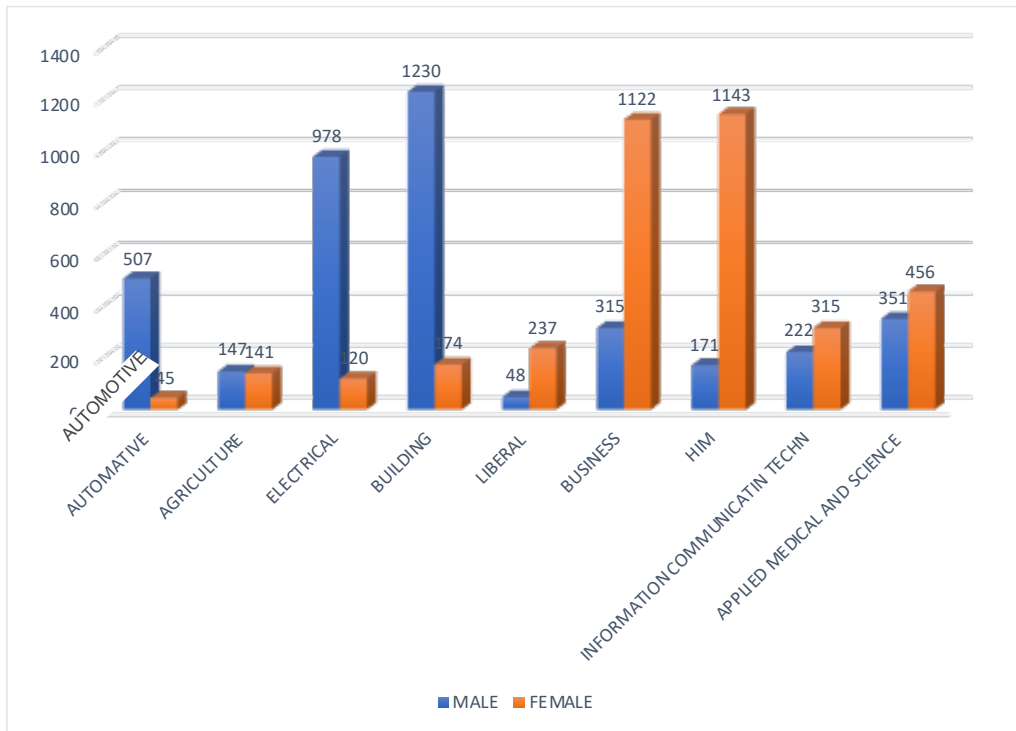


Figure 2: Level of Enrollment of trainees in various courses based on gender

Figure 2 showed that level of female Trainees accounted for 60 per cent enrollment in HIM, Liberal and Business Studies. Similarly, male Trainees accounted for over 70 per cent of enrollment in most Science Courses that included Building, Automotive and Electrical. It may be reasonably concluded that trainees' enrollment in science-oriented Courses at TVET institutions is majorly inclined towards male. This is likely to imply that female trainees are more likely to be highly discriminated in occupations which are inclined towards MINT. Male command (or adrocentricity) of Science oriented courses has been eminent in other scholarships and government policy documents in Kenya (Ngure, 2013).

Skill formation and mastery of the same is normally evaluated on the basis of Trainees achievement in standardised national examination. It was, therefore, imperative to establish Trainees performance in the same. The findings are shown in figure 3.

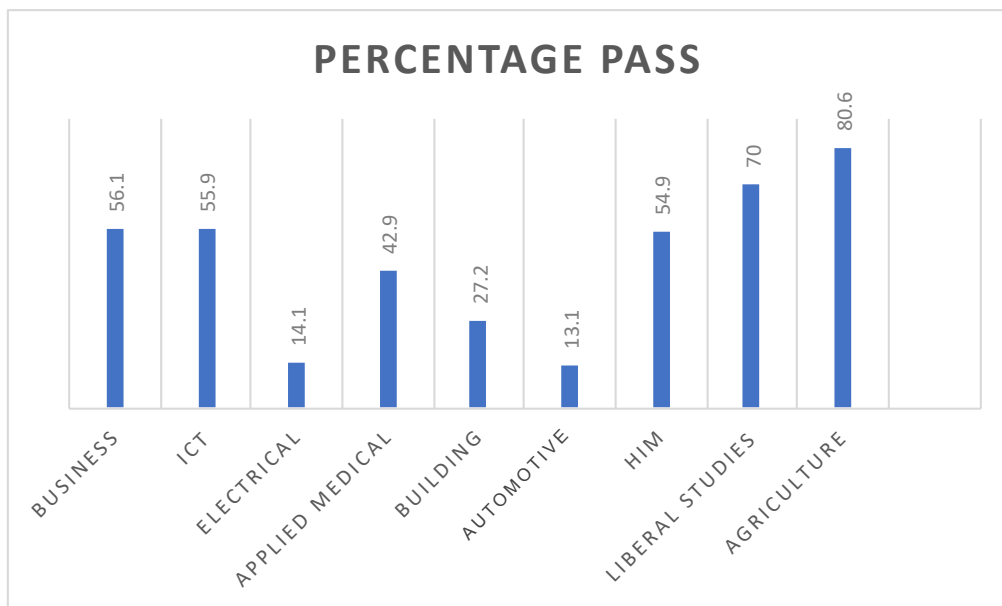


Figure 3: Trainees Performance in National Examination at Study Institutions

From figure 3, Agriculture had highest student pass rate of over 80 per cent with automotive department having the lowest pass rate of 13.1 per cent. However, the critical MINT courses such as Building, Electrical and Automotive registered dismal percentage passes of less than 40 per cent. Therefore, it may be reasonably concluded that though MINT courses had the impressive enrollment of Trainees, dismal performance of Trainees in national examination meant that majority of trainees failed to get certification, reducing their chances of employability.

On inquiry of why low trainees' attainment in national examination in MINT courses through interview, one registrar of studies had this to say:

Poor performance of trainees in these courses for majority of them is linked to poor entry qualifications in critical subjects such as Mathematics and Physics that are critical foundation for engineering related courses. You know that most courses have only minimum overall entry grade set as a requirement. Most students, therefore, end up enrolling for these courses on the basis of overall mean grade. As such, these students end up facing big challenge when they face reality on course demand on registration.

This statement is likely to imply that most training institutions registered most trainees in MINT courses who had low scores in cluster subjects that were critical for influencing in MINT courses, a situation that is likely to have been manifested in poor performance in KNEC examination.

Correlation between, enrollment, academic achievement and Certification in MINT Courses

The study sought to find out correlation between enrollment, academic achievement and certification in MINT courses as measures of employability of TVET graduates. First, based on HoDs responses, regression analysis was undertaken to establish relationship between variables. The findings are shown in Table 1.

Table 1: Regression analysis of Enrollment in MINT courses, Academic achievement and Certification

Model	B	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	3.576	.071		50.260	.000
	nature of the course determines employability	-.046	.086	-.138	-.531	.598
	Science oriented courses high chances of employability	.304	.082	.953	3.698	.000
	employment mainly based on certification	.128	.064	.205	2.004	.052
	certification is based on performance	-.110	.050	-.224	-2.216	.032

a. Dependent Variable: Performance in science courses good

From the Table, the following regression equation can be derived;

$E = 3.576 + aX_1 + bX_2 + cX_3 + dX_4$ Where E=employability of TVET graduates, a=-0.138, b=.953; c=0.205; d= -0.224

X1=Nature of the courses Pursued at study

X2=Science oriented courses

X3= certification

X4= Certification on academic achievement

Therefore, $E = 3.576 - 0.138X_1 + 0.953X_2 + 0.205X_3 - 0.224X_4$

From the regression equation, it can be deduced the nature of the courses that were being studied at study institutions and the resultant certification on performance had negative influence on one's chances of employability while

pursuance of Sciences Courses and certification had positive influence on graduate’s employability. This means increase by one per cent in relevance of courses, pursuance of Science courses, Certification and academic achievement leads increase in graduates increase in employability by 0.138, 0.953, 0.205 and 0.224 per cent respectively. In other words, pursuance of Science (MINT) courses account for 90.82 TVET graduates’ employability. This is further confirmed on examination of Significance column in the Table above where the variable has .000 value in significance column at 95% significance level.

Finally, correlation was run. This was aimed at establishing whether there was correlation between study variables. The findings are given in Table 2.

Table 2: Correlation between Study Variables

		X1	X2	X3	X4	X5
Nature of the course determines employability(X1)	Pearson Correlation	1	.928**	.664**	.571**	.793**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	56	56	56	56	56
Science oriented courses high chances of employability(X2)	Pearson Correlation	.928**	1	.715**	.568**	.911**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	56	56	56	56	56
Employment mainly based on certification(X3)	Pearson Correlation	.664**	.715**	1	.602**	.720**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	56	56	56	56	56
Certification is based on performance(X4)	Pearson Correlation	.571**	.568**	.602**	1	.427**
	Sig. (2-tailed)	.000	.000	.000		.001
	N	56	56	56	56	56
Performance in science courses good(X5)	Pearson Correlation	.793**	.911**	.720**	.427**	1
	Sig. (2-tailed)	.000	.000	.000	.001	
	N	56	56	56	56	56

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

Table 2 showed that there was a strong correlation between graduate employability and the nature of courses, science-oriented courses, certification based on performance as well as employment based on certification. Correlation was highest between pursuance of Science course, certification in science

courses and employability of 0.928**, 0.911** and 0.715** respectively. However, there was low correlation of 0.427** between performance and certification in Science (MINT) courses. On the basis of study findings, it may be reasonably be concluded that poor performance in MINT subjects was hampering certification of TVET graduates and was likely to be a barrier to employability of TVET graduates.

Benson, Finegold and Mohrman (2004) observed that Education is normally postulated as skill set and measure of probable output. Therefore, it is not odd to use educational certification when making decision regarding whom to employ during hiring process in an organisation (Chen, 2010).

Conclusion

The results from this study showed that Science (MINT) courses had the highest enrollment of trainees, which was mainly dominated by the male trainees while female trainees dominated Business and ICT courses. The pass rate in MINT courses in standardised examination (KNEC) was below 45 leading to low certification of trainees. There was, however, no minimum entry requirement for trainees in key cluster subjects making trainees with poor pre-entry qualification, a situation that led to low pass rate in KNEC examination. It can, therefore, be concluded that there is high enrollment in MINT courses that are critical for promotion of TVET graduates' employability. The low certification which could be attributed to poor performance in KNEC examination reduces the effectiveness of TVET institution in preparation of TVET trainees for employment opportunities.

Recommendations

There is need to set up minimum requirement in key cluster subjects beside the minimum requirement for various MINT courses on the strength of course demands in order to minimise on wastage of TVET trainees on courses where they may not be having capabilities. Additionally, the CBET programmes should be implemented to improve skill development among TVET Trainees.

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INSTRUCTORS' CAPABILITIES IN EMBEDDING CORE VALUES AND SOFT SKILLS IN TVET INSTITUTIONS IN KENYA

H. Kiplagat and K. M. Kitainge

University of Eldoret, Department of Technology Education

P. O. Box 1125-30100, Eldoret, Kenya

Abstract

The abilities to learn and adapt (soft skills) in the job market are very critical for survival and growth. Personal attributes (core values) have also become a necessity at the place of work. This paper specifically critiqued the capabilities of instructors to embed core values and soft skills in a study that assessed the production of core values and capabilities among youth in TVET Institutions in Kenya. This was mixed-method research and it adopted explanatory sequential design. The study was conducted in nine counties. Students, instructors, TVET managers, County TVET heads and TVET policymakers participated in the study. The target population was 364 TVET institutions in the selected counties and the sample size was 182. Programmes students and instructors were randomly selected. The study used both quantitative and qualitative instruments for data collection. Four sets of questionnaires were used in this study. This study also used qualitative tools; Focus Group Discussion guide, Key Informant Interview schedules and In-depth Interview schedules. Policy makers and County Heads of TVET were purposively selected. As per the design used, the quantitative data was given priority. The study established that most TVET instructors could teach the main/core courses but some of them had no capacity to train soft skills and core values. Some of the instructors were also assigned to teach skills that were not in their areas of specialisation. The study recommended that instructors should undergo in-service training, TVET teacher preparation programmes should be reviewed to incorporate Whole Youth Development skills, and that TVET teachers should continually undergo industrial exposure to learn new skills/technologies.

Key words: Instructors' capabilities, Soft skills, Core values.

Introduction

The Technical and Vocational Education and Training (TVET) sub-sector plays a key role globally in socio-economic development (Pavlova, 2014; Ansah & Kissi, 2013). In Kenya, the main objective of TVET is to develop an effectively co-ordinated and harmonised TVET system that is capable of producing quality skilled human resources with the right attributes and values for growth and prosperity of the various sectors of the economy (MoEST, 2014). According to UNESCO-UNEVOC (2006), TVET refers to aspects of educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attributes, understanding and knowledge relating to occupants of various sectors of economic and social life. The document further notes that there is an increasing emphasis on “softer” skills for the labour market, that is, communication, negotiation and teamwork. Further, TVET is concerned with the acquisition of knowledge and skills for the world of work (Hollander & Mar, 2009). These studies indicate that there are attributes that a person should possess after training in a TVET institution for him/her to satisfactorily occupy any sector of the economy.

The requirements for non-academic/soft/employability/core work skills by the labour market has been on the increase, close to five decades now. Equipping the youths with Whole Youth Development (WYD) skills is no longer an option but a necessity for survival in the current state of the 21st-century world of work. According to ILO (2015), technical skills equip trainees to perform specific tasks but core work skills equip them with abilities to perform effectively in the contemporary workplace. The report explained that core skills include learning to learn, communication, problem-solving and teamwork. The report further identified personal or professional skills as also necessary for the world of work. The WYD skills are defined as personal attributes relevant to work and include honesty, integrity and work ethic. In some instances, these attributes have been referred to as core values (NEASC, 2016). In this study, core values are defined as beliefs and principles that an individual or an organisation deem central and which influence their behaviours or operations. They include integrity, accountability, hard work, perseverance and discipline.

Many aspects come into play for students to acquire WYD skills that are required in the labour market. Though the study was done to assess the production of core values and capabilities among youth in TVET institutions in Kenya, this paper looked at the instructors’ characteristics. The instructor’s qualification on WYD is critical in imparting students with the knowledge and skills required in the labour market. An effective teacher should be committed to work, encourage and appreciate diversity, interact and communicate respect, motivate students and co-workers and bring out a wide range of skills and talents. An effective trainer should also demonstrate leadership in teaching, encourage an open

and trusting environment, foster critical thinking, encourage creative work, emphasise teamwork, seek continually to improve teaching skills, provide positive feedback, be prepared, positive, fair, forgiving and compassionate (Azer, 2005; Walker, 2008). The authors further posit that effective teachers serve as role models, influence career choices, admit mistakes, cultivate sense of belonging, have sense of humor, respect students, hold high expectation, display personal touch and enable students to reach their full potentials. Non-academic attributes of a teacher should be incorporated into the teaching process. Zuzovsky (2003) asserted that although it is not always easy to measure, attributes such as enthusiasm, motivation, charisma, ability to convey ideas clearly and verbal ability should be added to the models that try to associate teachers' required qualifications with students' achievement outcomes. These outcomes are key in ensuring that students' abilities match the expectations of the job market.

Even though there have been numerous calls for teachers to acquire the necessary knowledge and skills for them to be effective in their work, there have been instances that they have not performed their work as expected. In a study conducted in Nakuru County, Kenya, respondents from some of the Youth Polytechnics reported that some of the instructors did not have the requisite technical and vocational competencies. Some instructors avoided handling some topics and also were unable to teach or install certain apparatus (Oduor *et al.*, 2017). This situation could make trainees fail to acquire the knowledge and skills that are required in the world of work. In a policy brief to the Kenyan government by Oduor *et al.* (2018), they observed that better-trained instructors in TVET institutions can deliver high-quality education and industry-standard training and education. This initiative will ensure that graduates of TVET institutions enter the job market with the required knowledge and skills.

Continuous professional development by TVET teachers is critical for them to keep abreast with the current demands of the labour market. Njenga (2018) observed that a significant number of TVET teachers in Kenya do not engage in continuing professional development. Njenga noted that this scenario could be attributed to a lack of adequate policies to guide and sustain the continuous professional development of TVET teachers. According to UNESCO (2012), continuous professional development is crucial in ensuring that TVET teachers remain qualified, current and relevant to the realities of the world of work. The report further argues that this development ensures that TVET teachers have relevant and applicable knowledge and skills in terms of changing technology and work practices.

TVET institutions in Kenya are categorised into Vocational Training Centres (TVCs), Technical and Vocational Colleges (TVCs), and National Polytechnics (NPs) (Republic of Kenya, 2013). This paper mainly focused on examining the capabilities of instructors' to train the core values and soft skills in the various categories of private and public TVET institutions in Kenya. Appropriate soft skills play an important role in a successful career as well as during social interactions in society (Majid *et al.*, 2012). The authors further claimed that soft skills are highly sought after by employers when recruiting fresh graduates. The top five important soft skills identified during their study were: teamwork and collaboration, decision-making, problem-solving, time management, and critical thinking skills. Majid *et al.*, (2012) suggested that improving soft skills could help improve students' future employment perspectives. Transfer of good moral values, which are sometimes referred to as core values to students during teaching, makes them sensitive and responsible individuals as well as practice teamwork when working in groups (Ariyanti, 2016). Hence, this paper focused on the capabilities of TVET instructors to train core values and soft skills in Kenya.

Objectives

This paper examined the capabilities of instructors in embedding core values and soft skills in TVET institutions in Kenya.

The specific objectives of this paper were:

- (i) To establish the instructors' perception of their expertise in running the core courses in TVET institutions in Kenya.
- (ii) To determine the extent to which instructors were trained on Whole Youth Development skills in TVET institutions in Kenya.
- (iii) To assess the instructors' capabilities within TVET institutions and production of Whole Youth Development skills in Kenya.
- (iv) To find out instructors' soft skills training constraints in TVET institutions in Kenya.

Methodology

This study involved a mixed methods research. Both quantitative and qualitative data were incorporated for a better understanding of the research problem to mitigate the limitations of using each method separately (Doyle *et al.*, 2009). The study adopted explanatory sequential design, where qualitative data was

used to explain quantitative results. For instance, the findings from an interview schedule help explain the findings collected with a questionnaire. The two types of information provide greater understanding and insight into the research topic (Bowen *et al.*, 2017).

The present study was conducted in nine counties, namely: Turkana, Uasin Gishu, Kakamega, Kisumu, Nairobi, Nyeri, Meru, Garissa and Mombasa. These counties were selected due to the presence of National Polytechnics except for Turkana which was selected to represent the marginalised counties. All the eight National Polytechnics were included in the study while 50% of Technical Training Institutes and Vocational Training Centres were randomly selected in each of the study counties. Both public and private institutions were considered. There were 364 TVET institutions in all the counties under study. However, previous and recent studies assumed that students attending TVET institutions exhibited at least average soft/employability/core skills (Omar *et al.*, 2012; Suzuki & Sakamaki, 2020). Hence, this study used (182) 50% of the population of TVET institutions under the study area.

Two programmes that had an adequate number of students (at least 5 first years and final years) were randomly selected in each institution. Ten students (5 first year and 5 final years) were randomly selected in each of the two programs with gender consideration. Two instructors from each programme (first and final year classes) were selected to participate in the study. TVET managers for the sampled institutions were also selected to participate in the study. The survey instruments used were student questionnaire, student assessment questionnaire, instructor questionnaire and institutional (TVET manager) questionnaire. The student assessment questionnaire was used to assess students' capabilities and values; and soft skills, digital literacy, and functional literacy and functional numeracy. Qualitative instruments used were Focus Group Discussion (FGD) guide for students, In-Depth Interview (IDI) schedule for policymakers such as TVETA and Key Informants Interview (KII) schedule for county heads of TVET. The instruments were piloted and pre-tested in the institutions that did not participate in the main study. The research assistants for both pilot and the main study were adequately trained. Ethical approvals and study authorisation were sought before the start of the fieldwork.

Results and Discussion

Instructors' Perceptions regarding their expertise in running the main/core courses

Majority (over 90%) of the instructors stated that they were well equipped in terms of training to teach the main courses. However, more male instructors (93%) than females (89%) said that they were well equipped to teach the main courses. The responses by category of TVET institutions revealed that 100% of instructors in National Polytechnics (NPs) said that they were fully equipped to teach the main courses as compared to 93% in Technical and Vocational Colleges (TVCs) and 84% in Vocational Training Centres (VTCs). This agrees with the European Commission (2014) which reported that TVET teacher education in Africa focuses mainly on core subjects. The present findings further agree with those of Ordangaoka and Kimiakoga (2016) whose study results showed that TVET tutors were academically qualified for the jobs they were undertaking. A related study also revealed that expert teachers excel mainly in their content expertise areas (Turocy, 2015). The author further argues that such teachers can accomplish their teaching responsibilities more efficiently and effectively. Turocy also contends that such teachers have a deep understanding of factual and theoretical knowledge. These studies have shown that TVET instructors have the capacities to handle the main/core course they are assigned to.

Instructors' Training on Whole Youth Development Skills

Whole Youth Development is defined as a range of capabilities needed for youth to access, create and retain jobs, lead fulfilled lives and contribute to the common good of society (Awiti *et al.*, 2019). The present study has considered Whole Youth Development (WYD) skills as all academic and non-academic skills obtained by a student in the course of their life development/growth. The instructors were asked to state whether they were trained to teach WYD skills. These skills were grouped into four, namely; academic and technical, life skills, core values and social-emotional skills. Overall, about 56.4% of the instructors were trained in WYD skills. Specifically, of the four skills, training in core values (57.2%) and social-emotional (50.0%) were the lowest. These findings agree with those of the TVET managers who reported that the levels of coverage for non-academic skills were lower than those for academic/technical skills. The results from the students also agreed with those of TVET instructors and managers. The students claimed that there were still a lot of activities aimed at nurturing soft skills that were not taught by the instructors. This could explain the assertion by Njenga (2018) that a significant number of TVET teachers

in Kenya do not engage in effective continuous professional development. Continuous professional development ensures that the TVET trainers remain qualified, current and relevant to the emerging realities of the world of work, by focusing on Whole Youth Development skills (UNESCO, 2012). A study by Mohammed (2017) which focused on life skills established that life skills training in National Youth Service Kenya required reinforcement. The study suggested that the head of academics should encourage them to enrol for life skills training to ensure that they are well equipped in life skills. Another study by Watkins and Donnely (2014), which focused on core values highlighted the importance of core values for all teachers. The authors posited that core values need to be linked to the teacher's area of competency during training so that they can be effectively transferred to the learners in class later. Beyond academic proficiencies, core values are what students are hoped to take with them into their future/world of work. These include collaboration, honesty, perseverance, respect, personal integrity, equity, intellectual curiosity, appreciation of diversity, among others (NEASC, 2016).

Instructors' Capacities within TVET Institutions and Production of WYD Skills

The lack of appreciation for WYD skills among instructors has negatively affected the impartation of these skills into trainees. Due to a lack of understanding, Whole Youth Development skills have not been given priority in TVET institutions. It was established that soft skills and core values teaching were timetabled during inappropriate times of the day/week, such as the last lesson of the day or in the afternoon during market days. This arrangement made the lessons unpopular and, in most cases, not attended to by instructors. This study observed that for youth to acquire effective WYD skills, there must be corresponding complementing capacities in TVET institutions. Technical skills equip men and women to perform specific tasks but core work skills equip men and women to perform effectively in the contemporary workplace (ILO, 2015). This means that instructors must acquire relevant and market aligned WYD skills. The production of WYD skills could be enhanced through the motivation of teachers. Ochogba and Ordu (2019) argued that the motivation of teachers was one of the techniques that could be used to enhance participation of students in the Automobile Mechanical Works subject in technical colleges in Rivers State, Nigeria. Therefore, this is a clear indication that lack of appreciation of WYD skills among instructors and lack of teacher motivation are major contributors to the insufficient development of WYD skills in TVET institutions.

Instructors' Soft Skills Training Constraints in TVET Institutions

Qualitative responses during this study indicated that the development of instructors' capacity to align with the current market requirements was still a challenge. The instructors could not deliver quality training because they lacked certain necessary skills. For instance, some instructors graduated without any computer knowledge but were expected to teach computer skills. Additionally, the delivery of certain courses required competence in communication skills which some trainers did not have. According to Dismani (2011), most institutions do not encourage instructors to engage in industrial training during holidays. The study observed that the lack of training could deny instructors access to new technologies relevant to the labour market. Hence, this could negatively affect training with a resulting mismatch with the requirements of the job market. A study in Malaysia on the challenges faced by vocational teachers in public skills training institutions revealed that TVET teachers lacked skills qualifications and industrial experience (Ismail, Mohd Nopiah, & Mohd Sattar, 2018). The study also revealed that the teachers had difficulty in attending professional courses due to limited budgetary allocation. These challenges and among others in Malaysia, negatively affected TVET teachers in playing their pivotal role in ensuring skilled graduates with an excellent personality.

Lack of adequate teaching approaches to teach soft skills could negatively affect the quality of graduates. Meeks (2017) argued that communication is the most important soft skill and the foundation for other skills. The study further observed that soft skills were lacking in some college graduates. The study by Meeks developed a professional programme for teaching staff as a solution for improving the learning of soft skills of college students. Another study by Anindo (2016) observed that some TVET teachers lacked in-service training since they left their training colleges. This makes the teachers not being up to date with the emerging requirements of the labour market. The study explained that the qualification of teachers significantly influences the acquisition of employability skills by students. To support this further, Majid *et al.* (2012) opine that improving soft/employability skills may help improve students' employment perspectives. The reviewed studies have demonstrated that adequate training of instructors in soft/employability/core skills is critical in the production of market-oriented skills in trainees

Conclusion

The objective of this paper focused on examining the abilities of instructors to train the youth on core values and soft skills in the Kenyan TVET institutions. The findings from this study established that the instructors were adequately qualified to teach the core course offered. However, a large percentage of instructors had no capacity to train the core values and soft skills. It was also noted that the teaching of soft skills and core values had not been accorded adequate attention in TVET institutions. It was further observed that some instructors were assigned to teach skill areas that they had not been trained in.

Recommendations

Based on the findings and the conclusion of this paper, the following recommendations were made:

- (i) Instructors should undergo in-service training to acquire or enhance relevant core values and soft skills so that they can instil in their trainees.
- (ii) TVET Teacher preparation institutions should review the training programme to incorporate or enhance non-academic skills training into the curriculum. These will ensure that teachers/instructors will acquire adequate Whole Youth Development skills during pre-service training.
- (iii) TVET institutions should encourage/support instructors to undergo industrial attachment to learn new skills/technologies.

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INTEGRATION OF SOFT SKILLS INTO EDUCATION AND TRAINING SYSTEMS BY TVET INSTITUTIONS IN KENYA

B. Cheruiyot

University of Eldoret, P. O. Box 1125-30100, Eldoret, Kenya

Abstract

It is estimated that 78% of Kenya's population is composed of youth aged below 35 years and that unemployment is the top concern for the youth at 63%. Over the years, there have been concerns regarding the inadequate preparation of youth for the workplace and their lack of soft skills, despite having academic qualifications and technical training. This study explored the Whole Youth Development (WYD) gap among entry-level employees in the labour market. The goal of this study was to provide data to enable reliable assessment of the values and competencies possessed by youth in entry-level jobs against the competencies demanded by the job market. The study was conducted in 24 counties, which are home to over 85% of Kenya's formal sector business establishments. Questionnaire was administered to 3,095 employees and interviews conducted on 1,164 employers. Fifteen key informant interviews were also conducted. The study revealed that while educational attainment had a higher premium in the formal sector compared to the informal sector, the requirement for technical skills was similar between the formal and informal sectors. Moreover, a majority of youth in entry-level jobs in the formal sector held a diploma qualification, while a majority of youth in entry-level jobs in the informal sector had craft certificate qualifications. The study showed that, even with the prerequisite qualifications needed for an entry-level position, the youth stated that they were unable to acquire employment due to corruption, lack of required experience by employers and lack of capital to start their businesses. Employees in the formal and informal sectors possessed life skills, core values, social-emotional skills, technical skills, basic computing skills, and literacy skills. There is congruence between skills demanded and skills possessed by youth across most key sectors of the economy. Marketing and sales, financial planning and management, life skills, and entrepreneurial skills were the top four skills identified by employers as lacking among youth in entry-level positions.

Key words: Whole Youth Development, Entry Level Jobs, Competencies.

Introduction

Background of the Study

Youth unemployment is a growing concern globally. According to the World Employment Social Outlook (2018), young people under the age of 25 have a higher likelihood of being unemployed than adults. The global youth unemployment rate currently stands at 13%, which is three times higher than the figure for adults at 4.3% (ILO, 2018). The youth unemployment rate in Africa was expected to exceed 30% by the end of 2019 (ILO, 2019). Out of the 38.1% estimated total working poor in sub-Saharan Africa, young people account for 23.5% (ILO, 2016). In Africa, unemployment and underemployment continue to be major obstacles to the full utilisation of human resources despite relatively strong growth in the region over the last decade (Golub & Hayat, 2015).

The Kenyan youth population has been steadily increasing and was estimated at 9.5 million, representing more than 20% of the total population (Kenya Population Census, 2019). The fast increase in youth population results in inadequate employment opportunities. Skill gaps and mismatches can, however, be associated with a lack of accessibility to tertiary education as well as the inability to provide the necessary technical and soft skills needed in the job market. Youth in Kenya are experiencing much higher unemployment rates than the rest of the Kenyan population (Farah & Ali, 2018). In a developing country such as Kenya, the estimated unemployment rates reveal the enormity of the labour market challenge because of the large number of individuals who are inactive rather than unemployed (Nyerere, 2018).

Kenya, like most developing countries, is currently faced with the opportunity and challenge of ‘youth bulge’, which could either be a demographic dividend, or a disaster (Chatterjee & Ronneberg, 2017). Effective utilisation and support for the young aspiring citizens to achieve appropriate education and jobs can lead to a prosperous socio-economic future for all citizens. However, the missing of this chance can result in economic stagnation and a neglected ‘lost generation’.

According to the majority of Kenyan employers (42.8%), lack of soft skills in potential employees is the key factor influencing the skills mismatch problem in Kenya, followed by negative attitudes (22.4%) and lack of technical skills (12.6%) (CAP-YEI, 2017). Furthermore, in Kenya, around one million youth enter the job market every year, most of them unskilled secondary school graduates, dropouts of the schooling system, and even graduates of Universities and technical training institutions who are either deficient in their area of training or end up doing jobs not aligned to what they trained for. On the other hand,

employers have expressed dissatisfaction with the graduates of the training system, citing the ‘double costing crises where government taxes industry to raise money for education and training, while industry invests again to retrain graduates because they lack the skills demanded by the job tasks (Awiti *et al.*, 2019).

Employees in the formal and informal sectors possessed life skills, core values, social-emotional skills, technical skills, basic computing skills and literacy skills. Moreover, the skill supply across the top industries employing the most youth is skewed towards certain industries. However, there is congruence between skills demanded and skills possessed by youth across each of the key industries of the economy, with employers demanding more soft skills than technical skills. Employers find soft skills gap in employees they recruit, particularly, life skills, socio-emotional skills, among others.

Problem Statement

Youth unemployment is a major concern in Kenya, with projections standing at 55%. The Kenyan economy is only able to generate 800,000 jobs against an estimated 1 million young people joining the labour market every year. Statistics showed that a majority of Kenya’s workforce is employed in the informal economy (about 12 million), with an estimated 1.3 million employed in the formal sector (USAID, 2014). About 32% of the unemployed youth have post-secondary education (Awiti & Scott, 2016). This indicates that even with a high level of education among the youth, unemployment remains a crisis in the country. Studies carried out across the globe reveal that soft/behavioural skills are critical to gaining employment.

The skill sets and aspirations of Kenya’s young generation are disconnected from the realities and demands of the actual labour market (Ndayambaje *et al.*, 2016). Despite the availability of TVET policies, skills mismatch is highly attributed to a lack of strategic implementation plans in terms of monitoring and evaluation of training programmes and courses offered based on how they meet labour market demand. Successful policy implementation will depend on inter-ministerial co-ordination, streamlining the regulatory (oversight) function, and developing monitoring and evaluation procedures (UNESCO, 2017). While considerable literature exists on how to address core skills/soft skills through the educational curriculum, there is less material available to guide policymakers on how to integrate core/soft skills into education and training systems (Brewer & Comyn, 2015).

Objectives of the study

- (i) To provide data on entry-level skills and competencies required by employers and entrepreneurs (demand) and skills and capabilities possessed by youth entering the labour market (supply) across the key sectors which employ most youth.
- (ii) To provide employers with a basis for influencing technical and vocational skills development, working in collaboration with training institutions and labour policymakers.
- (iii) To provide TVET trainers with a better understanding of the entry-level skills and capabilities demanded by the world of work, to better adapt their curricula and instructional practice.
- (iv) To find out how employers/industries can be involved in the training of soft skills in TVET training centres or their perceptions of the training.

Research Methodology

This study employed a descriptive research design using the survey method. The study used Key Informant Interview to collect qualitative data and structure questionnaire to collect quantitative data. The survey employed simple random sampling. Questionnaire was administered to 3,095 employees and interviews conducted on 1,164 employers. In addition, 693 self-employed youths were interviewed across 24 counties. Percentages were mainly used. Qualitative data gathered from Key Informant Interviews that included employers were analysed through content analysis. Qualitative information was transcribed, analysed thematically, and presented in a narrative form. To ensure quality control, Aga Khan University (AKU) staff were deployed to the various counties to oversee the data collection process.

Ethical considerations

The researchers obtained an introduction letter that explained the purpose of the study. Permission was also sought to interview the various establishments as well as introduce the enumerators. The enumerators sought consent from each of the respondents before engaging them. The consent indicated that the participation was voluntary and confidential and that there were no benefits/compensations/risks associated with the study. No identifiers were used that could link individual participants with the information provided. However, participants were informed of the intention to use the findings from the study for publication and to inform policy.

Limitations of the Study

Bureaucracy and refusal of some target respondents and establishments to take part in the study lowered the response rates. Some respondents pulled out of the interview midway alluding that the questionnaire was too long, and they

needed to attend to some urgent matters. Securing appointments with formal organisations took slightly longer than anticipated; getting three entry-level staff in one organisation was quite rare; extreme weather conditions, especially scorching sun and lastly some of the employers were not willing to participate in the survey albeit allowing their employees to participate.

Results

Entry-Level Requirements

The study examined the attributes that employers looked for when recruiting. The findings showed that employers in the formal and informal sectors prioritized educational qualifications, soft skills, minimum work experience, technical skills, attitude, and values in that order as they recruit their entry-level staff. The informal sector placed more emphasis on soft skills than educational qualifications. Similarly, technical skills were more critical for employment in the informal sector than in the formal sector whereas minimum work experience was prioritised in the formal sector. It was clear that industry was ready for integration of soft skills (WYD skills) into TVET curricula given that it comes second in the order given here. The preference was higher in the informal sector than formal sector. This implied that TVET centres had no option but to integrate WYD skills in their training to ensure that the graduates are relevant to the market that prefers soft skills.

Entry-Level Recruitment Methods

Referrals and social networks (friends and family) were cited to be the most common forms of recruitment in both the formal and informal sectors, standing at 87% in the formal and 81% in the informal sector. Other forms of recruitment in the formal sector were job advertisement, cold calling, internal recruitment, recruitment agency, career fairs and partnerships with training institutions. Hence, the results strongly indicate that informal communication methods through word of mouth are still significantly used among the youth as opposed to the formal channels like traditional and social media.

Entry-Level Positions

Table 1: Entry-Level Positions in the Formal Sector

Managerial Positions		Non-Managerial Positions	
Position	Per cent	Position	Per cent
Management assistants	44	Support staff	57
Junior Executives	38	Customer care	32
Graduate Trainees	18	Sales executives	31
Software/Web Developers	18	Clerks	26
Service Attendants	3	Artisans	15

Managerial Positions		Non-Managerial Positions	
Others	13	Technicians	12
		Crafts	9
		Teachers/trainers	8
		Call Centre Agents	7
		Trainer of trainers	5
		Community nurses	4
		Researchers	3
		Others	5

The formal sector mostly employed the youth as management assistants (44%), junior executives (38%), graduate trainees (18%), software/web developers (18%), service attendants (3%) e.g., waiters, laundry etc. and others (13%); Non-management - as support staff (57%) e.g., receptionists, administrative assistant, office messengers, drivers etc., cashiers (36%), customer care (32%), sales executives (31%), clerks (26%), artisans (15%), technicians (12%), crafts (9%), teachers/trainers (8%), call centre agents (7%), trainer of trainers (5%), community nurses (4%), researchers (3%), others (5%).

Table 2: Entry-Level Positions in the Informal Sector

Position	Percent
Wholesale and retail in agro-vets	28
Services and transport and storage	22
Construction	17
Artisans and craftsmen	17
Food and beverage	14
Teacher/trainer	9
Subsistence farmers	4
Street traders	2
Small-scale miners	1
Others	6

The informal sector mainly employed youth as/in; wholesale and retail in agro-vets, chemists, hardware shops, supermarkets, M-Pesa shops, etc. as salespersons and cashiers (28%); informal services and transport and storage as Matatu conductors and drivers, taxi drivers, boda-boda riders (22%); construction as technicians, engineers, mechanics, electrical technicians, draughtsman, builders, brick makers, plumbers (17%); artisans and craftsmen e.g., woodworkers, potters (17%); food and beverage as bakers, cooks, food kiosk attendants (14%); teacher/trainer (9%); subsistence farmers, graders (4%), street traders

(2%); small-scale miners (1%), and others (6%). This implies that to prepare the youth to get access to employment, it is necessary to have some understanding of what employers are looking for when hiring.

Distribution of Employment Opportunities in the Regions/ Counties

The Kenyan Economy is homogenous across all the regions/counties. There is no spatial specialisation by sector across the counties. Wholesale and retail, education, construction, accommodation and food, and other service activities were the major contributors to employment in both the formal and informal sectors across the surveyed 24 counties.

Table 3: Distribution of Employment Opportunities

Employment opportunity	Per cent
Manufacturing	14.6
Production	3.2
Wholesale and retail	31.2
Education	17.8
Other service activities	9.6
Construction	9.1
Accommodation and food	7.3

The service industry contributed to the highest proportion of employment opportunities among the youth at 82.2%. Manufacturing contributed to 14.6% of jobs, whereas Production absorbed a paltry 3.2% of the workforce. The top sectors absorbing the largest workforce were: wholesale and retail (31.2%), education (17.8%), other service activities (9.6%), construction (9.1%) and accommodation and food (7.3%). Among them, wholesale and retail, education, accommodation and food and other service activities, accounted for 65% of the employment opportunities.

Utilisation of technical skills in the Manufacturing industry

The Kenyan labour market is associated with slow growth in the Manufacturing industry leading to low job creation and non-permanence of jobs. Findings indicate uniformity in the level of technical training in both the formal and informal sectors, with a formal sector consisting of 88.4% skilled and 11.6% unskilled workforce, and the informal sector consisting of 70.2% skilled and 29.8% unskilled workforce.



Table 4: Utilisation of technical skills in the Manufacturing industry

Formal sector		Informal sector	
Position	Percent	Position	Percent
Skilled	88.4	Skilled	70.2
Unskilled	11.6	Unskilled	29.8
Total	100.0	Total	100.0

Service - (formal employees - 90% skilled; 10% unskilled and informal employees - 69.5% skilled; 30.5% unskilled). Manufacturing (formal employees – 81.2% skilled; 18.8% unskilled and informal employees – 63.2% skilled; 36.8 unskilled). Production that is, Agriculture - (formal employees - 92.6% skilled; 7.4 % unskilled and informal employees - 68.6% skilled; 31.4% unskilled).

Workforce mobility

The study revealed that the higher the age and the level of education, the more mobile the youth are in terms of changing jobs. University graduates between the ages of 27 and 30 years had held two jobs before the survey, whereas most of those who had completed secondary school were in their first entry-level job. Most TVET/college graduates between the ages of 23 and 26 years had only one previous employer.

Gender participation in the workforce

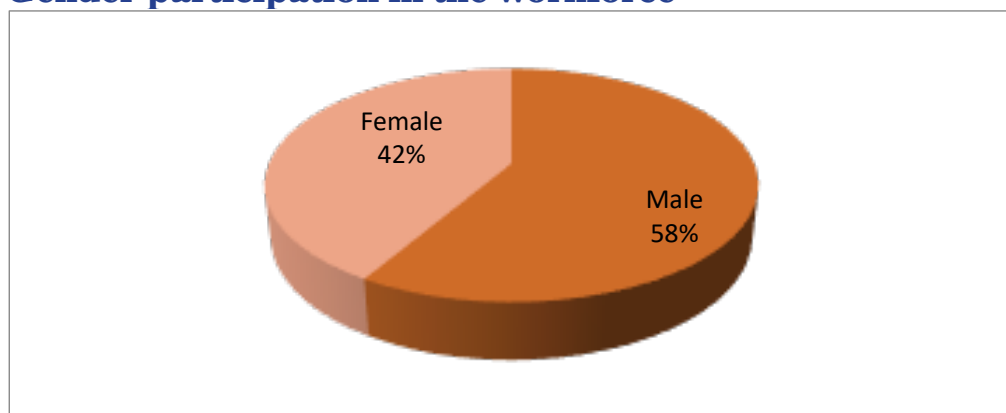


Figure 1: Gender participation in the workforce

The study indicated that there were 41.5% females and 58.5% males. Employers had an even bigger gender gap with 31.1 % females and 68.9% males. The

proportion of females to males is inversely proportional to the size of the organisation. As the size of the organisation increases, the proportion of females to males decreases. Gender participation is skewed toward certain economic activities. Whilst males dominate most sectors, females are dominant in education, accommodation and food, health and social work and other service activities. This means that gender inclusion must be a key agenda for every TVET institution, while at the same time; decision-making ensures equitable deployment of trainers, incentives for both male and female youth to enroll in the various training areas, and gender-responsive training environments and methods.

Skills Demand and Supply in the Workforce

The results from this study showed that the main aspects considered by employers during recruitment of entry level staff included education qualifications, soft skills, minimum work experience, technical skills, attitude, and values, in that order, as they recruit their entry-level staff. The study posits that, even with the prerequisite qualifications needed for an entry-level position, the youth cited that they were unable to acquire employment due to corruption, lack of required experience by employers and lack of capital to start their businesses. Employers in the formal and informal sectors demanded life skills, core values, social-emotional skills, technical skills, marketing and sales, literacy skills. Moreover, it implies that the employment rubrics today place a lot of value on skills other than technical skills.

Skill Gaps and Mismatches

The skills that were in short supply in both the formal and informal sectors were marketing and sales, technical skills, financial planning and management, life skills and entrepreneurship. Specific to sectors, employees in Education had inadequate literacy skills, those in the Financial and Insurance activities lacked technical and financial planning and management skills, while entrepreneurship skills were lacking in both Wholesale and Retail and Accommodation and Food Services. Marketing and sales, core values, life skills, numeracy, basic computing and social-emotional skills were lacking across all the sectors. Life skills and technical skills are at the intersection showing that despite entry-level employees possessing these two sets of skills, there was still a high demand for the same.

Some of the skill gaps encountered by most employers were attributed to soft skills such as basic communication skills and presentation, integrity and attitude towards the duties allocated. Stakeholders pointed out that the current education system syllabus lacked some core skills such as integrity and communication hence some institutions had HR Manuals that required every new staff to undergo the induction programme and management courses along the way.

Industry players attributed the lack of adequate preparation of the youth for the job market to lack of collaboration between training institutions and employers, obsolete training facilities, incompetent trainers and institutions offering programmes without conducting a job-market skill need analysis. The skills mismatch existed to some extent in the job market, especially in the informal sector. For the self-employed youth, 31% and 40% in the formal and informal sectors respectively, have experienced skill gaps in their businesses.

Skills for the future

The additional skills that were required by employers for their businesses to remain competitive in the future in both the formal and informal sectors were life skills, technical skills, core values, and marketing and sales in that order. Additional skills demanded by the youth to remain competitive in the future in the formal and informal sectors were sales and marketing, financial planning, technical skills, entrepreneurship, and life skills (formal sector) in addition to basic computing skills (informal sector). Additional skills demanded by the self-employed youth to remain competitive in the future were life skills, marketing, and sales, financial planning and management, core values and entrepreneurship. The training curricula, cost of learning, work-place experience and incorporating critical skills in the curriculum were the four major areas that entry-level employees felt that should be revamped in training institutions.

Barriers to youth employment

The two main factors that prevented the youth from acquiring jobs were corruption and lack of required experience by employers, among others. Self-employed youth cited lack of capital requisite experience and corruption as the top three barriers to starting their businesses.

Conclusion

Since Kenya's economy is predominantly driven by the service industry, skills of a technical nature have lower demand. There is a high demand for marketing and sales skills in the labour market. The gap between the skills possessed by youth entering the workforce and the job market has widened due to the growing dominance of the service industry. The youth, employers and trainees acknowledge the need to expand the range of skills, competencies and experiences offered to youth during training.

It was apparent from this research that the absence of national assessment and reporting significantly limits the extent to which core skills were meaningfully addressed in the delivery of training. The absence of a coherent approach not only to defining core skills but to ensuring their inclusion in qualifications, standards and curricula limits the extent to which they are addressed through delivery, assessment and reporting. While developing countries face numerous challenges

in seeking to improve the quality and relevance of their TVET and skills systems, it should be recognised that an explicit focus on core skills in delivery and assessment practices provides the opportunity for broader improvements in the quality of teaching and learning that take place in institutions. Much remains to be done to ensure that TVET and skills systems adequately develop the core skills that can so profoundly enhance the employability of learners and jobseekers.

There is urgent need to improve the training of soft skills to trainees through core curriculum especially in this era of limited formal employment. Technical skills require soft skills to unlock them so they can act creatively in a competitive labour market. For soft skills to be useful to both youth and employers, they need to be tailored to and practised within actual workforce conditions and market demands. Educators in both formal and informal institutions need to have the opportunity to focus on soft skills development through the removal of barriers that prevent them from offering experiential learning. General, technical-vocational education, and other employability training programmes should provide entrepreneurship skill-building for young people in and out of the formal school system.

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IMPLEMENTATION OF WHOLE YOUTH DEVELOPMENT SKILLS IN KENYA'S TVET INSTITUTIONS

J. Muyaka¹ and K. M. Kitainge²

¹Department of Educational Foundations, University of Eldoret,

P. O. Box 1125-30100, Eldoret.

²Department of Technology Education, University of Eldoret,

P. O. Box 1125-30100, Eldoret.

Abstract

This article examined the extent to which Technical and Vocational and Education and Training (TVET) curriculum in Kenya integrate Whole Youth Development (WYD) skills in their training. The study analysed how curriculum implementation in Kenya's TVET institutions aids in provision of graduates with skills required by the labour market. This was a descriptive desk study review designed to provide evidence on how WYD skills was integrated in TVET institutions. The findings revealed that TVET curriculum had integrated WYD skills and TVET institutions were implementing them. However, the emphasis of the various components of WYD skills varied among TVET institutions and transferable skills were the least prioritised in the curriculum. Some of the challenges identified in inculcating WYD skills in TVET institutions included discrepancies in the implementation of TVET policy where part of the WYD skills introduced in TVET curricula had not been implemented in most of the TVET institutions; low entry grade for some of students coupled with varying academic capabilities of students that are enrolled in same courses, few existing in-service courses for instructors; preference in covering theoretical aspects of the curricula as opposed to technical and practical skills; and lack of curriculum materials for WYD skills in most TVET centres. Overall, curriculum implementation in TVET institutions in Kenya had contributed to the lack of WYD skills among the youths. The study recommends that the country should take advantage of the new Competency Based Education and Training (CBET) curricula under implementation to ensure integration of WYD skills in TVET by providing adequate WYD curriculum materials to support the implementation.

Key words: Whole Youth Development, Curriculum implementation.

Introduction

Rising youth unemployment continues to pose a major challenge in global development and economic growth of nations in most parts of the world. Reports from ILO (2017) showed that there were around 71 million unemployed youth aged 15-24 in the world. In Africa, youth unemployment was expected to exceed 30% by the end of 2019 (ILO, 2019). Youth unemployment in Kenya has been rising steadily and stood at 22.2% in 2019 (Gachugu & Mattingly, 2019). This flags out Kenya as one of the nations with high youth unemployment rate in Africa. The puzzle in Kenya has been how to isolate the push and pull factors for the apparent lack of technical skills and the reported mismatches of the acquired skills in the training and the demands of the labour market among the Kenyan youths. The explanation can only be twofold; either access to TVET institutions among the youth is low or the training curricula is inappropriate in inculcating the much sought for Whole Youth Development skills. Kenya has done well as far as access to TVET institutions is concerned. However, the kind of training offered at the TVET institutions continues to attract a lot of criticism. For instance, majority of the employers (42.8%) in Kenya think lack of soft skills among the trainees they employee as the key factor influencing the skill mismatch (Awiti *et al.*, 2019). The approach to TVET curriculum could therefore help in explaining some of the reasons for the noted skill mismatch.

Curriculum development entails the process of identifying the learning needs and making a decision on the appropriate training delivery method. According to UNESCO (2006), TVET should meet the social and economic needs of young people by increasing their job competencies and raising performance standards at their workplace. This is to ensure that TVET institutions provide labour force with adequate skills, knowledge and attitudes for improved productivity capable of initiating national development (World Bank, 2011). However, the main challenge with TVET curricula has been the assumption that ‘better productivity’ is synonymous to inclusion of technical aspects of the curricula at the expense of other vital skills such as core skills. Little attention has been given to core work skills yet Brewer and Comyn (2015) explained that these skills are crucial in supporting fresh graduates to navigate their way at workplace.

The concept of Whole Youth Development (WYD) Skills as used in this article refers to a training that takes a holistic youth development approach. It emphasises holistic growth of young people which encompasses a complex web of social, emotional and cultural development and awareness (Ngware, *et al.*, 2018). In Kenya, WYD skills have been identified as capable of helping young people transition to the world of work, retain employment and remain productive. The WYD skills target academic, technical skills and the non-cognitive social and emotional skills that are needed by graduates to transition

and remain in the labour market (Ngware, *et al.*, 2018). This makes transferable skills also known as core skills, employability skills, key skills, or generic skills as key components of WYD skills. The emphasis on transferable skills is informed by the existing literature that shows they are the most lacking among the WYD skills (Pitan, 2016).

Transferable skills can be traced back to the economic recession of the 1970s whose consequence was the high rate of youth unemployment. The term keeps on changing as it reflects the social, political and economic trends of the time (Chafa, 2015). However, all the names associated with it point to the notion of non-technical skills (Bridgstock, 2009). Since the 1970s, Brewer and Comyn (2015) argued that the effects of globalisation, growth in the service sector, new forms of work and work organisation have all contributed to the heightened demand for core skills. There is a consensus on the need to identify and integrate them into education and training curricula (Chafa, 2015) as they support TVET training for skills. Industry players globally have reported preference for technically competent graduates with appropriate transferable or soft skills (Pitan, 2016).

Integration of WYD skills into TVET curricula is no-longer contestable. The question worth investigating has been the extent to which TVET sector has integrated them and how they drive the technical education agenda. At the global stage, evidence has showed that most TVET sectors have prioritised WYD skills and even specified them in their curricula. However, they remain as rhetorical statements since the delivery, assessment and reporting and clarity on how they are infused in the curricula have been found inadequately planned for and implemented (Brewer & Comyn, 2015; Chafa, 2015).

The fragmentation of the TVET sector has been identified as one of the factors affecting effective implementation of curriculum in Kenya's TVET institutions. This happened in 1980s as a consequence partly of the much-publicized Structural Adjustment Programmes (SAPs). One of the repercussions of the World Bank backed policy on the TVET sector led to the inability of the government to support line ministries to continue employing new workers. This was a big blow to these ministries since enrollment in ministry supported TVET institutions targeted new recruited employees. As a result, ministries opened doors for qualified trainees to enroll for various courses offered in these institutions. This period has been blamed for the uncontrolled and unregulated growth of the TVET sector. There was massification of courses; some that did not meet the minimum standards and establishment of TVET institutions that did not have a legal mandate to train. Up-to date, TVET sector in Kenya is highly fragmented and delivered by various groups such as profit and non-profit institutions, Non-Governmental Organisations (NGOs) and faith-based institutions.

Attitudes of the society towards TVET courses has been cited as a barrier to the growth of TVET sector in Kenya. For a long period of time TVET has never been a preferred option when compared to academic education since students and parents associated it with poor performers (Ferej, Kitainge, & Ooko, 2012; Simiyu, 2009). The poor perception and lack of social recognition adversely affected its choice by students (Wakiaga, 2020). This lack of recognition was also reinforced by the lack of opportunities and pathways to higher education. It was almost impossible for an artisan who aspired to get into graduate studies in TVET to fulfil their ambitions. Therefore, it was vital to design an alternative route for TVET programmes to access lifelong learning, including higher education (UNESCO-UNEVOC, 2017).

Kenya has entered a critical phase of revolution with the implementation of Competency Based Education and Training (CBET) curriculum which is expected to provide trainees with practical experiences and technical skills in specific type of field, respective to industry demands. The TVET sector in the country has seized this moment to streamline their operations. In addressing the fragmentation that has been noted, the country established an independent Technical and Vocational and Education and Training Authority (TVETA) through an Act of Parliament, the TVET Act, 2013. The authority was mandated to regulate and coordinate the TVET sector and it has developed the appropriate training standards and also approved curriculum for various trade areas. The TVET Act, 2013 also established TVETA, Curriculum Development, Assessment and Certification Council (CDACC) and the TVET Funding Board which were to play key roles of curriculum development, assessment, certification and resource mobilisation respectively. Therefore, CDACC has the mandate to design, update and ensure quality of TVET curricula. CDACC also guides TVET institutions in development of their curricula. The legal order creating National Polytechnics also empowers them to develop their own curricula and award certificates with approval from TVETA. The CDACC guidelines have brought back the industry actors to play an active role in curriculum development.

The incoherent qualifications and pathways in Kenya's TVET sector had been a demotivating factor for students who wished to enroll in TVET courses. There was lack of well-articulated pathways for students enrolled in artisan programmes in the TVET institutions. This called for a framework that maps out possible progression routes; minimum qualifications for progression, among other issues. This gap has been addressed by the creation of the Kenya National Qualification Authority (KNQA) by the Kenya National Qualification Framework Act of 2014. Consequently, KNQA has developed a pathway framework which allows many options for progression. For more information on the 10 progression pathways and the various entry points and qualifications, one can access this from the KNQA official websites <http://www.knqa.go.ke/>.

Statement of the Problem

Kenya has in the recent past given a lot of attention to the TVET sector. However, the sector faces a number of challenges in their quest to offer a relevant and quality training. The transition rates to TVET institutions are still relatively low, the country's education system is still criticised for lack of technical and vocational skills required by the labour market. In addition, the curriculum used in TVET institutions has been accused of being irrelevant to serve the needs of the modern labour market (Mureithi, 2008; MOEST, 2005; Nyerere, 2009) with some of the industry players setting up their own training centres for training newly recruited TVET graduates. The TVET graduates lack WYD skills which have been cited as the reason for the increased unemployment among the youths. However, few studies have examined the extent to which TVET institutions have integrated and implemented WYD skills in their curriculum. The current study examined how TVET curriculum integrate WYD skills in Kenya's TVET institutions.

Objective of the Study

The study was guided by two specific objectives:

1. To trace the growth of TVET education in Kenya.
2. To examine the extent to which TVET curriculum facilitate integration of WYD Skills in Kenya's TVET institutions.

Methodology

This was a descriptive desk study designed to provide evidence on how WYD skills had been integrated in Kenya's TVET training institutions. The study examined previous studies on whole youth development skills, WYD curriculum and growth of Kenya's TVET sector to determine the status of implementation of WYD skills in TVET institutions. This method was appropriate since the purpose of the study was to evaluate the state of integration of WYD skills in TVET training in Kenya and according to Snyder (2019), a desk study is appropriate in identifying knowledge gaps in such exploratory studies.

Growth of TVET Education in Kenya

The current massive growth and investment in the TVET sector can be traced back to 1924 when the Native Industrial Training Depot (NITD) was established at Kabete in Nairobi. The establishment of NITD was based on the recommendations of Phelps-Stokes Commission that had been set up by the Christian missionaries in Africa to rethink on a system of education for Africans. The set-up of colonial TVET education was designed to serve the interests of the white settlers who demanded supply of cheap labour. The Commission

visited East Africa in 1924 and two of their recommendations were to have an education for rural development and adaptation of education to the local needs which pushed for more investment in vocational education. Subsequently, NITD became part of the larger efforts of redesigning an education that would help Kenya instil technical skills that were needed to spur economic growth. The colonial economy demanded Africans with technical skills to serve their economic interests. Around this period, the Kenya Uganda railway was under construction and this had attracted traders and labourers from India who were used as trainers in artisans and craftsmen offered at NITD (Simiyu, 2009).

In 1939, the colonial administration established a middle-level college at Egerton in Nakuru Town in the former Rift Valley Province. The mandate of Egerton College was to supply the white settlers with trained agricultural workers to work in their farms. In the late 1940s, another development along the East African Coast led to the establishment of Mombasa Institute of Muslim Education (MIoME). MIoME was established in 1948 with the purpose of providing technical education to Muslim students (Simiyu, 2009). MIoME was later converted to Mombasa Technical Institute (MTI) in 1966 and opened its admission to all students regardless of their religion. In 1976, it became Mombasa Polytechnic with five Departments namely; Business Studies, Electrical and Electronics Engineering, Building and Civil Engineering, Mechanical Engineering and Applied Sciences.

The other earlier attempts in supporting TVET sector for skill development in Kenya was the establishment of the Royal Technical College of East Africa in Nairobi in 1951 (Onsongo, 2007). The college admitted its first set of students in April 1956 and later metamorphosed into the current University of Nairobi. In May 1961, Kenya Technical Institute was opened in Nairobi but later renamed the Kenya Polytechnic. The institution was registered in 1967 as a post-secondary educational institution and mainly offered courses in architecture, surveying and planning. Kenya Polytechnic was later elevated to a university and renamed Technical University of Kenya.

In 1962, the Roman Catholic Mission established Kaiboi Vocational Trades School underscoring the contribution of missionaries to the development of TVET sector in the country. According to Simiyu (2009), there were other twenty vocational institutions that were established in 1960s. These vocational trades schools participated in training technical crafts: metalwork, plumbing, mechanical, electrical and motor-vehicle mechanics. After independence, the country was experiencing high demand for technical skills in both formal and non-formal sectors and the government responded by creating technical secondary schools. Among the first technical secondary schools established

were Meru, Machakos and Sigalagala. These pioneer technical secondary schools trained students in vocational subjects such as mechanical, motor-vehicle repair, welding, masonry, woodwork, electrical and electronics. These institutions were converted to national secondary schools at independence and later upgraded to Technical Training Institutes (TTIs) in 1985.

When Kenya attained independence, the demand for skilled manpower skyrocketed. The TVET institutions then could not satisfy the appetite that was fueled by the growing opportunities in both informal and formal sectors. Consequently, the government established Institutes of Technology (ITs) and targeted an institute in each of the former eight provinces. This was to open more spaces for enhanced access to TVET institutions. As a result, institutes like North Eastern Province Institute of Technology, Kiambu Institute of Science and Technology and Rift Valley Institute of Science and Technology were added to the growing list of TVET institutions.

The 1980s was, however, the turning point in the development of TVET sector in Kenya. The country introduced a new curriculum ‘the 8.4.4’ in 1984 which not only emphasised technical subjects but also integrated them in the primary school curriculum. The 7.4.2.3 system was seen to emphasise on the preparation of students for white collar-jobs whose job opportunities were shrinking, and the state was concerned at the rate of youth unemployment. It is interesting to note that the same arguments have been fronted on the need to overhaul 8.4.4 system in favour of CBET. The overwhelming evidence then was to adopt a system that would guarantee skills development for employment creation. The state converted all the technical secondary schools into Technical Training Institutes (TTIs) to complement the work of the Institutes of Technologies (ITs) in providing the skilled manpower. This opened more learning opportunities in TVET institutions. The country also allowed line ministries to train their specialised workforce. This development helped the establishment of colleges like the Utalii College that was associated with the Ministry of Tourism, Kenya Medical Training School College under the Ministry of Health, and Kenya Power and Lighting Company Training School, among others.

TVET institutions in Kenya can be classified broadly into three categories: The National Polytechnics; Technical and Vocational Colleges and Vocational Training Centres (VTCs). The growth in the number of accredited categories of TVET institutions from 2016/2017 to 2018/2019 academic years were as shown in Table 1.

Table 1: Number of TVET Centres in Kenya, 2016/2017 - 2018/2019

S/No	Type of TVET Centre	2016/17	2017/18	2018/19
1	National Polytechnics	11	11	11
2	Public Technical and Vocational Colleges	62	91	101
3	Public Vocational Training Centres	816	1,186	1,502
4	Private Technical and Vocational Colleges	382	627	628
5	Private Vocational Training Centres	29	47	47
Total Enrollment		1,300	1,962	2,289

Source: KNBS Economic Survey, 2019

The number of TVET institutions in Kenya grew by 76.1% from 1,300 in 2016/17 to 2,289 in 2018/19 academic year. The highest growth was witnessed in Public Vocational Training Centres (84.1%) and Private Technical and Vocational Colleges (64.4%). The exponential growth in Public Vocational Training Centres could be attributed to the involvement of the County Governments in the expansion of the Public VTCs and development of their infrastructure. According to Akala and Changilwa (2018) the development and introduction of Youth Polytechnics curriculum, in-servicing of instructors, government's effort to rehabilitate, modernise and expand the Youth Polytechnics, and the introduction of the Subsidised Youth Polytechnic Tuition Scheme are the factors that have played a major role in the increased enrollment in public VTCs.

Curricula and Challenges of WYD Skills in Kenya's TVET Institutions

The task of this paper was to explore how the curriculum aids in production of TVET graduates with WYD skills. The TVET curriculum in Kenya has been accused of being 'too conservative' (Kirior, 2017) mainly advocating the colonial legacy. Kirior further observed that the TVET content and materials in Kenya have Eurocentric tendencies including use of imported learning materials. Whereas a Eurocentric curriculum in itself is not a weakness, TVET sector has a role in providing solutions to regional or national challenges based on their unique contexts. This would mean contextualising TVET institutions to teach about Africa and innovate about African's urgent developmental agenda (OECD, 2012). According to UNESCO (2006), a good curriculum is one that engenders the use of local materials, tools and ideas.

The concern in TVET set-up in Africa has been that it is highly an outside agenda that does not take cognizance of African culture and therefore full of simulation tendencies of western world philosophies. Perhaps this explains why TVET sector has been blamed for investing in training skills that are not relevant to Kenya's industry needs. It is ironical that even with the growth in the

number of TVET institutions and the increased graduates yearly, the industry still claims to lack skilled manpower in the country. Industry players have noted the contradictions between the skills the industry needs and what the graduates present. Out of desperation, some industry players like Bamburi Cement, Kenya Breweries, and Kenya Commercial Bank opened up their training centres to train or retrain their staff coming from TVET learning centres.

Claims that TVET curriculum does not address the market needs have been reported in a number of empirical studies (Kerre, 1992; Kirior, 2017; Ngware, *et al.*, 2018). In one of the studies, 40% of the TVET instructors reported that their courses on offer were irrelevant to the job market and the industries (Kerre, 1992) and TVET graduates lacked confidence in what they do (Government of Kenya, 2005). This has been corroborated by employers who have lamented of skill gap when recruiting TVET graduates (Gachugu & Mattingly, 2019). TVET trainees equally report the skill mismatch during the training. For instance, 23.3% and 25.6% of surveyed entry-level staff in the formal and informal sector respectively agreed with the statement that their skills did not match what employers were looking for.

The approach to inculcation of WYD skills in Kenya's TVET sector has been problematic particularly transferable or soft skills. The "Report on the Rapid Appraisal on the Status of TVET in Kenya" argued that the education system failed to inculcate a modern scientific culture, build learners with desirable social skills and a wholesome philosophy of life (Republic of Kenya, 2003). More importantly, glaring discrepancies exist in the implementation of the TVET policy. For instance, life skills (key component of WYD skills that were noted to be missing) have been introduced in the TVET curricula but they have not been implemented in most of the TVET institutions (Akala & Changilwa, 2018). In addition, entrepreneur skills; the other crucial component of WYD skills, although integrated in the TVET training, are not implemented fully in the TVET training (German Development Co operation in Kenya, 2017). Whereas a strong quality assurance mechanism would have helped in enforcing implementation of these key integrated skills, it has been reported to be lacking leading to poor curriculum delivery (Akala & Changilwa, 2018).

Generally, TVET institutions have to maintain a link with the industries they serve. Ordinarily, industries are part of the immediate environment and therefore with a curriculum that does not borrow much from it, there is a likelihood that graduates from such a training arrangement would struggle to fit into the immediate labour market. TVET professionals in Kenya's training institutions ought to prioritise transforming their indigenous materials and technologies into TVET curriculum which would not only create employment but also act

as a natural link with the industries. This approach would encourage selective borrowing from already working European models but with efforts to modify them to fit the African TVET context. What is encouraging are the recent developments that target to consolidate the fragmented TVET sector in Kenya. The country has prioritised participation of the private sector, that is, industry players in the designing and implementation of the TVET curricula (German Development Co-operation in Kenya, 2017) and this is likely going to see skill improvement as we move forward.

Implementation of TVET curriculum takes place within societies that play a major role in shaping the opinions and perceptions towards TVET programmes. Unfortunately, the perceived and real concern in Kenya has been that TVET programmes are meant for those students who fail to stand up to the rigor of academic education, that is, the poor performers in schools (Wakiaga, 2020; Simiyu, 2009; Kelemba, 2010). The wages for TVET graduates seem to reinforce this thinking. Comparatively, TVET graduate wages remain way low (Simiyu, 2009) coupled with the fact that the pathways for those students who aspired to get high-skill level training faced a dead end disadvantaged any ambitious student who thought of progressing to attain high-skill training in higher education institutions like universities and National Polytechnics. Thus, the entry level for TVET institution has been way low and the situation exacerbated with the mix of learners with different levels of learning abilities. For instance, a class might have students with no formal education, those with limited formal education and those with average qualifications all admitted in the same courses and classes. Even with other factors that influence effective curriculum implementation remaining constant, low entry levels and the diversity in student enrollment in terms of academic readiness have affected implementation of TVET curricula and particularly the capacity of instructors to ensure all the diverse learners acquire WYD skills.

Related to low entry level to TVET programmes, there is the gender disparity in access to TVET programmes. The latest statistics show significant improvement in the number of female students enrolling but they are still marginalised only making up 43.7% of the total student population (Kenya National Bureau of Statistics, 2019). Indeed, the way in which curriculum views education of girls/women and boys/men will be influenced largely by the gender equality discourse in the wider society. For Kenya, TVET programmes are perceived to be masculine and this gender stereotyping has affected enrollment of women and girls (Kelemba, 2010; African Union, 2007). Gender biases continue to shape attitudes towards Artisan and Craft Curriculum in TVET institutions. Programmes like dressmaking, hairdressing and cookery are associated with

girls and often girls who are less gifted academically (AU, 2007). The belief by most people that TVET is meant for those who have failed to find a place in academic education negatively affects students' motivation to enroll in Artisan and Craft programmes (Oketch, 2009). This trend has a historical angle when one analyses how TVET courses were introduced in Africa. We know that TVET education under colonial government was reserved for Africans to produce cheap labour for white settlers as the whites enrolled in academic education. It is this colonial stigmatisation of Africans that has metamorphosed over time into a class or prestige perspective where TVET erroneously seen as low-class career. Parents have come to believe that only those children who fail to make it to the secondary schools should be admitted to the youth polytechnics (Mureithi, 2008). This, as already observed above, affects the quality of students that TVET institutions admit.

Effective implementation of WYD skills demands maximum investment in teachers. This could be in form of initial pre-service courses, in-service courses, continuous professional development and deployment of adequately trained teachers and putting the deployed teachers under reasonable terms of employment. Kenya has not done well as public TVET institutions continue to face a shortage of technical trainers (Republic of Kenya, 2016). Without adequate proportion of trained personnel within institutions, instilling WYD skills remains rhetorical adventure and many institutions are forced to improvise affecting the overall quality of education, and this, is manifested later in lack of WYD skills exhibited by graduates. One approach taken by TVET institutions has been to recruit instructors to complement the numbers of the government employed instructors. However, their terms of employment are often different from government employed instructors and are reported to be unattractive resulting to the much witnessed high turnover (Republic of Kenya, 2016). This explains why Kalemba (2010), identified lack of motivation among TVET instructors as among the main barriers to the implementation of TVET curriculum.

The dynamic labour market demands regular in-service or short courses for trainers engaged as tutors at TVET institutions. This would ensure the institutions keep responding to the requirements of the industry and avoid the reported mismatch between the training institutions and the labour market. However, these trainings are limited (Indoshi, Wagah, & Agak, 2010). The other pertinent issue with the curriculum implementation in TVET institution has been presence of instructors either with no pedagogical skills or industry exposure. According to Indoshi *et al.*, (2010), there are highly qualified trainers in the various TVET specialisation but have grossly inadequate skills, experience, or limited exposure

with the industry and modern technology. The model of training tutors in Kenya's TVET sector is mainly apprenticeship model where students become TVET teachers, devoid of desired pedagogical skills (Changilwa, 2015). The concept of WYD skills demands adequate skills in technical skills by the trainees, which is not possible when the instructors have little knowledge of the industry and modern technology at the labour market. It is expected that an effective TVET curriculum will integrate transferable skills, and this calls upon instructors to have proper pedagogical skills and technical training. The challenge has been that a majority of instructors are reported to lack background training in the field of education and teaching resulting in use of inappropriate pedagogies and training practices (Akala & Changilwa, 2018).

In a study that examined the extent to which the curriculum integrated WYD skills, Ngware *et al.*, (2018) found out that the level of training in these skills was highest for life skills (60.8%), followed by academic skills (57.7%), then core values (57.2%) and lowest for social-emotional skills (50.0%). The study further explored the extent of coverage of WYD skills and findings indicated that while about two thirds perceived life skills (65.7%) and basic computing skills (65.4%) as well covered, the levels of coverage for non-academic skills (e.g., relationships, sexual and reproduction health skills) were perceived to be lower than those for academic/technical skills. It is clear that Kenya's TVET institutions put little emphasis on transferable skills in their training probably because they are not examinable. This is ironical given that a recent TVET study found out that the informal sector prioritises more on transferable skills than education qualifications when recruiting (Awiti, Orwa, Mbuvi, & Karumba, 2019).

Whereas a study by Ngware *et al.*, (2018) reveals that technical skills among the WYD skills were better covered in the curriculum than the other forms of WYD skills such as transferable skills, analysis of the teaching and learning strategies points to another challenge. The TVET institutions are accused of preferring covering theoretical over practical contents of the TVET subject areas. One of the explanations could be the fact that instructors themselves have inadequate hands-on experience. In one of the studies targeting the TVET instructors, 38% had acquired industrial work experience of only six months or less, 26% had work experience of between 12 and 36 months and 16% had work experience of over 36 months (Ferej, Kitainge, & Ooko, 2012). Exposure to work experience and regular in-service courses enables the instructors to reflect on, and demonstrate the appropriate work context to their subject, and through this, built their technical skills. However, instructors in TVET sector continue to report their unexplained fear for practical areas. For instance, 67% of TVET instructors reported being comfortable teaching theoretical content than practical content (Simiyu, 2009). The preference of theoretical content to practical aspects of the curriculum affects the effective inculcation of WYD skills that demands a balance of the various components of the TVET curriculum.

Utilization of in-service programmes in TVET sector has not been a top priority. This is despite evidence that 10% of instructors in a recent TVET study revealed that they did not have technical training skills (Ngware *et al.*, 2018). TVET institutions appear not to prioritise in-service training for their instructors yet they are engaged in a dynamic sector whose changes are rapid. In the past three years a majority of the instructors (57%) had not completed any refresher course (Ngware, *et al.*, 2018).

Workloads for instructors might also influence the efficacy of training at any level. The most recent study on workloads in TVET institutions shows that instructors are overworked. The study shows that on average, TVET instructors teach for 24.6 hours per week, and this did not differ much between public (24.1) and private (24.7) institutions (Ngware, *et al.*, 2018). This is beyond the Teacher Service Commission (TSC) recommended 12-18 hours per week. Overworked employees cannot handle inculcation of WYD skills as the emphasis is more on completing the syllabus than ensuring proper inculcation of WYD skills.

Student attachments or internships are another component of the TVET curricula that is recommended, used and deemed appropriate in developing and integrating WYD among youths globally. One viable strategy in acquisition of WYD skills is through training and skills in industrial internships where trainees are put in an actual industrial working situation (Kazilan, Hamzah, & Bakar, 2009). It has already been established that the training has given little attention to transferable skills; leaving industrial attachment/ fieldwork as the only option to give a holistic training where the student has to put to use both technical skills and transferable skills. Unfortunately, data from students showed that about half (50.3%) believed that the institutions did not have internship programme (Ngware *et al.*, 2018). This is despite existing proof that internships, apprenticeship and attachments play an important role in equipping the youth with employability skills. In another study, 36.3% and 22.6% of the students believed that field practice had low influence or no influence on the learning of Artisan and Craft courses respectively (Mwaura & Mwangi, 2015). This finding showed that, from students' perspective, industrial attachment/field practice did not have a high influence on the learning of Artisan and Craft courses in community colleges. This view may be counterproductive in instilling WYD skills during internship and industrial attachment.

The general poor state of infrastructure within the TVET institutions in Kenya affects instilling WYD skills. In most of the TVET institutions, there are inadequate and obsolete infrastructure and equipment, for example, poor equipped TVET workshop and libraries, dilapidated classroom blocks and weak support structure for students' industrial work experience scheme (German Development Cooperation in Kenya, 2017; Ferej *et al.*, 2012). In one study,

instructors identified institution-related factors (such as facilities, machinery or materials (41.2%) and workshops or laboratories (39.2%) as the biggest hindrance to carrying out their duties as trainers. A further 60.9% of managers of the TVET institutions perceived their institutions as having inadequate training facilities and machinery (Ngware, *et al.*, 2018). Effective training in WYD skills would require adequate infrastructure. Studies have already shown that inadequate infrastructure affects training of skills in TVET institutions (Indoshi *et al.*, 2010). Related to this is the availability of the curriculum materials on WYD areas. According to Ngware *et al.*, (2018), the levels of availability of curriculum or syllabus documents are higher for academic/technical skills than for non-academic skills. Most of the TVET institutions do not have syllabus for WYD course materials that would help in teaching WYD skills.

Conclusion

The approach to WYD skills in TVET curricula in Kenya had contributed to the lack of WYD skills among youths who exit TVET training. The policy framework supports integration of the WYD skills. However, it remains rhetorical without a proper quality assurance process to ensure all the TVET institutions in the country implement the integrated content. Despite this, Kenya's TVET institutions are well-positioned to promote WYD skills within the new CBET framework that has established relevant TVET bodies and structures to support technology education agenda. The curriculum support materials on WYD skills circulated to all TVET institutions remain a top priority to ensure WYD skills are fully integrated in the curriculum.

Recommendations

- There is need to develop curriculum materials on WYD skills to support instructors in teaching the content.
- The policy frameworks that have come in force after The TVET Act, 2013 should be implemented to ensure that WYD integrated areas are implemented by all the TVET institutions. There is the need to ensure quality assurance units regularly visits the TVET centres and support the implementation of the frameworks.
- Develop stronger partnership and collaborations with industry to support curriculum development and implementation, attachments, internships and apprenticeships.
- Implement regular in-service training for instructors particularly those who do not have education background and those who reported to have less than 3 months of practical skills with the industry.

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INVESTIGATION OF PARTICIPATION OF INDUSTRY IN A QUALITY ELECTRICAL INSTALLATION CBET CURRICULA DEVELOPMENT, DELIVERY AND EVALUATION

C. W. Miseda

Department of Technology Education and Computer Studies, University of Eldoret, P. O. Box 1125-30100, Eldoret, Kenya

Abstract

Competency Based Education and Training (CBET) system is a form of training that stresses on the development of demand driven competencies at the workplaces. Its strength lies in its ability to develop the necessary competencies for graduates to be successful in the workplaces. In an effort to bridge the skill gap between industries and Technical Vocational Education and Training (TVET) institutions, the CBET implementation policy framework of Kenya (2018) mandated the industry players to participate in curricula design, delivery and evaluation. The quality of graduates produced by TVET institutions depend on stronger links between employers and those preparing employees for work. This paper evaluated the participation of industries in the design, delivery and assessment of Electrical Installation (EI) CBET curricula. The paper employed mixed method research design where both quantitative and qualitative data were collected and analysed. A total of forty industry players were selected into the sample frame using purposive sampling. Data was collected using questionnaires and interview schedule and analysed using descriptive statistics and content analysis. The findings from this study showed that although the role of industry had been clearly defined in the CBET implementation policy framework, most industries had not occupied their rightful position in the CBET curricula design, delivery and evaluation. This led to low quality of CBET training. The paper, therefore, recommends a thorough sensitisation to selected industry players by TVET CDACC on their roles in CBET training as stipulated in the CBET implementation policy framework.

Key words: Industrial participation, curriculum design, delivery and assessment.

Introduction

Background to the Study

The Kenya policy framework on TVET pointed out that the TVET sector plays a pivotal role in the socioeconomic growth of the country by addressing pertinent issues related to labor force and industrial technical expertise (Republic of Kenya, 2012). Subsequently, TVET sectors have been continually subjected to changes to enable the graduates to possess the relevant skills and expertise required in the workplace environment. Further, empirical evidences showed a trend of mismatch between industrial demands and training skills acquired in TVET institutions suggesting a need of training outcomes to be more closely aligned to industrial competences and proficiency. Globally, industry players have constantly questioned the quality of TVET graduates (Republic of Kenya, 2018).

Consequently, a comprehensive manner to address and eliminate the skill gaps require the alignment of the curricula with the needs of the workplace to give TVET trainees a continuous pathway toward achieving their career paths. Partnerships between training institutions and industries as recommended by World Bank (2013) is, therefore, considered crucial for effective training, acquisition of psychomotor skills and adoption of creativity and innovations in the TVET sector. In an effort to enhance TVET system, most countries have embraced the CBET approach as a strategy to prepare more competent TVET graduates for workplace environments. The Kenyan CBET policy framework (2018) identified industries as essential players in curricula development, implementation and assessment under the umbrella bodies called Sector Skill Advisory Committees (SSACs).

As highlighted by UNEVOC (2015), curricula development processes entails a series of phases such as syllabuses creation, education, learning and training. The inclusion of industries at all the phases of CBET curricula design creates room for more successful co-operation with all stakeholders. Industry participation guarantees a combination of both training theories and practical applications. Improved collaborations between TVET institutions and industry are expected to greatly improve the quality of training competent labour force cognizant of the industrial technological trends (UNEVOC, 2015). The collaborations provide mutual benefit between the industries and TVET institutions as well as socio-economic development of the nation. This paper, therefore, evaluates the contexts, inputs, processes and products of participation of industries in designing, delivering and assessing the EI CBET curricula.

Rationale of the Study

The policy recommendations of a CBET conference held in Kenya themed “embracing CBET for quality and relevance in TVET sector” pointed out that there were emerging issues in the implementation of CBET curricula. The aim of the conference was to take stock of the CBET implementation process, progress and challenges and recommend a need of implementing evidence-based policies anchored on well-articulated studies. Significant gaps were noted between implementation strategies and CBET policy framework in relation to the roles of industry. It is against this backdrop that the paper explores the roles of industry in improving the quality of CBET curricula.

Objectives of the Study

The main objective of the paper was to study industry participation in the design, delivery and assessment of EI CBET curricula in Kenya. The main objective was guided by the following specific objectives:

- (i) To explore the effectiveness of industries in CBET curricula development.
- (ii) To analyse the efficiency of industries in CBET curricula delivery.
- (iii) To investigate the efficacy of industries in CBET curricula evaluation.

Theoretical Framework

The goal of implementing any curriculum in education sector is to enable learning to take place (Republic of Kenya, 2018). For effective achievement of learning, there are teaching and learning theories that guide the education process. Consequently, in evaluating the implementation of CBET curriculum, three underpinning learning theories were considered; constructivism theory, visible learning theory and instructional design theory. The three were selected for their complementary values.

Conceptual Framework

Independent Variables Intervening Variables Dependent Variables

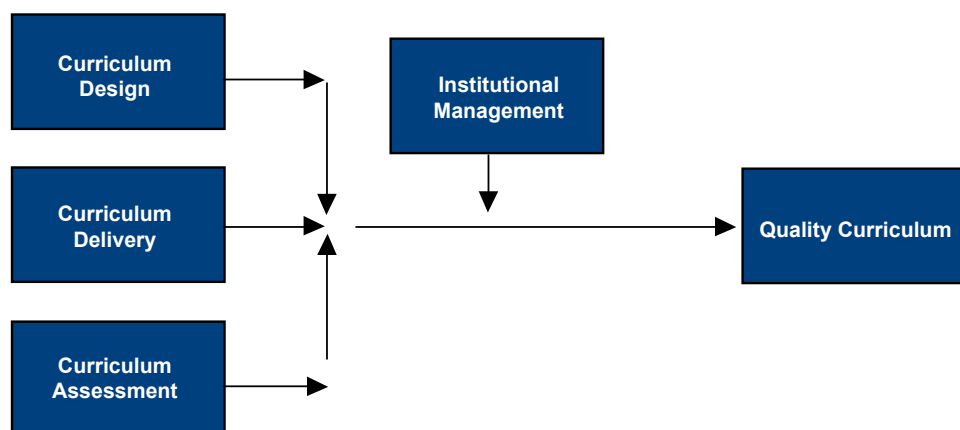


Figure 1: Performance Indicators of a Quality Curriculum

The paper focused on the quality EI CBET curricula as the dependent variable which was influenced by three independent variables as shown in figure 1. They included curricula design, delivery and assessment. The different institutional management styles formed the intervening variables.

Roles of Industry in CBET Curricula Development

According to Megha and Pratibha, (2014) curriculum design comprise several stages such as designing, scheduling, formulating, delivery, assessing, reviewing and refining. It is an orderly and dynamic process sensitive of time and quality. Predrag *et al.*, (2014) identified five phases of curricula design namely analysis, design, development, implementation and evaluation activities. These phases would lead to effective and efficient achievement of a learner-centred approach to training. The initial step in establishing a consultative process in handling industry grievances is in the curricula design (UNEVOC, 2015). This guarantees better responses to industry needs by the CBET courses. At this phase, obsolete topics are updated with latest ones including recent techniques developed, researched and adopted by industries.

To ensure quality of curricula development, the Kenyan CBET policy framework (2018) elaborated several processes demanding effective and efficient monitoring and control of the development cycles. Subsequently, CBET curricula design processes became multisectoral and iterative, with

several actions involving diverse stakeholders. One of the stakeholders in CBET curriculum design were the industry players who were categorised as key agencies occupying an important pillar in CBET curricula development. They would tackle the joblessness matters, insufficient graduates' technical know-how issues and industrial trends on innovations. Their major task at this phase was the development of occupational standards of CBET system to reflect the workplace operations (Republic of Kenya, 2018).

As highlighted by Republic of Kenya (2018), high industrial productivity would be attained if industries took up their rightful position in CBET curricula processes. Their role also included setting of national occupational standards. Through such partnerships, there would be improved relevance of training outcomes and enhanced contents of occupational standards in light of industrial needs. Collaboration between institutions and workplace environment is progressively becoming a critical component of effective economic development (World Bank, 2013). Workplace environments endlessly undergo several dynamic technological changes which necessitated TVET institutions to periodically undergo curricula reviews and reforms. Curricula development processes are influenced by both local and international industrial needs. Consequently, while designing CBET curricula, its stakeholders must cautiously select the contents to ensure its quality.

CBET curricula are a collection of units of competencies that describe the effective performance in a particular trade. The courses form the foundation in training proper technical expertise. The syllabi are developed for specific trade areas, workplace environments or industries. The EI curricula contains basic, common and core units of competencies that enables a candidate to be a qualified electrician. The CBET approach would, therefore, develop productivity of skilled workers and improve the quality of industrial production. In relation to industries, the performance indicators of a quality training would include relevant technical know-how and workers behaviour. The instructional content would thus reflect the industrial needs. Furthermore, it is essential to periodically review curricula in order to address the ever-changing industrial needs.

Roles of Industry in CBET Curricula Delivery

Once curricula are designed, the subsequent phase is to effectively deliver it to the trainees in a TVET institution. Curricula delivery entail instructional units

to be covered in a term, lesson planning, using training modalities, using proper educational technologies, providing the training materials and equipment and carrying out formative testing (Megha and Pratibha, 2014). According to World Bank (2013), performance indicators of a successful curricula delivery include the quality of training outcomes achieved by trainees and how effective they use the training for their psychomotor, cognitive and workplace developments. This calls for active participation of industries in curricula delivery. At this phase, industries would partner with TVET institutions on internships, industrial attachments and field trips. This partnership envisaged technical-know-how in a workplace environment. The resultant interrelationship would form the background on which curricula and occupational pathways would be anchored on. Additionally, the industrial CBET curricula delivery would serve as a bridge of information sharing between industries and TVET institutions.

The industry's contribution at this phase is essential for a holistic education and training (Republic of Kenya, 2018). They would help the trainers spearhead the curricula relevant to industrial needs. Additionally, they would monitor quality standards and provide verifiers of CBET curricula. Moreover, they would provide professional expertise to trainees as regards industrial requirements. Likewise, they would assist in the development and acquisition of training materials. The industries also would provide training opportunities including apprenticeship, industrial attachment and internship of trainees and trainers. Through such collaborations, there would be immediate feedback on the suitability of developed curricula, development of new syllabuses and adjustment of present ones. There would also be better TVET trained graduates and ease of selection and hiring of graduates.

According to Kenyan CBET policy framework (2018), the extension of corporations between TVET institutions and industries are generally critical at improving the employability skills of graduates. By providing knowledge, skills and abilities required at workplace, satisfactory performance and CBET models would present TVET institutions with industrial validated processes. The Republic of Kenya (2018) highlighted that in some models, industries design CBET curricula as per their skill needs and deliver them to the collaborating TVET institutions. The trainees are then trained, evaluated and examined in light of the industrial curricula and those who qualify are absorbed by the said industries. In other models, the industries select the trainees for job placement and then provide tailor-made courses for them through the collaborating TVET institutions. In the two models, industrial participation in content delivery is a prerequisite.

Roles of Industry in CBET Curricula Evaluation

Curricula evaluation processes encompasses intra-curricula evaluation, assessment of trainees and evaluation of instructors by the trainees (World Bank, 2013). Additionally, it involves equipment and training materials evaluation, training methods verifications, assessment procedures evaluation and assessment of industrial attachments. After evaluation of the CBET curricula, then the review and reformation phase follow. This modification and improvement stage require the input of industrial players, researches and innovators. Since the technical manpower requirements by workplace environments are provided by TVET institutions, there is a need for industries and institutions to collaborate at different levels of the CBET evaluation processes.

As noted by HCRC (2009) industry's vested interests are transforming curricula in such a way that it accurately captures the academic standards as well as workplace technical know-hows. The industrial stakeholders conduct evaluation on CBET curricula and its delivery in order to properly assess and modify it and also helps to maintain and sustain programme projects over time (Republic of Kenya, 2018). They also strengthen progression pathways by linking the integration of academic instruction and career of TVET graduates to actual workplace environment. Additionally, they help in identifying experiential work-based training and mentorship programmes to trainees that are consistent with curricula.

Collaboration between TVET institutions and industries in curricula evaluation processes became critical in producing well-resourced graduates to fit in the workplace environments (Republic of Kenya, 2018). The industries ought to participate in CBET assessment of trainees and evaluate the assessment processes. Industries likewise ought to evaluate the employability attributes such as the abilities, qualities and merits that are needed in specific work environments. UNEVOC (2015) noted that adequate psychomotor and cognitive skills are often set out by the employers as major requirements during recruitment processes. The CBET evaluation for technical skills achievement along with comprehensive theoretical knowledge help in equipping the trainees in facing dynamic workplace requirements. The evaluation methods as noted by UNEVOC (2015) should be geared towards attaining employability skills as shown in table 1.

Table 1: Employability Skills

Employability Skills	Evaluation Methods
Communication skills	<ul style="list-style-type: none">• Writing and presenting written and verbal reports• Demonstrations and working in groups
Self-management skills	<ul style="list-style-type: none">• Formulating personal vision, mission and goals• Emotional intelligence• Assertiveness
Teamwork skills	<ul style="list-style-type: none">• Group projects and discussions
Problem solving skills	<ul style="list-style-type: none">• Project work and simulations• Using practical learning materials and equipment• Developing and designing models
Entrepreneurship skills	<ul style="list-style-type: none">• Brainstorming actions• Initiating and designing change processes• Simulation actions to boost productivity
Self-management skills	<ul style="list-style-type: none">• Portfolio of job progress• Labour strategies• Professional scheduling exercises
Digital literacy skills	<ul style="list-style-type: none">• Internet use• Usage of ICT skills• Development of industrial software, technology and equipment
Workplace ethics	<ul style="list-style-type: none">• Ethical standards• Organisation code of ethics• Common ethical dilemmas

Incredible research outlined mutual benefits of corporations amongst training institutions and industries in the curricula design, delivery and assessment processes. For instance, a study by Predrag *et al.*, (2014), found out that as a result of these partnerships, institutions would have improved quality of training processes, joint researches, scholarships and improved job prospects for TVET graduates. On the other hand, industries would benefit from better qualified workforce, technological transmissions and greater industrial innovations.

Methodology

The study employed a mixed method design where both qualitative and quantitative data were collected and analysed. Data was collected in three TVET institutions. Forty trainers were selected using purposive sampling and included in the sample frame. Data were collected using questionnaires and interviews. Qualitative data was analysed using content analysis which emphasised on thematic contents while quantitative data was analysed using descriptive statistics.

Results and Discussions

The items S/Nos 01 to 04 in Table 2 tested the effectiveness of industries in CBET curricula design. From the trend of responses above, majority of respondents strongly disagreed that they were effective in CBET curricula implementation. Noninvolvement of industry players by TVET CDACC in development of EI occupational standards had the highest score with 52.5% strongly disagreeing while 42.5% of respondents strongly disagreed that they were conversant with their roles in CBET curriculum and its implementation strategies. Majority of the respondents (37.5%) strongly disagreed that they attended workshops and seminars to gain knowledge and skills on the CBET curriculum design.

Table 2: Effectiveness of Industries in CBET Curricula Development

S/No	Effectiveness of industry in CBET Curricula Development	SD	%	D	%	A	%	SA	%
01	The industry players attended seminars and workshops to gain knowledge and skills on the CBET curriculum design	15	37.5	12	30	5	12.5	8	20
02	The industry players are well conversant with their roles in CBET curriculum and its implementation strategies	17	42.5	13	32.5	6	15	4	10
03	The industry players are involved by TVET CDACC in the development of EI occupational standards through SSACs	21	52.5	11	27.5	3	7.5	5	12.5
04	The EI CBET curriculum adopted meet the industry needs and requirements	14	35	14	35	7	17.5	5	12.5

Interview results further painted a bleak picture of industrial involvement in curricula design. Most of the small, micro and medium enterprises were never considered for participation as EI Sector Skill Advisory Committees (SSACs). However, they played a central role in providing industrial attachment positions, internships and field trips to the surrounding TVET institutions. Additionally, most industry players weren't aware of the CBET curricula reforms in the TVET sector and thus ignorant of their roles in curricula development and design. Likisa (2018) asserted that most industry experts who participated in the curriculum development did not have the expertise in models and philosophies of curriculum development.

From the data analysis above, the industrial grievances especially of small,

micro and medium industries were never captured in the curriculum design stage as envisaged by UNEVOC (2015). This would thus lead to skill gap between industries and CBET training hence negating the whole process of CBET curricula. Moreover, the Kenyan CBET implementation policy framework (2018) that stipulates the roles of all the stakeholders including industries ought to have been brought to the attention of industry players. Better responses of industry need by the CBET courses as stipulated in Republic of Kenya (2018) was, therefore, cagy. In non-consonance with these finding, UNEVOC (2015) insisted that modern technologies demand of the workplace require a skilled workforce with good higher order skills anchored on the curricula design.

Table 3: Efficiency of Industries in CBET Curricula Delivery

S/ No	Efficiency of Industries in IE CBET Curricula Delivery	SD	%	D	%	A	%	SA	%
05	The industry players attended seminars and workshops to gain special knowledge and skills on the CBET curriculum implementation	16	40	13	32.5	5	12.5	6	15
06	The industry collaborates with the TVET institutions in the implementation of CBET curriculum	8	20	9	22.5	12	30	11	27.5
07	The industry provides internships, attachments and part-timework opportunities for EI trainers.	5	12.5	7	17.5	15	37.5	13	32.5
08	The industry collaborates with TVET institutions to offer support such as donation of equipment, training scholarships and grants for EI trainers	12	30	12	30	7	17.5	9	22.5
09	There is continuous involvement of industry partners in curriculum implementation process within the TVET institutions so that the curriculum matches industry needs and expectations	11	27.5	14	35	8	20	7	17.5
10	The industry players support the placement of industry workers (engineers and electricians) as EI trainers in TVET institutions	21	52.5	10	25	6	15	3	7.5
11	The industry experts provide career guidance and counselling in TVET institution in relation to CBET curriculum	14	35	12	30	7	17.5	7	17.5

Items 05 to 11 tested the efficiency of industries in Electrical Installation CBET curricula delivery. The results showed that most industries collaborated with the TVET institutions in the implementation of CBET curriculum and provided internships, attachments and part-timework opportunities for EI trainers. This was partly attributed to the fact that graduates from the traditional knowledge-based approach of training also underwent the same processes. They were familiar with the process.

On whether they attended specialised seminars and workshops in relation to CBET content delivery, majority (30%) strongly disagreed. The results further indicated that industries rarely provided equipment, training scholarships and grants for EI trainers and trainees. On whether industry players supported the placement of industry workers such as engineers and electricians as EI trainers in TVET institutions, majority (52.5%) strongly disagreed and only 7.5% strongly agreeing.

The interview results pointed out that the main objective of EI related industry was profit making and CBET training was secondary to them. They, therefore, concentrated in their production businesses and paid little attention on trainees on attachments and internships. As a result of cost cutting measures, their employees were neither involved in CBET training nor provision of career guidance on any floral TVET institutions. This pointed out that the perceptions between industry and academia might be different in curricula delivery. These findings were in contrast to the finding of Deißinger and Hellwig (2011) study of the structures and purposes of CBET based on a comparative study approach where perspectives of CBET in England, Australia, Scotland and Germany were compared. They found out that CBET was an industry and demand driven education and training programme and its products had a high demand on the workplace environment.

Though, industry play a pivotal role in providing attachments and internships for CBET trainees, there is still lack of clear feedback mechanism between industry and TVET institutions as outlined in the CBET implementation policy framework. Ndile (2018) emphasised a strong relation between curriculum delivery and industry participation. As acknowledged by Republic of Kenya (2018) industry expect graduates to have experiences of the workplace environments. Affectively addressing these workforce expectations would require stronger links between employers and those preparing employees for work. Thus, the placement of industrial workers in CBET training would go a long way in achieving the industrial expectation. That, however, was not the case.

Table 4: Efficacy of Industry in CBET Curricula Evaluation

S/ No	Workplace Assessment Methods	SD	%	D	%	A	%	SA	%
12	Uses supervisors report to access key competencies	12	30	13	32.5	7	17.5	8	20
13	Self-assessment by trainees to reinforce knowledge and practical skills	4	10	6	15	16	40	14	35
14	On the job assessment by the trainer to access components of the competency and practical skills	8	20	9	22.5	11	27.5	12	30
15	Observing and recording satisfactory performance of tasks over a period of time	13	32.5	11	27.5	9	22.5	7	17.5
16	Work-based projects to access process and production of skills	14	35	10	25	8	20	8	20
17	Team-based projects to access practical skill	13	32.5	12	30	9	22.5	6	15
18	Accredited industry experts are involved in the formative assessment of EI trainees in TVET institutions	17	42.5	13	32.5	6	15	4	10

Items 12 to 18 tested the efficacy of industry in EI CBET curricula evaluation. From the trend in the responses, most industries never used the stipulated CBET assessment criteria. For instance, majority of the respondents (30%) strongly disagreed that they used supervisors report to access key competencies while (32.5%) of the respondents strongly disagreed that they used observation and recording of satisfactory performance of tasks over a period of time. Likewise, majority of the respondents (35%) strongly disagreed that they used work-based projects to access process and production of skills while 32.5% and 30% respectively strongly disagreed and disagreed that they used team-based projects to access practical skills. Equally, the accredited industry experts were never involved in the formative assessment of trainees. The analysis of the results showed that most industries were ill-equipped in conducting CBET evaluation as per the laid down regulations. Thus, they never followed the CBET assessment procedures. According to CBET implementation policy framework (2018), potential employers of CBET graduates are expected to participate in the formative evaluation of the CBET curricula.

These findings were similar to the findings by Likisa (2018) on Adama Science and Technology University alumni students and Hawas TVET College, Ethiopia. It found out that the alignment of Competency Based Curriculum (CBC) with occupational standards was challenging due to the fact that very few industry experts participated in curriculum evaluation and assessment. Geressu (2017) asserted that weak collaborative work philosophy between TVET industries and

industry limited the opportunity of exploiting the potential of stakeholders that enabled them to be successful in bringing about the expected output to meet the expectation of respective stakeholders' and win their commitment in its real sense.

Conclusions

Though the roles of industrial had been clearly defined in the CBET implementation policy framework, most industries still hadn't occupied their rightful place in the CBET curricula design, delivery and evaluation. This was majorly because most industries were private entities which were profit driven and did not have attention, room and time for CBET curriculum design, delivery and evaluation. This undoubtedly led to low quality of CBET training.

Recommendations

The paper recommends a thorough sensitisation by TVET CDACC to selected industry players on their roles in CBET training as stipulated in the CBET implementation policy framework. There should also be joint participation of workshops, seminars and symposia all the CBET stakeholders to address the gaps between the implementation strategies and CBET policy frameworks. Small, micro, and medium industries should also be actively involved in CBET academic planning and course design.

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2

ODeL IN TVET

A REVIEW OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS' ONLINE LEARNING AS A RESPONSE TO CORONA-VIRUS DISEASE 2019 IN KENYA

E. Katam and D. Otieno

Kenyatta University, P. O. Box 43844-00100, Nairobi, Kenya,

Abstract

Technical and Vocational Education and Training (TVET) provides lifelong skills that meet the needs of labour market and for self-employment. The Kenyan Vision 2030 places high demands on TVET as a leading economic driver for economic growth to lead the country to industrialized status by the year 2030. The Sessional Paper No. 1 of 2019 explains the government's strategy of increasing access to competency-based education and training and improving coordination of TVET programmes. The adverse effects of the COVID-19 pandemic have created the need for increased collaboration among all stakeholders to strengthen the use of online technologies in education and training. The emphasis on practical skill development in TVET presents unique challenges for their Open Distance e-Learning (ODeL) delivery during the COVID-19 era and later when training centres gradually re-open. However, unique possibilities also arise for occupation-based learning. TVET may enhance and attain an innovative economy through innovations and implementation of comprehensive guidelines developed to address skill deficiencies in the workplace, industry, informal sector and hence fulfilling individual needs and interest. This review explored evidence-based opportunities and challenges in the implementation of remote learning in TVET institutions with a view to shaping policy direction. The objectives of the study included exploration of global best practices in online training delivery, identification of opportunities for online learning and challenges of online teaching of TVET courses. A review of literature was undertaken on global best practices on the use of remote learning in TVET institutions during their closure that was occasioned by the pandemic and continuity of post COVID-19 learning. The study noted that there was urgent need to improve remote teaching and learning in Kenyan TVET institutions through investment in additional resources and development of adequate digital infrastructure. TVETA should ensure effective implementation of ODeL guidelines and harmonization of its delivery through a national Learning Management System (LMS). Global best practices should be incorporated to provide models for benchmarking for local standards and practice.

Key words: ODeL, training delivery, COVID-19 pandemic.

Introduction

The disruption of education and training caused by the Covid-19 pandemic has affected the whole world, with UNESCO estimating that 87 per cent of the world's populations were affected by closure of institutions by the end of March 2020. Most countries affected by the pandemic were forced to discontinue face-to-face learning, due to long-term closure of educational institutions (Winthrop, 2020). In line with the United Nations Educational, Scientific and Cultural Organisation (ILO-UNESCO, 2020) most governments world-wide temporarily closed all educational institutions due to the Covid-19 pandemic. A joint survey conducted by ILO, UNESCO and World Bank, revealed that this unprecedented situation is affecting learning at all levels, including initial and continuing Technical and Vocational Education and Training (TVET) and causing disruptions in the provision of training.

The fight against the Covid-19 pandemic in Africa resulted in huge losses in education and training due to the temporary cessation of learning in schools, universities, technical vocational training centres and other centres of learning across the continent. This has deprived many learners of both their right and access to education (UNESCO, 2020). In Kenya, Covid-19 Pandemic has affected all sectors including, especially the education sector. Globally, countries adhered to WHO (World Health Organisation) health guidelines to curb the spread of the Covid-19. In Kenya, the Ministry of Health COVID-19 special taskforce to control the spread of the Coronavirus rolled out several strategies. These included: closure of schools and workplaces, suspension of large gatherings, frequent hand washing, wearing masks in public places, maintaining social distance, coughing in elbows, implementing curfew and restricting entry and exit from most affected regions; though with some challenges experienced (Aluga, 2020). Despite the crisis of Covid-19, ILO and UNESCO launched strategies to combat the effects of COVID-19 pandemic in the areas of education and training in TVET.

The purpose of this review was to explore evidence-based opportunities and challenges in the implementation of remote learning in TVET institutions with a view to shaping policy direction in Kenya. The study addressed the following objectives:

- (i) To explore global practices in online delivery of technical education,
- (ii) Identify opportunities for online learning and
- (iii) Find out challenges of online teaching of TVET courses.

Methodology

The study was a descriptive desk-top review of literature. The purpose was to gain a deep understanding of the current development in the use of remote learning in the teaching of technical and practical-based courses in educational institutions. Secondary data was collected from different sources. These included journal articles, websites, research papers and other academic publications. The review process was guided by the key research question which sought to fill the evidence gap by identifying success stories of how TVET institutions have implemented online learning in response to the pandemic.

Global Practices in Online Delivery of Technical Education

Globally, learning institutions have responded to the Covid-19 pandemic by shifting teaching and learning to virtual mode of delivery. Many countries have demonstrated success in adopting technical education to the online mode.

TVET opportunities in remote learning

The focus on TVET is on producing a well-equipped labour-force that can compete globally. In Kenya, the national Information Communication and Technology (ICT) strategy lays out measures for the promotion of ICT. The ICT master plan emphasises 100 per cent mainstreaming of ICT in teacher training across all training institutions and universities (Adala, 2016). The Sessional Paper No. 14 of 2012 gives further impetus on TVET growth as the government increases investments in ICT to support open, distance and e-learning to boost access, quality and equity to education in tandem with requirements of the Constitution 2010 of Kenya and the key priorities of the Vision 2030 (Adala, 2016). The Sessional Paper No.1 of 2019 acknowledges that despite the gains made in ICT integration in education, there are several inadequacies. These are in terms of internet connectivity, capacity among educators, digital content and development of standard guidelines for use in content delivery (MOE, 2019). There are efforts being made in the manner of improving the development of content and delivery. The same needs to be done in terms of innovative ICT based assessment methods.

According to ILO-UNESCO (2020), the utilisation of ODeL was low before the advent of Covid-19. However, the uptake of ODeL in the TVET sector during the crisis has spurred some upsurge. For instance, TVET institutions

committed more resources towards this, but the level of commitment is lower in developing economies. The World Bank (2020) provided guidance to reduce the adverse impact of the Covid-19 pandemic on TVET through investments in remote learning. Hence TVET systems turn to remote learning in response to the lockdown to reduce TVET loss of instructional time. Globally, there are efforts to incorporate virtual learning components in delivery of TVET courses. Israel which is advanced technologically has implemented digital and online solutions in training and education. EU member states are utilising virtual environments like WhatsApp for TV broadcasts, online video learning channels, and video conference systems, as well as elaborate learning and collaboration platforms. Senegal has developed online distance learning courses for TVET and is working on plans to broadcast courses over television and radio to expand outreach to the little accessed rural youth. Azerbaijan, Egypt, Georgia and Turkey have stepped up efforts to provide e-platforms and digital content. TVETs in Kenya can strengthen the adoption of similar technologies in the teaching of practical courses.

Opportunities for learning are wide-ranging for those with access to remote and online learning tools such as MOOCs, television or through phone-based instruction, peer-to-peer learning through webinars or master classes. The national centre for educational technology in Armenia is in collaboration with the network of NGOs on distance learning. This collaboration provides remote training to technical colleges and craft-level institutions. India's Swayam Prabha Direct-to-Home TV channels provide vocational education classes. Basic (non-smart) mobile phones combined with interactive voice response (IVR) technology provide a low-tech training solution (World Bank, 2020). In fact, the continued closures of TVET prompts the emergence of sophisticated approaches to remote learning. The Armenian National Centre for Educational Technology Development is providing online training for teachers. In Kazakhstan, the development of 2,000 remote VET lessons is under way. Additional students can be enrolled through work-based learning opportunities. With some creativity, and where this does not pose safety risks, practical activities for some TVET programmes can possibly be carried out in and around the house, for example, programmes related to catering and hospitality, childcare, or horticulture (World Bank, 2020).

The Covid-19 pandemic has revealed the necessity of service provision in the

private sector. These essential service providers include, inter alia, medical care practitioners, caregivers, supermarket employees, logistics and transport workers and ICT support staff. Without these workers, it would have been impossible to continue with life during the Covid-19 lockdown period. The focus of TVET on technical and hands-on skills has the potential to deliver short-term, targeted and modular training. This can be effectively utilised to rapidly upskill workers in essential sectors and to reskill individuals to engage in the emergency response. TVET institutions' focus on work-readiness implies that TVET students could relatively easily be engaged in the emergency response. As educational institutions plan for phased out opening of the economy post Covid-19, these skills will become essential. These engagements present practical opportunities for students to apply their skills in real-world situations and acquire relevant experiences.

Prolonged closures present opportunities for workers who now have extra time to acquire additional skills using some learning platforms. A case in point is Mexico's *Capacitate Para El Empleo* online portal currently offering free access to its hundreds of courses and several diploma degrees for technical occupations and has developed partnerships with organisations to expand this access to several Central American countries. Several governments have also provided online courses to unemployed youth through private online service providers (World Bank, 2020). *Cousera* has opened free access to its hundreds of courses which can be accessed for those interested in pursuing courses in technical areas. In Moldova, they prepared an online examination system. Conducting assessments and examinations promotes the internal efficiency of the TVET system and allows students who are near graduation to enter the labour market (World Bank, 2020).

TVET challenges in remote learning

Despite the existence of vibrant and dynamic distance learning in many parts of the World, the use of ICT in most parts of Africa is relatively low (UNESCO, 2020). TVET institutions prepare students for practical skills and this presents a challenge in the use of remote learning (World Bank, 2020). Kenya faces a myriad of challenges in adopting ICT in education. These include negative lecturers' attitudes, resistance to change, lack of skills in ICT, lack of adequate funding to develop infrastructure, trained instructors and support

staff. Consequently, the implementation of ICT-based distance education in technical and vocational subjects has been limited (Obwoye and Kwamboka, 2016). According to (MOEST, 2012) the implementation of the ICT national programme is hampered by poor access, inadequate funding, and high cost of infrastructure and low development of e-learning content.

Additionally, educators do not fully utilise ICT tools in the delivery of instruction. In rural areas, the uptake of ICT is limited due to insufficient supply of electricity. Given the practical nature of TVET institutions, one of the challenges of virtual learning is how to deliver the practical training. Postponement of the practicum is an unavoidable option. In Argentina, practicum has been deferred for the purposes of transforming instruction and as a post-contingency measure (Coolican, Borrás, Strong, 2020).

In Germany, students can access virtual labs used in teaching virtual exchange programmes. The Virtual Patients (VPs) model was used in Romania with a group of students in the USA in medical diagnosis, therapeutic planning and diagnosis (Muntean, Calinici, Tigan, Fors, 2013). Virtual Patients are Web-based Simulation of patient cases developed using simulation software called Web-SP. Students worked with the cases as if they were real cases.(Muntean et al., 2013). Such models are useful for TVETs in Kenya.

According to Adala, 2016, myriad of challenges face the adoption of remote learning at TVET. Intellectual property rights and copyright regulations hinders Open Education Resources (OER) uptake in Kenya. OER policies require the adherence to rules and regulations while implementing this strategy in organisations. Funding is essential for long-term sustainability of OERs in TVET institutions. Instructors also find it difficult to locate the resources. Technology posits another challenge (Adedoyin Soykan, 2020) with few computers and low bandwidth.

The global research by ILO-UNESCO (2020) highlighted the immediate effects of the COVID-19 pandemic on TVET provision as of 15 May 2020. Closure of TVET centres in many countries stood at around 90% in response to the spread of the pandemic. The inadequacy of e-learning infrastructure such as internet connectivity, platforms and resources hinders the capacities of teaching and learning. India reported that due to lock downs, neither trainees nor staff could visit training centres due to being confined at home. In Morocco, India and Ecuador, ill-preparation on the part of parents, students and teachers was reported. Trinidad and Tobago experienced challenges of migrating teaching and learning from the face-to-face to online modes of delivery.

In Kenya, many educators felt that with adequate and appropriate e-learning infrastructure, learning would continue, while in Sri Lanka, online courses experienced low participation rates due to lack of access to equipment and the internet. In poor countries, the disadvantaged and marginalised communities are already at a disadvantage due to technical limitations of poor connectivity, equipment and inadequate skills. Vulnerable groups such as women and girls, experience additional constraints in terms of time availability due to competing responsibilities, such as caring for children and elderly family members and other household duties (World Bank, 2020).

In Canada, the level of motivation among students was experienced in programmes that place emphasis on practical activities in laboratories and workshops as a result of the passive nature of online instruction. Teachers also experienced challenges in migrating their teaching to digital modes using video conferencing and videos for delivery. This was also associated with heavy workload required in preparing and managing online classes that resulted in stress, pressure and anxiety. In Tunisia and Ecuador, there was a lack of uncertainty regarding when they will complete their studies and join the labour market and this made them lose interest in continuing with the learning. Lebanon experienced a scenario where both trainers and students were reported to be demotivated due to the delay in starting the programme. A similar situation was reported in Zimbabwe and Jordan where uncertainty about the duration of the crisis, and whether there will be a catch up programme, left students confused and unmotivated. In Finland, a survey conducted by Finnish TVET on TVET and students' experiences with distance learning felt that learning was burdensome (ILO-UNESCO, 2020).

The postponement of practical training modules

This is for instance in Belgium face-to-face training activities were postponed until further notice. In Madagascar and Kenya, there were concerns that the skills acquired in class since the beginning of the school year might be partially forgotten; hence trainers will be obliged to go back to the courses already completed for a recap and to ensure the completion of the curriculum. Malaysia, Lesotho, Iceland, India and many other countries reported that distance learning was mostly focusing on theoretical classes, while practical modules are being postponed (ILO-UNESCO, 2020; World Bank,2020).

The postponement of exams and assessments

In a few countries, exams and assessment were carried in exceptional measures despite the inhibitions of conducting such activities virtually. However, in

many countries, like China, where online instruction was heavy, the online assessments were not conducted and this affected students' graduation. In the United Kingdom, extension of the school year was adopted due to the difficulties of online assessment, while in Egypt, despite the closure of the centres, assessments were done in 2 phases for graduating students under strict precautionary measures and social distancing and later for transitioning students. In France, all final examinations scheduled for TVET students were cancelled due to the challenges of online delivery (ILO-UNESCO, 2020).

Covid-19 presented the greatest challenge to education making many governments to stop face-to-face teaching and learning and raising further challenges in regard to preparations, needs of students, reassurance to students and parents, approaches to remote learning, curricula assessment, after Covid-19 and useful resources (Dhawan, 2020). Due to the rapid spread of Covid-19, many institutions had little time to transit to online delivery mode (Adedoyin & Soykan, 2020). The approaches to remote learning differ in levels of education, with the needs of skills sector programmes in TVET requiring special attention due to its practicability aspects.

Uncertainties about the return to normalcy creates anxiety for both parents and students especially with the prolonged closure hitting mainly those in low socio-economic environments. During this crisis, it is not the best time to resort to long held institutional plans that were in place for the development of online learning. The curriculum used for remote learning during the Covid-19 vary by jurisdiction with other teachers having the lee-way to strictly adhere to the letter of the prescribed curriculum while others may exercise flexibility and adopt innovative approaches to the delivery of curriculum content (Dhawan, 2020). Many institutions in the western hemisphere have cancelled physical learning and left millions of children in the lurch. The same has been witnessed in the southern hemisphere. Despite all of this, institutions should make use of various online learning in tertiary education that can enhance learning.

Conclusions

The advent of the Covid-19 pandemic has presented numerous challenges as well as opportunities for development of alternative forms of learning for TVET education (Adedoyin Soykan, 2020). This paper highlighted some of these challenges and opportunities that present learning experiences for the sector in Kenya. The long-term expansion of ODeL has been identified to offer an excellent way of ensuring continuity in teaching and learning in the long term.

This will enhance access to education to a wider spectrum of the society. TVET readiness for online teaching is still underachieved. Efforts need to be made to address these challenges and improve readiness. The challenges highlighted brings into question the need to strengthen institutional and individual capacities in terms of developing digital infrastructure and competencies. The issues of assessment in a virtual environment poses an area where educators and trainers can exercise creativity and innovation. There is a need to establish systems and structures that will ensure learning and assessment of technical skills can be conducted in a virtual setup.

Recommendations

Given the evidence adduced from the literature of cases reviewed across the world, the following recommendations are made:

- TVET institutions should invest additional resources in the development of adequate digital infrastructure to ensure continuity of learning during disruptions.
- The TVETA must ensure the guidelines provided for ODeL are effectively implemented by all institutions.
- The global best practices should provide models for benchmarking local standards and practice.
- A national platform for delivery of ODeL should be developed and integrated with institutional LMS to ensure the harmonious delivery of instruction.

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EVALUATION OF DISTANCE LEARNING AT KENYA TECHNICAL TRAINERS COLLEGE, NAIROBI, KENYA

B. O. Mwanacha, F. M. Mbiti and D. O. Anyona

Kenya Technical Trainers College, Education Department,

P. O. Box 44600-00100, Nairobi, Kenya

Abstract

This study explored the efficacy of Distance Learning at Kenya Technical Trainers College (KTTC) for the distance learning programmes launched in April 2020. Distance learning was initiated as a measure to mitigate against the disruption of holiday programmes due to the COVID - 19 Pandemic. In order to establish the nature of learning that took place during the execution of distance learning, it was essential to carry out an evaluation. The objectives focused on the reactions of the learners and teachers on the arrangement and execution of the teaching and learning process. The study adopted a cross-sectional survey design. The target population comprised 836 students and 69 lecturers. Google forms were designed and used for online data collection. It was established that distance learning co-ordination mechanism existed. However, the awareness of the distance learning policy among lecturers was low. The lecturers perceived the quality of teaching and learning to be marginally favourable. On the other hand, the learners had a favourable perception on the social context of learning. The students perceived online counselling to be inadequate. The extent of preparation of students to take college examinations yielded mixed reactions. Majority of the students were undecided whether they were competent to perform practical tasks after distance learning experiences. Lecturers were of the opinion that distance learning had a myriad of challenges in handling practical aspects. In terms of resources, the lecturers used technologies they were conversant with. In conclusion, KTTC was at its infant stages in the establishment of distance education. Therefore, the college should strengthen the management of distance education in terms of enhancing quality assurance, providing the necessary resources and training staff. The learners also deserve training in the use of technology and support with online counselling services. The Ministry of Education should consider supporting institutions develop the necessary infrastructure for distance learning.

Key words: Open learning, distance learning, e-learning.

Introduction

Distance education is any form of instruction provided to students who are separated by distance from the teacher and in which the pedagogical material is planned and prepared by an educational institution (Kaplan & Haenlein, 2016). Keegan (1980) identified six key elements of distance education: Separation of teacher and learner; influence of an educational organisation; use of media to link teacher and learner; two-way exchange of communication; learners as individuals rather than grouped and educators as an industrialised form.

Distance education traditionally targeted learners such as: full-time workers, military personnel and individuals in remote regions who were unable to attend classroom lectures. In modern distance learning, common target populations include professionals seeking recertification, workers upgrading employment skills, individuals with disabilities and active military personnel (Berg & Simoson, 1998).

Keegan (1980) proposed the merits of distance education which included learners' freedom to combine learning with existing commitments, cheaper, free of deadlines, flexible and institutions' capacity to increase enrollment without having to construct classrooms. However, distance education has inherent challenges. Notable among them include requirement of self-motivated learners, lack of face-to-face time in virtual learning, limited immediate feedback, difficulties of accreditation, limited opportunities for development of oral communication skills, some courses not amenable to online learning and requirement for constant, reliable access to technology.

The evolution of distance education is anchored on the three main developments in the media used: printed materials, television and the internet. Guided by developments in technology, the earliest form of distance education was by correspondence (Moore & Greg, 2005). Distance education through correspondence involved preparing students for examination through presentation of written or printed teaching texts and by assignments through mail, followed by their correction. By the 1920s, there were many universities running correspondence courses (Levinson, 2005).

Further, development in technology led to mass media mode of distance education. This mode integrated print media, radio and television with a systematic support of students through study centres. This mode of distance education led to the establishment of open universities (Boom & Schlusmans, 1989). Open learning has since the 1970s assumed a deeper meaning including activities that improve learning in the formal and informal education systems (D'Anton, 2009). Open Learning extended to classroom teaching methods

and interactive learning systems, more often utilising open learning resources (Mason, 1991).

In the current time, distance education delivery is through e-learning mode. eLearningNC (2020) defines e-learning as a system of utilising electronic technologies to access instruction outside of a traditional classroom. In most cases, it refers to a course, programme or degree delivered completely online. Modern distance learning courses employ Web-based course-management systems that incorporate digital reading materials, podcasts (recorded sessions for electronic listening or viewing at the student's leisure), e-mail, threaded (linked) discussion forums, chat rooms and test-taking functionality in virtual (computer-simulated) classrooms. The institutions in Kenya and elsewhere should embrace the modern concept of distance learning.

Kenya Technical Trainers College (KTTC) is a government institution established in 1978. The mandate of the college is to train technical teachers up to higher diploma level (Government of Kenya, 2013). The technical teacher programmes offered at KTTC focus on Business related disciplines, Mechanical Engineering, General Agriculture, Electrical Engineering, Building and Civil Engineering, Hospitality, Information Communication Technology and Information Studies.

KTTC follows the regulations set by the Ministry of Education with regard to admission, duration of training and certification of the technical teacher-training programmes. Students admitted to this programme are partially government sponsored. These programmes are highly structured, controlled and therefore referred to as the regular programme. However, the college has since 1990s introduced flexible programmes undertaken during the holidays and weekends.

Towards the end of 2019, the world witnessed a disease that can take root and spread so fast. On 12th January 2020, the World Health Organisation (WHO) confirmed that a novel coronavirus was the cause of a respiratory illness in a cluster of people in Wuhan City, Hubei Province, China, which was reported to the WHO on 31st December 2019 (Elsevier, 2020). These viruses cause respiratory tract infections that can range from mild to lethal such as Common cold, Severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and Coronavirus disease 2019 (COVID-19). The name "coronavirus" is derived from Latin *corona*, meaning "crown" or "wreath" a circlet, small crown or garland (Kirkpatrick, 1991). The name refers to the characteristic appearance of virions (the infective form of the virus) by electron microscopy, which have a fringe of large, bulbous surface projections creating an image reminiscent of the solar corona or halo (Tyrrell & Fielder, 2002).

The COVID-19 pandemic resulted in the closure of the vast majority of schools worldwide (UNESCO, 2020). Many schools moved to online distance learning via platforms including Zoom, Google Classroom, and Edgenuity (Hood, 2020). In Kenya, the COVID-19 pandemic was first reported March 15th, 2020 (Ministry of Health, 2020). Like other countries in the world, the Kenya government responded to the pandemic by, among other measures, closure of all schools on 15th March, 2020.

The closure of schools in Kenya elicited proactive responses by many agencies and organisations individually and collaboratively to keep the learners engaged away from school. The Ministry of Education, through the Kenya Institute of Curriculum Development (KICD), intensified on-line learning through the dedicated television channel EDU TV and EDU radio. Safaricom, a leading telecommunications company, partnered with Eneza Education, Longhorn Publishers and viusasa to provide free access to educational content for primary and secondary school students studying from home. Individual schools, colleges and universities started working towards supporting their students to learn through online mechanisms.

The KTTC management launched distance learning for the Holiday programmes, which were at the verge of disruption due to the COVID 19 Pandemic. The anticipation was to roll out to the regular programmes in the event the COVID 19 persisted infinitely. Further, the educators at KTTC considered distance learning as an alternative of enhancing access to education. In order to establish the nature of learning that took place during the introduction of massive distance learning at KTTC, it was essential to carry out an evaluation. This study was therefore set out to determine the efficacy of distance learning at KTTC with a view of recommending interventions for continued improvement. It was envisioned that this study was to inform on the successes and challenges of distance learning as a basis for improvement.

Objectives

This study sought to achieve the following specific objectives:

1. To establish the administrative strategies put in place for distance education.
2. To determine the perception of students towards distance education.
3. To find out the perception of lecturers towards distance education.

Methodology

The study adopted a cross-sectional survey design that combined descriptive and exploratory strategies. Both quantitative and qualitative approaches were used to collect data. The target population comprised all the 836 students enrolled for April 2020, holiday programmes in KTTC and respective 69 lecturers. This was, therefore, a census study with respect to the identified cohort.

In order to collect data to meet the requirements of the objectives, two questionnaires were developed. One questionnaire was tailored for students and another for lecturers. In both instruments, there were closed ended items of multiple-choice categories capturing the background data. Other items were the rating type on Likert scale. In each of the instruments, there was one open ended item requiring suggestions for improvement on aspects of distance learning at KTTC.

The researchers used expert based process for validation of the instruments. The instrument for students was piloted on seventy students. The pilot data was used to determine the reliability. On running the Statistical Package for Social Sciences (SPSS) for determination of internal consistency for the students' instrument, the result was 0.944 for 25 items. The same procedure yielded 0.946 for the lecturers' instrument with 22 items. The Cronbach's values for the students' and lecturers' instruments were high and hence the reliabilities of the instruments were found suitable for use. The data collected was analysed using SPSS version 17. Descriptive statistics mainly frequencies, mean and standard deviations were generated, interpreted and discussed.

Results and Discussion

The objectives of the study and research questions formulated were used as a basis for analysis and discussion of findings. The study targeted 836 students and 216 of them responded giving a response rate of 25.8%. The targeted lecturers were 69 and 18 responded giving a response rate of 26.09%. The magnitude of the overall response rate of above 25% was considered acceptable (Visser, Krosnick, Marquette and Curtin, 1996).

Administrative Arrangement

KTTC had a mechanism for the administration and management of distance learning. In the organisational structure of KTTC during the strategic plan period of 2013 – 2017, there was a creation of the department of Open Learning (OL). In the strategic plan period of 2018 - 2022, the strategic focus was to improve e-learning infrastructure. The department developed a distance education policy which provides guidelines on the conduct of distance learning. From document analysis, KTTC has a co-ordination mechanism for distance learning.

The effectiveness of the co-ordination of distance education as perceived by lecturers was probed. Rating of specific variable reflecting on co-ordination were: communication (65.6%), involvement in decision making (63.4%), understanding the channels of communication (71.2%) and understanding the distance education policy (60%). The policy to regulate distance education was the least rated in terms of understanding. Despite the existence of the policy document in the college website, there appears to be a need for examining its contents to establish the basis for low rating. Some lecturers were of the view that quality assurance mechanism was not inbuilt in the distance teaching and learning process. Poor communication, lack of monitoring of the learning process and inadequate support were cited as administrative challenges.

Course Design and Technologies

Course design is significant in distance learning (Dwyer, 1991). Emphasis is placed on consistence of the design across learning areas, provision for feedback and integration of technologies. Appropriate arrangement of learning experiences allows learners to explore tasks from the familiar aspects to the more complex.

The perception of lecturers on course design and assistive technologies is presented in Table 1. It is evident that there was a relatively high variability on the format used for the presentation of learning experiences to learners.

Table 1: Lecturer’s Rating on Course Design and Technologies

No	Statement	Mean	Percentage	Std. Deviation
1.	There was an agreed uniform format for presentation of content to learners	3.00	60.0	1.188
2.	You were equipped with skills for designing courses for distance education	3.17	63.4	1.098
3	You had adequate knowledge of how to use the technologies used in delivering the learning experiences	3.28	65.6	1.018
4	The technologies required to be used to present the learning material were accessible to you	3.39	67.8	.916
5.	There were a variety of avenues for delivering learning material	3.44	68.8	.984
6.	The unit content design provided for integrated activities to be done by students on their own	3.67	73.4	.686
7.	Some of the technologies used had capability of facilitating 2-way communication	3.89	77.8	.583
	Average		68.1	

N =18

The students had a favourable perception on the aspects of course design and requisite technologies at an average of 77.8% (see Table 2). In the students' view, the challenge was the variety of avenues through which they would access the learning materials (72.4%). There was a somewhat concurrence with lecturers on the limitations with respect to the variety of avenues for delivering learning material rated at 68.8% (see Table 1)

Table 2: Student Perception of Course Design and Technologies

No	Statement	Mean	Percentage	Std. Deviation
1.	There were a variety of avenues for getting learning material	3.62	72.4	1.164
2.	The technologies used to present the learning material were accessible to you	3.70	74.0	1.195
3.	You had adequate knowledge of how to use the technologies used in delivering the learning experiences	3.74	74.8	1.141
4.	The units presented had a uniform format in content outlay	3.92	78.4	.946
5.	The content provided integrated activities to be done by students on their own	4.00	80.0	.974
6.	Some of the technologies used had capability of facilitating 2-way communication	4.04	80.8	1.031
7.	The material provided was free of bias and prejudice	4.21	84.2	.931
	Average		77.8	

N=216

Modern distance education invariably uses technology in the teaching learning process. Given the heterogeneity in the nature of distance education learners, it becomes important that a hybrid of technologies is used to suit the variety of learners. In this respect, the study sought to find out the frequency with which the currently available technologies were deployed by the lecturers. The data is presented in Figure 1. The data was generated using a 4-point scale (Not at all, Occasionally, Frequently and Very frequently). The average rating was 47.75%. This is an average that tended towards occasional use. The social media platforms, online chat and email tended towards frequently used at 65.25%. Data collected through open ended item, indicated that lecturers had challenges on the number of students who would attend lessons through internet-based video conferencing. Most of such applications had a limit of 100 participants like Webex and Zoom whereas some classes had sizes exceeding 200 participants. The least used technologies were Broadcast television (37.5%) and Video/DVD (39%).

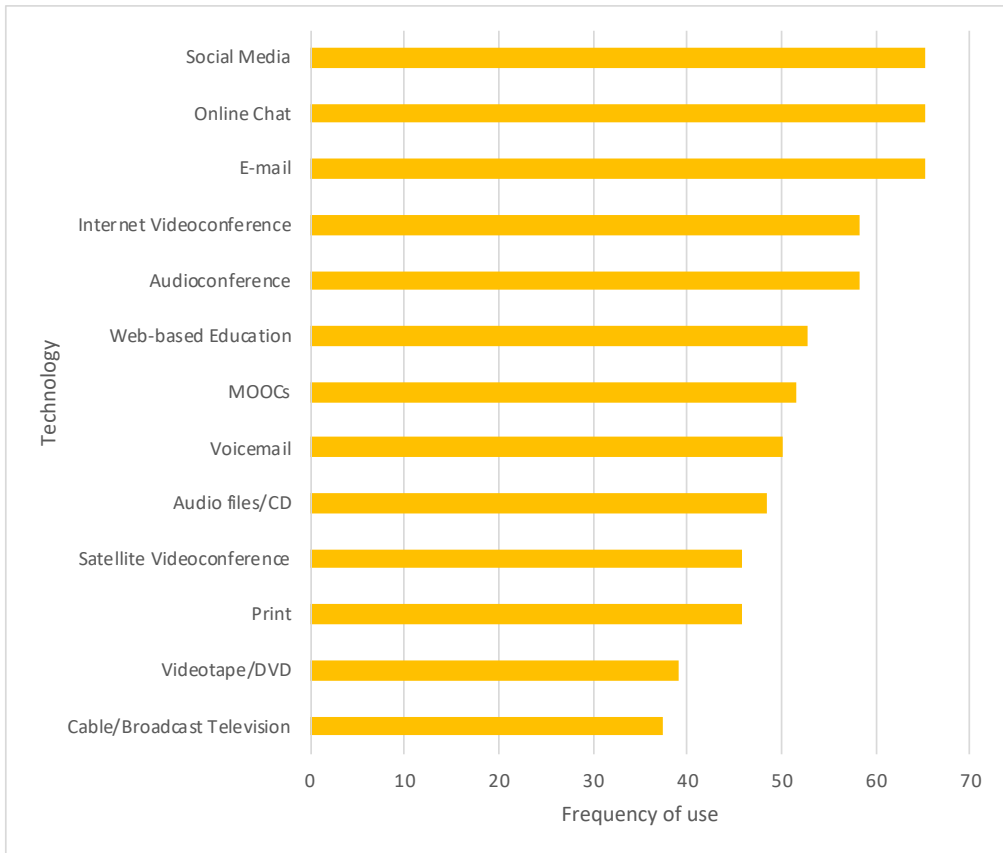


Figure 1: Frequency of Technology Use

In the open-ended item, a respondent proposed that there is need for a platform that would holistically handle the transactions of distance learning. In this respect the college has a platform called MOODLE (modular object-oriented dynamic learning environment). The lecturers, therefore, need to be trained on how to use MOODLE, a form of Mass Open Online Course (MOOC) platform which as per Figure 1 has a rating of 52.5%.

Teaching and Learning

The quality of teaching and learning in distance education was measured based on the transactions that take place. Increased dialogue between the teachers and learners, increased interaction between the learners, appropriate integration of technologies and a favourable social environment characterise high quality learning (Moore, 1990). The overall perception by lecturers on the quality of teaching and learning was marginally favourable (66.04%). The respective rating of elements are presented in Table 3. The aspects that posed the greatest challenge are skills on how to evaluate distance learners (55.6%) and the teaching environment lecturers found themselves in (58.8%).

Table 3: Lecturer's perception on the elements of teaching and learning

No	Statement	Mean	Percentage	Std. Deviation
1	You were equipped with skills on how to evaluate distance learners	2.78	55.6	1.215
2	Your environment was conducive for teaching	2.94	58.8	1.056
3	You had resources to facilitate commitment to teaching	3.06	61.2	1.259
4	You were in apposition to care for the learners' academic needs	3.11	62.2	1.023
5	Learners were conversant with the technologies used	3.22	64.4	.732
6	Learners were available when you needed to interact with them	3.33	66.6	.907
7	You had a clear profile of the learners you taught	3.44	68.8	1.149
8	You were equipped with skills for teaching distance education learners	3.44	68.8	1.097
9	You were able to provide feedback as expected	3.56	71.2	1.042
10	You interacted with learners positively	3.72	74.4	.826
11	You were flexible, innovative and creative	3.72	74.4	.958
	Average	3.30	66.04	

N=18

The overall perception of learners on distance learning tended to be favourable (74.78%). Conspicuously, the environment for learning (58.8%) and resources for commitment to learning (59.8%) posed the greatest challenges.

Social Context

The social environment affects motivation, attitudes, teaching and learning. One social factor significant to distance educators is social presence, the degree to which a person feels “socially present” in a mediated situation. Examples of social presence include cues given to students such as encouraging gestures, smiles and praise (McIsaac,1993). In this study, the rating of social factors by the students included: learning environment free of gender discrimination (85.6%), being noticed by others (75.2%), being appreciated by others (75.2), being able to interact with other fellow students (80.2%) and being able to get online counselling (62.8%).

Development of Competencies

The main outcome of any form of learning is development of competencies. This study generated feelings of students towards their readiness to take examinations and performance of practical tasks. The perceptions on readiness for examinations are not perfectly favourable. The data is presented in Figure 2.

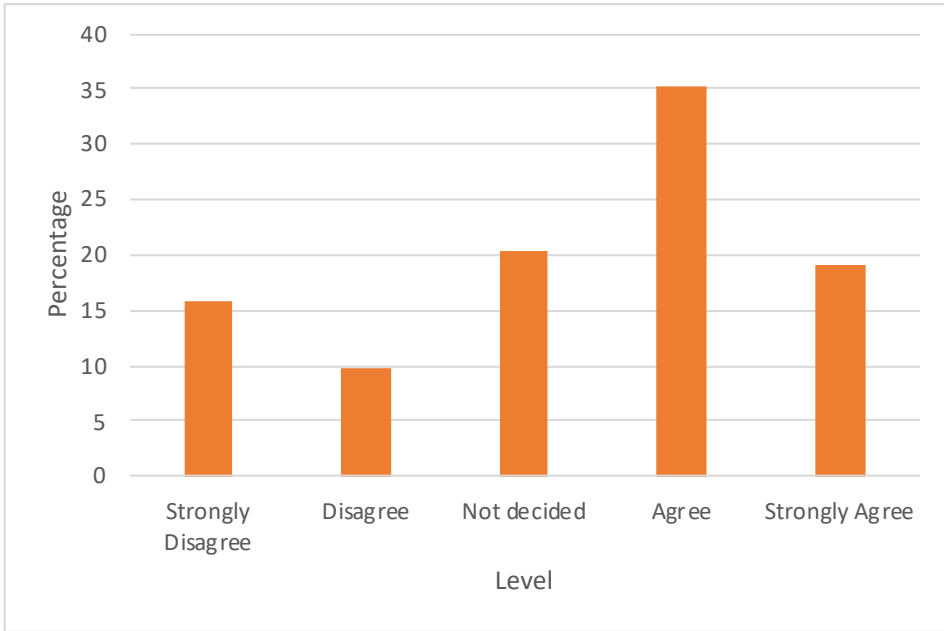


Figure 2: Percentage student agreement on readiness to take examination

Student confidence on performance of practical tasks had the least rating (57.6%). Most students (30.6%) were undecided as to whether they felt well prepared to do practicals. The responses are given in Figure 3. An ideal situation is where the curve is negatively skewed. In issues of competency training, some lecturers asserted that there was a challenge in training on areas that required a practical exposure citing technical drawing and workshop application.

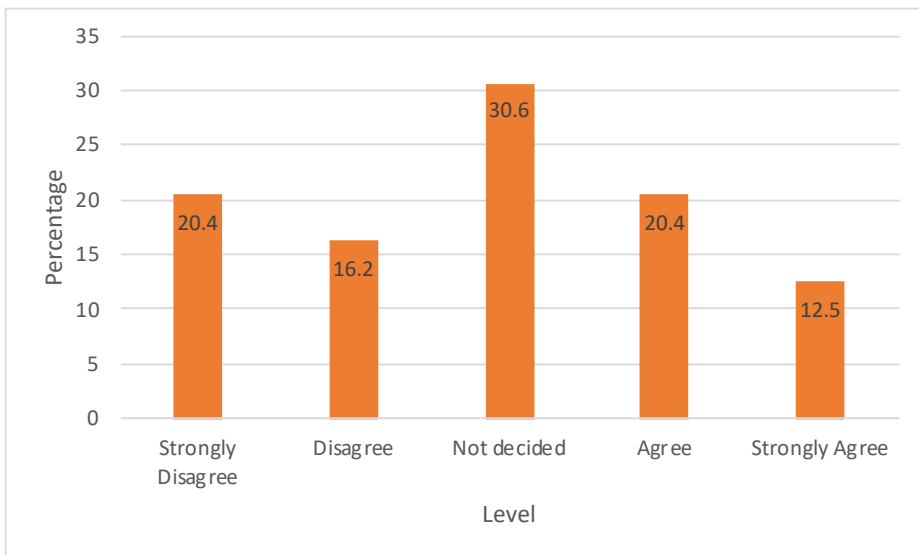


Figure 3: Percentage student agreement on preparedness for practical tasks

In conclusion, KTTC is on the process of establishing distance learning. The resources and general management should be up scaled for improvement. The Ministry of Education should consider developing policies to support distance learning in educational institutions.

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3

TVET AND ENTREPRENEURSHIP: THE MISSING LINK

DETERMINANTS OF ENTREPRENEURIAL INTENTIONS AMONG GRADUATES OF PUBLIC TVET INSTITUTIONS IN KENYA

B. Cheruiyot

University of Eldoret,

P. O. Box 1125-30100, Eldoret, Kenya

Abstract

Currently, entrepreneurship is becoming a vehicle for the economic growth of a nation in all corners of the world. The primary goal of any technical education and vocational training system is to develop sufficient people with the right skills to meet labour market demands. Even though the Kenyan TVET policy on education and training encourages the emergence of new and young entrepreneurs, TVET students/trainees lack attitudes toward self-employment after the competition. Most of the students do not consider entrepreneurship as a career option. Data in the previous years about TVET graduates indicated that most of the graduates were not self-employed. TVET graduates fail to exhibit a positive attitude towards self-employment and lose the entrepreneurial opportunities which fail to make self-employment. Hence, this study sought to find out the determinants of entrepreneurial intentions among graduates of public TVET institutions in Kenya. The study employed the explanatory research design targeting TVET graduates, trainers and employers. The total target population was 1,229 respondents. The sample size was 293 respondents including TVET graduates, trainers and employers. The study employed stratified and simple random sampling to select respondents who participated in the study. Questionnaires, interview schedules were utilised in collecting the data. Descriptive statistics (frequency, percentages and mean) were used. The study found that attitudes toward entrepreneurial behavior, subjective norm, TVET programmes, and entrepreneurial knowledge affect entrepreneurial intention. The study concluded that programme orientation, subjective norms, entrepreneurial knowledge and attitude towards career alternatives constitute an important part which has been developed during one's study. The study recommended that to transform the TVET system, programs offered must be monitored and adapted to the constantly changing business environment and curriculum designs for TVET education must be attuned to current trends in the business environment.

Key words: Entrepreneurial Intentions, Attitude, Entrepreneurial Knowledge.

Introduction

Background Information

Entrepreneurial intention is the most appropriate construct that can predict entrepreneurship. It is defined as a planned behaviour for creating new businesses based on planning. Thus, the entrepreneurial intentions of students are very similar in each economy but the perceived barriers to entrepreneurial intentions vary between more or less developed countries (Ferreira, Loiola Gondim, 2019). Entrepreneurs have specific characteristic features that are distinct from the normal population, thus the surge in attempts to measure this behavior (Souza *et al.*, 2019). This fact indicates that entrepreneurial intention has many definitions that all centre on the conscious state of the mind and personal conviction; personal projection which is directed towards the new business venture creation (Ferreira *et al.*, 2019). However, the challenge is in the origination of the entrepreneurial intention. Jie and Harms (2019) acknowledge that educational initiatives such as entrepreneurship training serve as an effective way of developing entrepreneurial intention in students.

Globally, entrepreneurship training is key and will likely increase attitudes towards entrepreneurship attitudes of both potential and budding entrepreneurs. It is also critical in enhancing the individual's entrepreneurship attitudes at the tertiary level of education by, first, increasing the consciousness and the interest of the student to consider entrepreneurship as a career option and secondly providing the student with experience of mastery, role modelling, social persuasion and support (Mehari Belay, 2019). In a new line of inquiry, experiential activities known to promote creative thinking exposure to other cultures, new experiences and art events were found to contribute to perceived innovativeness. Both U.S. and Turkish students expressed a need for more training and education on entrepreneurship to start a new business.

Many African governments have introduced mandatory and compulsory entrepreneurship training and training programmes in institutions of higher learning to improve the likelihood of the graduates of pursuing entrepreneurship (Adekiya & Ibrahim, 2016). In Ethiopia, entrepreneurship training is offered by Technical and Vocational School (TVS) training, however, the statistics show that the majority of the youth do not participate in technical and vocational school (Mehari & Belay, 2019). Entrepreneurship education in South Africa is in its developmental stage, although it is perceived as important in elevating the profile of any institution and there is increasing commitment from the

institutions in academic, research and outreach offerings in entrepreneurship. The teaching and assessment methods follow traditional classroom delivery while research in entrepreneurship in South Africa is perceived as less rigorous than other management disciplines. In Kenya, the ministry of education, science, and technology initiated the teaching of entrepreneurship in tertiary institutions under the Technical and Vocational Education and Training (TVET) programmes (Otuya, Kibas & Otuya, 2013). Despite the potential for TVET to merge, programmes must be thoughtfully executed to promote entrepreneurial intentions to its students.

Entrepreneurship Education

According to Shiri *et al.*, (2019), entrepreneurial intentions as a state of mind that guides individual actions to create and develop a new business or entrepreneurial activity. Entrepreneurs are people who can see and evaluate business opportunities, collect the resources needed to take advantage of those opportunities, and take the appropriate measures to ensure success (Yusuf, 2013).

The decision of a person to become an entrepreneur is usually deliberate and consciously made. Entrepreneurial Intention (EI) is the conscious state of mind that precedes action and direct attention toward a goal (entrepreneurship) (Plate I). From a behavioral perspective, entrepreneurship is practiced by individuals who passionately believe they have identified a unique solution to an unmet need or unresolved problem and are willing to expend great effort to satisfy these demands (Lee-Ross, 2019). Such persons in their minds are ready to do anything to be entrepreneurs (Kirkley, 2016).

In an educational context, career selection is planned, which involves cognitive processes. The same is true of entrepreneurial careers. Therefore, to identify the students who want to become entrepreneurs and to uncover the factors that influence individual decisions to set up new businesses (Plate II), an individual may have the potential to be an entrepreneur but not make any transition into entrepreneurship unless they have such intentions (Ismail *et al.*, 2009).

Referring to Ajzen's (1991)'s theory of planned behaviour, attitudes towards performing a behaviour refers to perceptions of personal desirability to perform the said behaviour. Further explanations from Riani *et al.*, (2012) emphasised the attitude exhibited by students in entrepreneurship is influenced by attitudes towards entrepreneurial intentions. Attitudes are defined as the beliefs and

perceptions about the willingness to personal behaviour, which in turn is related to expectation about the impact of personal decisions (Mokhtar & Zainuddin, 2010).

According to Czuchry and Yasin (2008), formal entrepreneurial education and gender were found to be positively influential factors among Welsh students who reported that they are likely to set up a business venture within three years of graduation (Plate III). While the strong association supports the notion that all factors including social norms, personal attitudes and perceived personal control are all strongly integrated and associated in enforcing the intention of university students to pursue entrepreneurial opportunities after graduation (Adnan *et al.*, 2013).

The Entrepreneurial Event Model (EEM) proposed by Shapero and Sokol (1982) is used to describe the intentionality of the overall entrepreneurial process. The model claims that feasibility, desirability and propensity to act influence the intention to start a venture. The perceived desirability and feasibility determine credibility to alternative behaviour, and thus entrepreneurial intention arises partially from exposure to entrepreneurial activity.

Statement of Problem

Entrepreneurship is currently one of the main vehicles for economic growth for most countries globally. The primary goal of any technical education and vocational training system is to develop sufficient people with the right skills to meet labour market demands. Even though the Kenyan TVET policy on education and training encourages the emergence of new and young entrepreneurs, TVET students/trainees lack attitudes toward self-employment after the competition. Most of the students do not consider entrepreneurship as a career option. Data in the previous years about TVET graduates in the region indicated that most of the graduates were not self-employed (Tigray TVET Commission Bureau, 2016). In general, TVET graduates fail to exhibit a positive attitude towards self-employment and lose the entrepreneurial opportunities which fail to make self-employment. Every year, TVET institutions in Kenya enroll close to 140,000 youth who later transit into the world of work. A United Nations report on Human Development Report indicated that Kenya recorded 39.1% unemployment by the end of 2019. The largest unemployment rate was recorded in the age bracket of 20-24 years who were not engaged in any work or business (Republic of Kenya, 2019) in spite of entrepreneurship education

being mandatory in technical institutions. Hence, this study sought to find out the determinants of entrepreneurial intentions among graduates of public TVET institutions in Kenya.

Objective of the study

The main objective of this study was to find out the determinants of entrepreneurial intentions among graduates of public TVET institutions in Kenya.

Specific Objectives

The specific objectives of this study were:

- (i) To examine the effect of programme orientation on entrepreneurial intentions among graduates of public TVET institutions in Kenya.
- (ii) To assess the effect of attitude on entrepreneurial intentions among graduates of public TVET institutions in Kenya.
- (iii) To establish the effect of entrepreneurial knowledge on entrepreneurial intentions among graduates of public TVET institutions in Kenya.
- (iv) To determine the effect of subjective norms on entrepreneurial intentions among graduates of public TVET institutions in Kenya.

Research Hypotheses

The study was guided by the following null hypotheses:

H₀₁: There is no significant effect of programme orientation on entrepreneurial intentions among graduates of public TVET institutions in Kenya.

H₀₂: There is no significant effect of attitude on entrepreneurial intentions among graduates of public TVET institutions in Kenya.

H₀₃: There is no significant effect of entrepreneurial knowledge on entrepreneurial intentions among graduates of public TVET institutions in Kenya.

H₀₄: There is no significant effect of subjective norms on entrepreneurial intentions among graduates of public TVET institutions in Kenya.

Methodology

Research Design

The study employed explanatory research design. This design is quite appropriate when seeking to establish causal relationships between the variables (Saunders, Lewis & Thornhill, 2009). The study utilised the survey as a data collection procedure.

Target Population and Sample Size

The study targeted TVET graduates. According to the TVETA, there were 1229

graduates in 2019 from TVET institutions in North Rift Region, Kenya. Hence this formed the target population of the study. The total target population was 1,229 respondents as tabulated in Table 1 (TVETA, 2019).

Table 1: Target Population and Sample Size

Target Population	Targeted Number	Sample Size
TVET graduates	1,229	293

The study adopted Fischer *et al.*, (2011) to estimate the sample size for the study. The sample size was 293 respondents including TVET graduates. The study employed simple random sampling to select respondents who participated in the study. This enabled all the sampled respondents an equal chance to participate in the study.

Data Type and Instruments

Questionnaires, interview schedules and document analysis were utilised in collecting the data.

Data Analysis and Presentation

The study adopted both quantitative and qualitative data analysis methods. Quantitatively, descriptive statistics (frequency, percentages and mean) were used. Content analysis was used to analyse qualitative data. Qualitative information was transcribed, analysed thematically and presented in a narrative form.

Results and Discussions

Programme Orientation and Entrepreneurial Intentions

Most students (95.9%) believed that the training acquired in TVET courses adequately equipped them to engage in entrepreneurial activities upon graduation. When students were asked the aspect of training they had been adequately prepared and the reasons for their belief, 69.9% mentioned practical training while 14.7% and 14.0% mentioned theoretical training and both theoretical and practical training respectively. The study results revealed that TVET programmes are required to reach a balanced spectrum of delivering entrepreneurial skills through intensive engagement with partners and effective mobilisation of interest groups if they are to boost economic and social change. Table 2 shows the analysed programme orientation and Entrepreneurial Intentions.

Table 2: Analysed Programme Orientation and Entrepreneurial Intentions

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.711E2 ^a	2	0.000
Likelihood Ratio	188.002	2	0.000
Linear-by-Linear Association	160.975	1	0.000
N of Valid Cases	293		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.15.

As they approach the completion of their TVET programme, students and trainees receiving entrepreneurship training as general skills for all should have the opportunity to discuss with their teachers, parents, peers and others, issues related to their next step in life. They should seek career advice from life-long career guidance services either in or outside their educational institutions (Simiyu, 2010).

Attitude and Entrepreneurial Intentions

To examine attitudes of graduating class students towards self-employment, they were asked their career choice right after graduation and the result shows that 59.1% of responding students preferred employment (government or private), 28.1% of respondents' first choice was self-employment. Whereas 7.3% of respondents had not yet decided on their career paths for the time being, 5.3% of respondents indicated that they had plans of continuing with their family businesses.

Table 3: Attitude and Entrepreneurial Intentions

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.556E2 ^a	2	0.000
Likelihood Ratio	174.643	2	0.000
Linear-by-Linear Association	94.218	1	0.000
N of Valid Cases	293		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.54.

The study findings indicated that there was a significant influence of attitude on entrepreneurial intentions among graduates of public TVET institutions ($p \leq 0.05$).

Lee-Ross (2019) study suggests that attitude towards entrepreneurial behaviour concerns a general evaluation of that behaviour; in other words, whether it is attractive or not. Mehari and Belay (2019) affirmed that attitude towards entrepreneurship is primarily derived in two ways: either innately through social capital or extrinsically through entrepreneurial education. Changes in attitude have both direct and indirect effects on entrepreneurial intention.

Entrepreneurship Knowledge and Entrepreneurial Intentions

The main reason for studying in TVET as mentioned by the students was to get skills for self-employment (56.2%). Other reasons included acquiring skills for better employment in the industry (15.8%) and accessing further education in the future (12.3%). The least cited reasons were family influence (2.7%) and lack of alternatives (2.1%). Thus, over half of the students were inclined towards entrepreneurship rather than getting employed.

The challenges and competition of the future require the younger generation of today to have a repertoire of knowledge, skills and personality and personal qualities that are appropriate and valuable for enhancing the country’s competitiveness and strengthening the country’s position compared with other developed countries.

Table 4: Entrepreneurship Knowledge and Entrepreneurial Intentions

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.766E2 ^a	4	0.000
Likelihood Ratio	169.676	4	0.000
Linear-by-Linear Association	125.764	1	0.000
N of Valid Cases	293		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .22.

The study findings indicated that there was a significant influence of entrepreneurship knowledge on entrepreneurial intentions among graduates of public TVET institutions ($p \leq 0.05$). Linan *et al.*, (2011) reported that a high level of knowledge about entrepreneurship can contribute to a more realistic perception of entrepreneurial activity and will affect one’s entrepreneurial intentions.

Subjective Norms and Entrepreneurial Intentions

The influence of parents/sponsors was minimal in choice of course by students whereas college orientation and peer influence were featured for the students respectively though in both cases they were insignificant falling below 1.0%. Out of all the reasons given by the students, the personal decision was mentioned by 89.7% of the students. This finding revealed that students were intrinsically motivated to pursue the courses in TVET.

Table 5: Subjective Norms and Entrepreneurial Intentions

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.766E2 ^a	4	0.000
Likelihood Ratio	169.676	4	0.000
Linear-by-Linear Association	125.764	1	0.000
N of Valid Cases	293		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .22.

The study findings indicated that there was a significant influence of subjective norms on entrepreneurial intentions among graduates of public TVET institutions ($p \leq 0.05$).

Family plays an important role in a person's life irrespective of their age. In most cases, a person would not want to deviate from the norm and value held by close family, and even friends with whom he/she interacts daily (Gelaidan & Abdullateef, 2019). Subjective norms as perceived social pressure to perform or avoid behaviour could come from family or society in general, which forces someone to do or not perform specific tasks (Hussain, 2018).

Conclusions and Recommendations

Conclusions

There is a significant influence of programme orientation on entrepreneurial intentions among graduates of public TVET institutions. TVET programmes can bolster youth employability as well as enterprising behaviour in local economies. There is a significant influence of attitude on entrepreneurial intentions among graduates of public TVET institutions. Attitude towards career alternatives constitutes an important part which has been developed during one's study.

There is a significant influence of entrepreneurship knowledge on entrepreneurial intentions among graduates of public TVET institutions. Entrepreneurial

knowledge influences the entrepreneurial intentions of the students. Further, such training increases the knowledge, skills and confidence of the students to become entrepreneurs. There is a significant influence of subjective norms on entrepreneurial intentions among graduates of public TVET institutions.

Recommendations

Managerial Recommendations

To transform the TVET system, programme offers must be monitored and adapted to the constantly changing business environment and curriculum designs for TVET education must be attuned to current trends in the business environment. Concerning this professional accreditation, bodies must also look into these concerns and must gain consensus in addressing such issues.

To ensure intentions of choosing the entrepreneurship profession among students, especially students at Technical and Vocational Education and Training (TVET), an entrepreneurship training curriculum should always be improved so that it can nurture a culture of entrepreneurship and thus increase student intention to choose entrepreneurship as a career path.

The study recommends that students need to be made aware of the benefits of being an entrepreneur and how they can work towards being entrepreneurs. Furthermore, students need to be encouraged to associate themselves with reference on entrepreneurship since programme orientation had the lowest significant influence on entrepreneurial intention. Students should be taken through risk assessment and mitigation and the concept of risks especially to help students accept the concept of risk-taking in entrepreneurship.

Policy Recommendations

To break such problems, the government should design practical entrepreneurship education, creating a link with model entrepreneurs, arranging university industry linkages in the form of apprenticeship, providing business locations, opening marketing accesses and opportunities, amending tax policies for startups, contacting graduates with microfinance, banks and insurance institutions with limited collateral requirements.

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LINKING TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) WITH ENTREPRENEURSHIP EDUCATION: A CASE OF KENYA TECHNICAL TRAINERS COLLEGE (KTTC), NAIROBI COUNTY, KENYA

H. K. Koros

*Kenya Technical Trainers College, Education Department,
P. O. Box 44600-00100, Nairobi, Kenya*

Abstract

Technical and Vocational Education and Training (TVET) in the current changing times has been identified as one of the prerequisites for an individual's ability to think creatively and provide effective solutions to common problems facing the society. However, its relevance is questionable as it faces significant applicable skills gaps across a range of industrial fields as entrepreneurs lack industry required skills and training. Therefore, the paper focuses on the linkage between TVET with entrepreneurship education with an objective to establish factors influencing an inclusive entrepreneurship education in the TVET system. A case study of Kenya Technical Trainers College (KTTC), Nairobi County, Kenya, was adopted with the target population of 118 school-based advanced diploma technical teacher business (with different specialisation) education trainees. The main aim of the study was to determine the factors that influence inclusive entrepreneurship education in the TVET system. The paper employed a descriptive survey design. The study employed a questionnaire as the primary data collection instrument to a sample of 91 school-based advanced diploma technical teacher business education trainees, analysed quantitatively and qualitatively, and presented using frequencies in tabular form. The study found out that it is important to ensure that TVET relates to real ability (close skills gaps) to turn ideas into actions, as needed by the entrepreneurs to be in line with the current changing times. The study concluded that lack of explicit entrepreneurship education-training module, lack of the practical element of entrepreneurship education, ineffective teaching methods in entrepreneurship education and lack of trainers' and trainees' participation in entrepreneurial education influence an inclusive entrepreneurship education in TVET system. The study recommended that to develop and maintain a viable and responsive TVET sector to achieve its relevance in changing times, entrepreneurial educational mindset through factors influencing an inclusive entrepreneurship education in the TVET system should be enhanced to enable entrepreneurial creative thinking and problem-solving effectiveness.

Key words: Technical Education, Vocational Training, Skill gaps.

Introduction

Technical and vocational education and training (TVET) is a critical component of developing entrepreneurial skills, providing practical effective training for the sustainable development of the country's economy and industry. However, its relevance is questionable as it faces significant applicable skills gaps across trade fields as entrepreneurs lack the expertise training and skills required by the industry. Yegon (2016), alluded that training quality in Kenya is directly linked to the achievement of learning outcomes such as; knowledge, skills and competencies acquired at the end of the learning process and meeting the expectations of the main stakeholders. In Senegal, the availability of workforce with basic skills had negative impacts on labor productivity and income. The supply of inadequate skilled labor to the market was influenced by the training system in place (Mbaye, 2014). This was replicated in Netherlands with a similar situation existing where TVET is designed with the intent to develop occupational competencies to be adopted by a particular occupation; integrated entrepreneurship education can significantly increase applicable entrepreneurial skills intention to start a business (Zhang, Duysters & Cloudt, 2014). This study, therefore, examines the factors influencing an inclusive entrepreneurship education in the TVET system to enhance entrepreneurial skills and training that the industry requires.

Technical and vocational education and training refer to the educational process in addition to general education entail practical skills, attitudes and understanding acquisitions, and knowledge acquisition relating to various sectors of economic and social life occupations (UNESCO, 2002). The Technical and Vocational Education and Training (TVET) in Kenya is not new, refers to a range of learning experiences which are relevant to the world of work and may occur in a variety of learning contexts (ROK, 2012). The achievement of sustainable development and acceleration of economic growth depends on industrial production and expansion of the value addition process. Moses (2016) asserts that the main aim of TVET in Uganda is to have a well-educated community by producing a quantity and quality of people who are properly equipped with the knowledge and skills necessary to solve community problems and overcome development challenges. The carefully determining and analysing unmet needs through creativity and satisfying those needs by bearing the related risks can be particularly effective in initial technical vocational education and training, where risk-taking is supported by relevant skills in a specific occupation. (Maigida, Saba & Namkere, 2013).

TVET brings about technological advancement and aims to fit a new workforce for employment and train already qualified people so that they can keep pace with the modern and emerging work environment (Olaitan, 1998). Dike (2009) further stated that trainees have to pass through educational entrepreneurial programmes to enable them better entrepreneurial skills to make intelligent use of the product of technology. The argument is that high-quality and competency-based skills training is a must for TVET to effectively support industrialization and enhances self-employment (Wanyeki *et al.*, 2018). This entails that to develop youth saleable skills to enable them to become easily self-employed or employable after graduation, entrepreneurship in TVET must be employed (Muhammed, 2010).

TVET institutions provide avenues for acquiring the skills and knowledge through technical and professional education that are the engines of any country both social development and economic growth (Goel, 2010). The Kenya Technical Trainers College (KTTC) is a government institution under the Ministry of Higher Education, Science and Technology established with the primary objective of training technically skilled personnel, to not only teach in technical institutions but, also for employment in all sectors of the economy. With a capacity of more than 4000 trainees enrolled, 118 trainees are enrolled in a school-based programme, advanced diploma in technical teacher business (with various specialisation) education (<https://www.kttc.ac.ke/>).

Technical and Vocational Education and Training (TVET) and Entrepreneurship Education

According to Gamede (2019), Kenya's TVET system uses the conventional approach in which recitation, memorisation, reading and lecturing are the main modes of training and these have greatly contributed to unemployment. Entrepreneurial training subjects as behaviours linked with entrepreneurial success, basic business knowledge and skills that are prerequisites or corequisites for entrepreneurial success, and the activities of a business performed by entrepreneurs in business management, enable practical technical skill transfer and research for trainers capacity development and didactic skills (Matseke, 2000). To enhance inclusive entrepreneurship education that forms the base for technological and industrialisation needs entrepreneurial training to be linked with TVET through Competency Based Education and Training (TVET CDACC-CBET, 2018).

Industry intervention in technical skills development through an industrial visit that promotes understanding of complexities of the industry and application of

technical knowledge enhance the practical element of entrepreneurship. Matseke (2000) states that less practical time is spent by TVET institutions in the training and development of trainees as they tend to ensure that they produce people who are productive in the labour market. Zhang, Duysters and Cloudt (2014) alluded that through entrepreneurship training and start-up support at TVET institutions, trainees are a couple with a lack of promoting entrepreneurship among them. Rwigema and Venter (2004) define TVET as a form of education that was primarily concerned with the development of occupational and practical skills needed by an individual as a preparation for work. Therefore, to provide gainful skills development to the recipient, there is a need to link the practical element of entrepreneurial training with TVET. This forms the base for developing occupational competencies that can be used in specific occupations.

The major challenges for entrepreneurship programmes in TVET are teaching methods where trainers have used basic teaching tools (Arifin & Gerke, 2014). Effective teaching methods such as demonstration, group discussion, business simulation, mini-project based methods, analysis of histories of successful entrepreneurs to supplement the entrepreneurship course should be techniques that should be embraced by TVET institutions to revolutionise its concept of entrepreneurial skills development.

Gamede (2019) asserted that to produce quality manpower TVET institutions should incorporate entrepreneurship education in all programmes. This is hindered by the lack of teacher (trainer), student participation in enhancing entrepreneurial skills and training that the industry requires. The trainers are uncomfortable trying innovative and learner-centred teaching methods and strategies. The learning experience is often limited, which does not encourage critical thinking or creativity in the trainees (Matseke, 2000). Adopting a deliberate educational strategy is the unique contribution TVET makes to students. This encourages and stimulates the entrepreneurial imagination through the “weakening” of the thought process (OECD, 2015).

Statement of the Problem

Technical and Vocational Education and Training (TVET) has been a prerequisite for an individual’s ability to think creatively and be an effective problem solver to common problems facing society. School-based advanced diploma technical teacher business education trainees face entrepreneurial skills and training gaps

across a range of entrepreneurial fields as an outcome of aspects influencing an inclusive entrepreneurship education in the TVET system. Maigida, Saba and Namkere (2013) focus on entrepreneurial skills in Technical Vocational Education and Training as a strategic approach for achieving youth empowerment in Nigeria. How entrepreneurial skills in Technical Vocational Education and Training used as a strategic approach for achieving youth empowerment was the focus of the study, however, factors influencing an inclusive entrepreneurship education as lack of the practical element of entrepreneurship education in the TVET system in Kenya Technical Trainers College (KTTC) was not considered.

Studies done by Jepchirchir, Korir & Langat (2019) among TVET trainees in Kenyan North Rift region showed the main determinants of entrepreneurial intentions were attitude, subjective social norm and perceived behavioral control. The main determinants of the study were attitudes toward entrepreneurial behaviour, subjective social norm and perceived behavioural control as entrepreneurial intentions of TVET students in the North Rift region, Kenya. The study, however, failed to explain the factors influencing an inclusive entrepreneurship education in the TVET system Furthermore, the North Rift region was used as the context of the study rather than Kenya Technical Trainers College (KTTC). However, based on the existing studies that have been carried out, none has taken into account linking TVET with entrepreneurship education specifically on factors influencing an inclusive entrepreneurship education in the TVET system. To fill the gap, this research paper seeks to answer the question of what factors influence an inclusive entrepreneurship education in the TVET system.

Research Objectives

The general objective of this study was to determine the link between Technical and Vocational Education and Training (TVET) and Entrepreneurship Education at Kenya Technical Trainers College (KTTC), Nairobi County, Kenya.

The specific objectives of the study are:

- (i) To determine the effect of lack of explicit entrepreneurship education-training modules on entrepreneurship education in Kenya Technical Trainers College.

- (ii) To determine the impact of lack of the practical element of entrepreneurship education on entrepreneurship education in Kenya Technical Trainers College.
- (iii) To assess the effect of no effective teaching methods in entrepreneurship education on entrepreneurship education in Kenya Technical Trainers College.
- (iv) To establish the influence of lack of teacher, student participation on entrepreneurial education in Kenya Technical Trainers College.

Research Questions

The research questions of the study were:

- (i) What effect does lack of explicit entrepreneurship education-training modules have on entrepreneurship education in Kenya Technical Trainers College?
- (ii) What is the impact of lack of the practical element of entrepreneurship education on entrepreneurship education in Kenya Technical Trainers College?
- (iii) What is the effect of no effective teaching methods in entrepreneurship education on entrepreneurship education in Kenya Technical Trainers College?
- (iv) How does the lack of teacher, student participation influence entrepreneurial education in Kenya Technical Trainers College?

Research Hypotheses

H₁: Lack of explicit entrepreneurship education-training modules has no significant impact on entrepreneurship education of Kenya Technical Trainers College.

H₂: Lack of the practical element of entrepreneurship education has no significant impact on entrepreneurship education of Kenya Technical Trainers College.

H₃: No effective teaching methods in entrepreneurship education has no significant effect on the entrepreneurship education of Kenya Technical Trainers College.

H₄: Lack of teacher student participation has no significant influence on entrepreneurial education in Kenya Technical Trainers College.

Significance of the Study

The findings and recommendations will assist educational planners, educational policymakers and other interested parties in planning and making appropriate decisions in matters of maintenance and development of a practical and receptive TVET sector. This study will also address factors that hinder effective entrepreneurial education delivery and enhance production of quality entrepreneurs by improving their competencies to build the entrepreneurial foundation of thought and behaviour.

Methodology

A descriptive survey research design was used to conduct the study, as it was appropriate and enabled the researcher to gather facts and generalise the findings to a population. It allows analysis and defines the relation of variables on the factors influencing an inclusive entrepreneurship education in the TVET system in Kenya Technical Trainers College.

Trainees on school-based advanced diploma technical teacher business (with various specialisation) education trainees form the study target population for it is useful in providing collaborative information on the problem of the study. Therefore, enrolled 118 trainees of Kenya Technical Trainers College formed the target population of the study. For the study, a simple random sampling technique was used to collect data. Sampling is a procedure, process, or technique used to select a subgroup from a population to participate in a study (Ogula, 2005). A sample is a smaller group or sub-group obtained from the accessible population (Mugenda and Mugenda, 2003). Therefore, a sample of 91 respondents from a population of 118 formed the sample size population of the study (Krejcie and Morgan).

Questionnaires were used for the study. According to Owens (2002), questionnaires have the potential to reach a large number of respondents in a short time, give them sufficient time to answer the questions and a sense of security. Questionnaires also provide improved objectivity since it eliminates bias due to personal characteristics. Descriptive statistics were employed and the study results were presented using tables, percentages and interpretations made.

Results and Discussions

Findings of the study established factors influencing an inclusive entrepreneurship education in the TVET system were presented with the respondents requested to rate their responses according to YES, UNSURE and NO. Data collected

were presented in tabular form, percentages were computed on the data and interpretations were made as shown in the table 1.

Table 1: Factors Influencing an Inclusive Entrepreneurship Education in TVET System

Analysis of Factors Influencing an Inclusive Entrepreneurship Education in TVET System					
		Yes	Unsure	No	Total
Lack of explicit entrepreneurship education-training modules	N	49	28	14	91
	%	0.54	0.31	0.15	1
Lack of practical element of entrepreneurship education	N	54	18	19	91
	%	0.59	0.20	0.21	1
There are no effective teaching methods in entrepreneurship education	N	50	12	29	91
	%	0.55	0.13	0.32	1
Teachers student participation in entrepreneurial education is lacking	N	68	4	19	91
	%	0.75	0.04	0.21	1

Analysis of Factors Influencing an Inclusive Entrepreneurship Education in TVET System

Lack of explicit entrepreneurship education-training modules

Majority of the respondents 54% confirmed that there was a lack of explicit entrepreneurship education-training modules. 31% of the respondent are not sure while 15% of the respondents confirmed the implicit of entrepreneurship education-training modules. The study argued that a high percentage of respondents confirms the importance of inherent entrepreneurship education-training modules to enhance an inclusive linkage entrepreneurship education in the TVET system. Matseke (2000) indicates that entrepreneurial training subjects as behaviours associated with entrepreneurial success (entrepreneurial skills), the basic business knowledge and skills are prerequisites or corequisites for becoming a successful entrepreneur (ready skills).

Lack of practical element of entrepreneurship education

The results showed that 59% of respondents were positive about the lack of the practical element of entrepreneurship education while 21% were negative. 20% were not sure. Majority of the respondents confirm the importance of the practical element of entrepreneurship education in linking technical and vocational education

and training and entrepreneurship. Zhang, Duysters and Cloodt (2014) established the need to link the practical element of entrepreneurial training with TVET to provide gainful skills development to the recipient which is the base for developing occupational competencies that can be used in specific occupations or jobs.

There are no effective teaching methods in entrepreneurship education

Results showed that 55% of respondents were positive that there are no effective teaching methods in entrepreneurship education. 13% of the respondents are not sure while 32% of the respondents confirmed there is an effective teaching method in entrepreneurship education. This high percentage of respondents confirms the importance of effective teaching methods in entrepreneurship education in linking technical and vocational education and training with entrepreneurship. This was contributed by an overreliance on the textbook method, as trainers are uncomfortable with trying out innovative and learner-centred teaching methods and strategies. Arifin and Gerke (2014) noted that the major challenges for entrepreneurship programmes in TVET are teaching methods where trainers used the most basic teaching tools.

Teacher-student participation in entrepreneurial education is lacking

Data showed that 75% of the respondents confirmed that teacher-student participation in entrepreneurial education is lacking. 4% of the respondents are not sure while 21% of the respondents confirmed teachers. This high percentage of respondents confirms the importance of teachers' student participation in entrepreneurial education in linking technical and vocational education and training with entrepreneurship. Teachers' student participation in entrepreneurial education will help to improve the wellbeing of trainees and ensure their ability to think creatively and to be an effective problem solver. The study agrees with the findings by Matseke (2000) that TVET institutions produce quality manpower is hindered by a lack of teacher (trainer), student participation in enhancing entrepreneurial skills and training that the industry requires.

Conclusion

The study concluded that the development and maintenance of a feasible and responsive TVET sector to achieve its significance in changing times is determined by the mind-set of entrepreneurial and behaviour factors influencing an inclusive entrepreneurship education in the TVET system. Entrepreneurial

training subjects (modules) as behaviours linked with entrepreneurial success, business knowledge and skills are prerequisites or corequisites for becoming a successful entrepreneur (ready skills). Specific occupation or job entails developing occupational competencies that can be used to provide gainful skills development to the recipient. The gainful skills are provided by the TVET practical element of entrepreneurial training. Furthermore, TVET should adopt a wider range of techniques, effective teaching methods such as business simulation, successful entrepreneurs' life histories, mini project-based methods to transform its concept in the development of entrepreneurial skills. Finally, no or little entrepreneurial skills are impacted by the TVET conventional approach of teaching which mostly enables limited teacher-student participation thus in the linkage between technical and vocational education and training with entrepreneurship, teacher-student participation is of paramount importance

Recommendations

For achieved entrepreneurship education in the TVET system, this study made the following recommendations:

- (i) Entrepreneurial education skills and workshops on how to find business ideas should be integrated into TVET curriculum to encourage young people to start their businesses. Policy actions in this regard would include: Providing adequate financing for vocational/technical training, linking vocational and entrepreneurial training with job centres to ensure that the skills profiles supplied match demand and encouraging out-of-school young people to be involved in vocational training to promote social inclusion as well as enhance employability.
- (ii) The TVET system should provide the skills profiles required by the labour market to enhance the employability of young people after graduation. Institutional administrators to ensure skills match the demand for trainees, job centres be linked with vocational and entrepreneurial training.
- (iii) To produce trainees who are market-oriented in productivity, TVET institutional managers should allocate more time in training and development in them.
- (iv) The government should encourage the private sector's participation in the delivery of Technical Vocational Education and Training.
- (v) Given the likelihood of challenges, the government should offer incentives

such as “tax holiday”, and adequate protection from foreign competitors, as well as patent rights to spur more desire for innovation.

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4

TVET AND EMPLOYMENT CREATION

REALIGNING TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) FOR EMPLOYMENT CREATION IN KENYA

H. K. Koros

*Kenya Technical Trainers College, Education Department,
P. O. Box 44600-00100, Nairobi, Kenya*

Abstract

Technical and Vocational Education and Training (TVET) in the current changing times is considered as the driving force for the acquisition of knowledge and skills that is relevant for employment or self-employment. To enhance its relevance as an initiative for skills and employment, TVET should be strategically realigned to augment efficient and practical educational approaches anchored in reality. Based on that, the focus of the study was realigning Technical and Vocational Education and Training (TVET) for employment creation in Kenya. The study focused on the roles that TVET plays toward creating sustainable jobs for our teeming unemployed and underemployed youth in Kenya, strategies for realigning TVET in Kenya, and the challenges facing TVET in Kenya. It also examined transformative learning and the future of TVET. This paper is based on a comprehensive analytical review of the available literature evidence on TVET as a standard conception, TVET realignment strategies, and how employment creation manifests itself in these strategies. The paper is based on the premise that TVET is the major counterbalance force that will transform the economy, by creating a skilled workforce that could operate independently in the labour market. If this must be achieved, TVET must be strategically realigned to meet the manpower needs of the workplace through among others; training and retraining of TVET trainees and instructors, working with a multi-actor and systemic approach in TVET, public-private partnership, developing (independent) entrepreneurship or self-employment and adequate planning and implementation of TVET programmes by the government. From the review, it is evident that TVET is the main channel of transformative learning and its future could be enhanced through the integration of competency-based training with academia at all tertiary educational institutions.

Key words: Technical Education, Vocational Training, Employment creation.

Introduction

Technical and Vocational Education and Training (TVET) is steadily gaining popularity as a driving force for the acquisition of knowledge and skills that are relevant for employment or self-employment in the world of work. Although TVET has recently been extensively appreciated and adapted by technical training institutions, it does not provide recipients with the skills necessary to improve access to employment opportunities (Edokpolor & Owenvbiugie, 2017). Given the changing nature of the world of work due to globalisation, technological change and other emerging issues such as the novel coronavirus, TVET needs to be transformed to develop a skilled, committed and motivated workforce that understands how global changes affect local business opportunities (UNESCO-UNEVOC, 2009). Since the ultimate goal of TVET to improve and increase individual employability and work for the benefit of society and sustainability in general, the paper examined how (TVET) should be realigned to enable the creation of employment in Kenya.

Concept of TVET

Technical and Vocational Education and Training (TVET) refers to those aspects of the educational process which include the study of related technologies and sciences, as well as the acquisition of practical skills, attitudes and knowledge relating to professions in various fields of economic and social life (UNESCO, 2002). Viewed as learning, TVET aims to develop skills in specific trade applications where the programme provides students with the skills, knowledge and competencies that will enable them to be productive to rapidly adapt to the changing labour markets and economies (UNESCO-UNEVOC, 2009). Indeed, TVET is a powerful tool for the rapid advancement of technologies, citizen capacities, economic growth in economies and national development (Akhuemonkhan and Raimi, 2013). It aims to train the skilled professionals and entrepreneurs necessary to build wealth to reduce the threat of poverty and unemployment (Maigida, 2014).

Employment Creation

Employment creation entails showing the capability of applying practical and theoretical learning in specialism; most importantly, the capabilities to cope with change, learning from experience, thinking critically and acting autonomously. Maclean (2008) stated that effective upgrading of skills for employability and sustainable livelihoods is necessary to achieve sustainable development. In Kenya, where the challenge of employment has increased over time and where young people are the main victims, TVET is oriented towards the practical application of acquired skills, away from the traditional academic field, thus creating a link between education and working (Kariuki, 2012). The training

of a skilled workforce is essential for sustainable industrialisation to create a necessary resource for technically and entrepreneurial people who can inspire investment opportunities, create jobs and increase productivity.

Status of TVET in Kenya

TVETs in Kenya are categorised into Youth Polytechnics, Technical and Vocational Colleges (TVCs), National Polytechnics and Technical universities. Technical Universities train technologists and award Technologists and Post Graduate Degree while National Polytechnics offer technician and technologist courses and award Technician Diploma and Technologist Degree. The Artisan courses are offered in Youth Polytechnics and award Artisan Certificate. The TVCs comprise Technical Training Institutes (TTIs) and Institutes of Technology (ITs). They offer craft level courses (and some offer technician courses) and award Craft Certificate and Technician Diploma (Akala & Changilwa, 2018).

TVET oversight responsibility is generally shared between the Ministries of Education, Higher Education Science and Technology, the Ministry of Youth, and the Ministry of Labor, with some specialized vocational training programmes for instance agriculture, health, transport falling under the supervision of the sector ministries (Wanyeki *et al.*, 2018). On the other hand, the Technical and Vocational Education and Training Curriculum Development, Assessment and Certification Council (TVET CDACC) is responsible for initiating the design and development of TVET training institution curricula, assessment and certification that embraces Competency-Based Education and Training system (CBET) and advises the Government on related matters (TVET CDACC, 2020).

To improve access, equity and quality of training, the government has created new vocational training institutions. The aspiration is that by the year 2020, each Constituency will have at least one technical training college. As of January 2020, the Government under the TVET Authority has accredited 1,825 both public and private TVET institutions (TVETA, 2020a) as shown in the following table.

Table 1: TVET accredited Institutions as of January 2020

Categories of an accredited institution			
Category of Institution	No. of Public Institutions	No. of Private Institutions	Total
1 National Polytechnics	10	0	10
2 Technical Trainer Colleges	1	0	1
3 Technical and Vocational Colleges	191	745	796
4 Vocational Training Centres	796	82	878
Total	998	827	1,825

Source: Technical and Vocational Education and Training Authority Newsletter April 2020

Technical and Vocational Education and Training (TVET) and Employment Creation

According to Osidipe (2017), the goals of TVET are to provide self-supportive training opportunities for school leavers, development of practical skills and attitudes that lead to income-generating activities, technical knowledge provision and vocational skills necessary for workforce development, and provision of skilled Artisans, Craftsmen and Technicians. TVET, therefore, plays an important role in equipping individuals with the necessary skills to enable effective participation in social, economic and technological innovation processes that make sustainable jobs for teeming unemployed and underemployed (Edokpolor & Owenvbiugie, 2017).

The challenges facing TVET in employment creation Kenya

Kenya TVET faces several challenges from lack of integration of education to work to lack of or inadequate in-service training (Kigwilu, 2014). In many instances, competency in pedagogy is lacking in a large number of TVET trainers, inadequate number of TVET centres with inadequate resources (teaching and learning materials) coupled with a low number of trainees enrolling in these TVET institutions. Furthermore, there is negative perception and apathy towards TVET and on many occasions, TVET institutions rely on the apprenticeship model of teacher education whereby their students become TVET teachers, devoid of desired pedagogical skills (Akala & Changilwa, 2018).

Realigning TVET in Kenya for Employment Creation Training and retraining of TVET trainers and instructors

It is unanimous that trainers and instructors for TVET play an integral role in the quality advancement of TVET graduates, an institutional variable that can equip them with the skills necessary to be successful in their future employment life. To ensure TVET instructors and trainers quality, measures need to be taken at all stages of the career; defining competence profiles and frameworks appropriate for TVET professionals, improving pre-service TVET teacher and trainer education, optimising recruitment and selection procedures to attract and enlist the best candidates, enhancing the continuous professional development of TVET instructors and trainers, and ensuring TVET instructors enjoy good working conditions (Educaid, 2016).

Continuous professional development can be strengthened through collaboration with industry to motivate them to build linkages, for instance, the industries concerned should be encouraged to engage enthusiastic trainees who have graduated from institutes of technology and place them for employment in their relevant fields of learning (Claiborne *et al.*, 2014).

To ensure that future and prospective instructors and trainers gain experience that meets market and international needs, TVET CDACC has started the process of adoption and implementation of Competency Based Education and Training (KNQA-CBET, 2020). The TVET Authority has established the legal framework and developed the necessary quality assurance mechanisms to ensure that trainers licensed to train in TVET institutions are of the highest standards of competencies. The CDACC is responsible for designing and developing competence-based study programmes for TVET and requires the trainer to have minimum skills such as content knowledge, pedagogical knowledge and knowledge of appropriate teaching methods (TVET CDACC-CBET, 2018).

Working with a multi-actor and systemic approach in TVET

To attain sustainable results within the TVET structure implemented in the context of employment creation, it is essential to consolidate and adapt policy, strategy and tools to the different aspects of the sector. This means an elaborate policy and strategy as concerns effective job-placement systems, employment coaching and workforce need projections (job market information systems). Strengthening all these system components is important given the employment goals targeted by the TVET sector (Hollander & Mar, 2009). Similarly, as a multi-sector approach, employers shall often be willing to capitalise on TVET in providing machinery and financing the TVET sector in all forms of capacity development, at an individual and organisational levels (Educaid, 2016).

A fundamental policy shift in education that has brought about the formation of several institutions to support TVET training has been enhanced. These include TVETA (for accreditation and quality assurance), KNQA for developing national training standards and harmonising our education and TVET CDACC for curriculum development, assessment and certification. For instance, the work of the Kenya National Qualifications framework cuts across the basic, TVET and university levels and seeks to make better harmony and/or integration/co-ordination within the education and country qualifications awarding system (KNQA-CBET, 2020).

Public-private partnership

This involves the contractual arrangements whereby the private party provides or delivers a service that should have under normal circumstances been provided by the public sector and assumes the substantial financial, technical and operational risk in the process of service delivery (Musobo & Gaga, 2012). UNESCO-UNEVOC (2012) posited that these contractual arrangements could be effective in strengthening TVET teacher education and facilitating their professional development. Public TVET institutions and private sector industries' effective collaboration will ensure that TVET programmes and teaching methodologies

are up to date and relevant to industry needs (Ogbunaya & Udoudo, 2015). Educaid (2016) asserts that the partnership between technical and vocational schools and enterprises are indispensable for aligning training and employment. Therefore, it is advantageous for trainees to link theory and practice, enabling them to be familiar with the realities of professional environments.

In a desire to establish an internationally competitive workforce based on Competence Based Education and Training (CBET), Kenya is committed to reorganising the TVET sector. Occupational standards have been established to be used directly in the workplace and to be assessed in work situations by trained assessors and apprentices. The Standards shall also be approved by the industry and reviewed regularly to ensure that they are maintained in line with changes in technology, processes and practice (TVETA, 2018). Notably, Occupational Standards for job descriptions and Kenyan technical education and vocational training qualifications which reflect on-the-job operations to achieve high productivity and profitability in the industry have been enhanced (TVET CDACC-CBET, 2018).

Developing (independent) entrepreneurship or self-employment

Promoting entrepreneurship as a basic skill should be at the centre of vocational training programmes aimed at increasing the chances of employability and professional success. The inclusion of entrepreneurship as a basic skill of technical and vocational training programmes must be practical and tackled from an early age, to instil the entrepreneurial culture as early as possible (Educaid, 2016). To generate job opportunities, TVET providers need to offer extensive independent entrepreneurship training and support to assist young people in creating high-quality jobs for themselves; and build local, national and international partnerships to promote work opportunities for their students (UNESCO-UNEVOC, 2013).

Most of the informal sector artisans acquired and developed various skills through apprenticeship and ‘learning on the job’ after the TVET Authority developed standards and guidelines on Prior Learning Assessment and Recognition (PLAR). This has brought the skilled workforce from the informal sector into the mainstream labour market (KNQA, 2020). Also, TVETA and the Kenya National Chamber of Commerce and Industry (KNCC&I) have launched engagements to establish incubation centres at selected TVET institutions across the country to provide students with a platform to hone their skills and establish their business ideas (TVETA, 2020b).

Adequate planning and implementation of TVET programmes by the Ministry of Education

A well-structured TVET system is enhanced by the proper and adequate planning and implementation of TVET programmes by the Ministry of Education. The Ministry of Education has a responsibility to adequately plan and implement TVET programmes through; review or develop new TVET curricula in a modular form based on occupational standards, introduce a demand-led competency-based training model, encourage the development of production units in TVET institutions and introduction of modern and relevant teaching methods and didactic material that are in line to market requirements (Maringa, 2014).

Ministry of Education can provide appropriate equipment and improve training facilities, introduce outcome-oriented assessment, introduced topics and practice on occupational health and safety at work, and involve the private sector in curriculum development, TVET provision, and monitoring and evaluation (UNESCO-UNEVOC, 2013). To improve the quality of Competence Based Education and Training (CBET) in TVE institutions, the Ministry of Education has sought to create an internationally competitive workforce to be implemented. Besides, a flexible and combined training method will be developed to ensure that Kenya's technical capacities are attractive and globally competitive. (TVET CDACC-CBET, 2018).

TVET Transformative learning and its future

The developmental processes that aim at achieving substantial modification of existing ways of thinking and acting, should also involve participants in examining, enhancing and converting their reality need to focus intentionally on the fostering of transformation (Gravett, 2004). It can thus be argued that TVET aims at changing trainer perspectives and practices that exemplified a 'trainer-centred' and 'content-focused' approach to an approach that would engage learners and trainers in reciprocal inquiry and exploration, i.e., learning-centred dialogic training (Light & Cox, 2001).

One of the main goals of TVET is to enhance the Competency Based Education and Training (CBET) approach, which is result-oriented, industry-oriented, flexible, embraces the concept of Prior Learning Assessment and Recognition (PLAR) and emphasises the acquisition of competence to meaningful learning that shapes professional identity (Musobo & Gaga, 2012). TVET then should involve more policies and strategies that stress the need for stronger links with the labour market to help trainee graduates to adjust continuously to the fast

changes in the market. TVET's future can, therefore, be aligned to the demand for graduates (with the skills taught), the willingness of trainees to enroll in programmes, and the qualitative and quantitative relevance to actual labour market needs (Gravett, 2004).

Conclusion

Results from this study showed that employment creation in Kenya is a very prevalent issue that needs TVET to be realigned certainly to an impressive game-changer likely to result in its improvement. TVET appeared as one of the major counterbalance forces that will transform the economy, by creating a skilled workforce that could operate independently in the labour market. If this must be achieved, TVET must be strategically realigned to meet the current manpower needs of the workplace through among others; training and retraining of TVET trainees and instructors, working with a multi-actor and systemic approach in TVET, public-private partnership, developing (independent) entrepreneurship or self-employment and adequate planning and implementation of TVET programmes by the Ministry of Education. Kenya has put in place both the legal frameworks and re-orientation of TVET institutions towards a competence-based approach have taken shape which will enable the country to become a pacesetter in creating employment. Though TVET in Kenya is beset by numerous challenges, it is believed that if the challenges and the strategies recommended are adequately addressed, it would create a remarkable positive impact in providing the youths with saleable skills for the technological and economic growth of the nation thus creating employment in Kenya.

Recommendations

The paper recommended that as a viable alternative to the more traditional mode of advancement and education, TVET is the main channel of transformative learning and its future could be enhanced through the integration of competency-based education and training (CBET) with academia at all tertiary educational institutions. The CBET, reforms will contribute to improving access to flexibility, quality and relevance of TVET.

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ASSESSMENT OF ACCESS TO QUALITY TRAINING BASED ON THE DISTRIBUTION OF TVET INSTITUTIONS IN KENYA

K. Langat, J. K. Ngeno, D. B. Omboto and A. M. Ambuli

Technical and Vocational Education and Training Authority,

P. O. Box 35625 – 00100, Nairobi

Abstract

Kenya is implementing various reforms in the TVET sub-sector to promote inclusive and quality training for provision of globally competitive workforce for driving industrial and economic growth. The reforms include introduction of CBET curricula, construction of new and equipping of both new and existing institutions with new equipment and to mitigate skill mismatch and improve access, relevance and employability. The implementation of the reforms has been triggered by global reforms and trends in TVET as well as national data on population statistics. However, there is currently no appropriate information to support decision making on the effects of the TVET reforms. The construction of new and equipping all the TVET institutions is expected to improve regional balance and access to training by attracting the local youth to join the institutions learn the skills offered. The information currently available on the distribution of TVET institutions across the country and courses offered which can be useful evidence for actions in the ongoing TVET reforms, is inexhaustive. This study determined the distribution of TVET institutions in Kenya and it focused on the TVETA accredited institutions across the country. Census method was applied with the support of a questionnaire which was administered to get data from the target institutions across the country. The findings from the study showed that there was uneven distribution of TVET institutions across the country which could have a negative impact on accessibility and inclusivity in training within Kenya. Larger percentage of the institutions are under Ministry of Education compared to those in other ministries. There was a higher concentration of TVET institutions within urban centres compared to rural and other marginalized areas. The study findings shall be used by TVET policy makers, providers and other stakeholders in identifying gaps on access and inclusivity in training.

Key words: Distribution, access, inclusivity, compliance.

Introduction

Sustainable Development Goal 4, “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”, pays considerable attention to TVET, with specific targets referring to technical and vocational skills, education and training. Specifically, SDG 4 specifies targets relating to the equal access to quality TVET, the number of young people and adults having technical and vocational skills for employment, decent jobs and entrepreneurship and to the elimination of all forms of inequalities in the access to TVET, including for people with disabilities, indigenous people and children in vulnerable situations (Bear II Project, 2018). In this regard, access to TVET training is a critical factor in addressing various issues affecting societies and communities. Access to training for skills can enhance development of both human and social capital in addition to ensuring sustainable societies and environment. On the other hand, issues of female participation in both formal and informal technical skills training, has been a common research issue that also has not found a lasting solution.

Addressing these challenges through proper frameworks can create credible system of ensuring free and flexible access to TVET training in Kenya. As a result, the economy will benefit from a skilled population which in turn can improve ways of life. Skilled population can also create avenues for innovations and improve general well-being of our societies.

Problem Statement

Access to TVET is considered as strategic and operational priorities that governments and private sector players provide through increased funding, construction of new and support of existing institutions, acquisition of new equipment and capitation/loans for TVET trainees. The regulation of TVET sub-sector has greatly improved since the establishment of TVET Authority six years ago as the overall regulatory agency. Co-ordination of the TVET sub-sector, therefore, needs to have registered improvement in accessibility, equity and relevance in training. However, little is known on accessibility to TVET training based on the number and distribution of accredited institutions as well as the geographical distribution of the training institutions. Accreditation ensures institutions follow set standards for training hence improve quality training and hence competent workforce for economy growth.

Research Objectives

The purpose of the study was to determine the level of access to training based on the distribution of TVET institutions in Kenya. The specific objectives include:

- (i) To establish the types of TVET institutions existing in each of the counties of Kenya.

- (ii) To determine the proportion of Public TVET institutions to the Privately owned TVET institutions in Kenya.
- (iii) To identify possible causes of the current concentration and/or lack of TVET institutions in various counties in Kenya.

Scope of the study

The study focused on accredited institutions in all counties within Kenya. The institutions whose accreditation status were unknown, pending or revoked were not included in the study. Most of the respondents targeted included heads of institutions and the heads of departments from each of the institutions. Not all the private institutions were visited due to unavailability of proper address and some had moved to other areas.

Literature Review

Governance in TVET sub-sector in Kenya is entrenched in policy environment within the Ministry of Education. Specifically, under the Ministry of Education, Department of Vocational and Technical Training is supported by other state agencies with specific mandates. These, in addition to private sector, industry and partners form the team influencing the provision of quality training. To ensure compliance to set standards, the Technical and Vocational Education and Training Authority is tasked with the regulatory role (TVET Act, 2013).

According to the Ministry of Education, Directorate of Technical and Vocational Education and Training (DTVET), Kenya is facing the following challenges to the TVET system: Poor perception and recognition of TVET is seen as a less preferred option compared to academic education. The poor perception and lack of social recognition hinders the development of TVET, and adversely affects its choice by the students. This lack of recognition is also reinforced due to the lack of opportunities and pathways to higher education. Management and co-ordination of TVET in Kenya is offered in institutions belonging to various ministries, the private sector and religious organisations (Kenya Education Management Institute, 2012).

A weak governance and finance system is in place, which has a negative impact on the effectiveness of resource mobilisation and allocation. Access and equity to programmes; majority of TVET institutions are found in large towns which causes issues including increasing access to education and training

for marginalised groups. Poor and inadequate equipment and infrastructure in TVET institutions affects the quality of the education and training provided. As students train with substandard equipment, their absorption in the labour market becomes more difficult and reinforces the mismatch between the supply and demand of skills. (UNESCO-UNEVOC, 2018).

Debrah-Karikari, *et al.*, (2018) identified access to TVET training as one of the important components to skills development in a youthful population in African countries. Additionally, access to quality TVET programmes incorporates both knowledge acquisition in quality training centres as well as hands-on experience to put those skills into practice. This goes hand in hand with the goal of TVET in Kenya which focuses on training the youthful population in projection of opportunities associated with the vision 2030. According to Kenya Education Management Institute (2012), quality workforce for Kenya's Economy can be achieved by increasing TVET opportunities and making them more accessible to those who need them.

Distribution of TVET institutions can be a critical consideration in providing access to quality training. However, distribution should be based on sound cost-benefit and quality assessment analysis (World Bank, 2020). Killian, *et al.* (2009) suggested that more TVET institutions should be built in deprived regions in order to expand the opportunities for all in terms of access to technical and vocational training. The distribution of TVET institutions should be based on the needs of societies and communities. This is, therefore, driven by the economic activities that are uniquely common to a particular region. Community needs and especially considering the female gender, should be the basis for the geographical spread of the TVET institutions.

According to International Labour Organisation (2016), the main objective of providing access to quality training is to help poor people improve their quality of life through better opportunities. In Kenya, majority of people are spread across the country and majority of them are in rural areas. This study considered that the establishment of TVET institutions and support mechanisms for poor population ought to be prioritised in government policies and plans and with the engagement of the private sector players. In recent times, the perception of TVET among youth in Kenya may be seen as improving due to the increased number of youths joining TVET institutions. This particularly was observed after the government initiatives were undertaken through capitation programmes

(Institute of Economic Affairs, 2018). Despite the government effort, the level of access is still a challenge and the necessary data supporting it is limited.

In order to enhance access and inclusivity in training, International Labour Organisation (2015) suggested for a change in approach from supply-driven to demand driven of education and training through: (i) understanding the needs of the private sector (businesses and entrepreneurs); and (ii) involving the private sector in designing the curricula so that there is more balance between theory and practice, and the curricula content and learning outcomes are closer to the needs of the labour market, that is, competency-based. This ignites the debate on how other players apart from the government can effectively participate in increasing access to TVET training in Kenya. There is a gap between the industry demands and the available trained workforce in Kenya.

Ikenna Ebuenyi (2019) concluded that persons with special needs are largely excluded from TVET programmes and multiple underlying reasons have been identified. Most prominent is an attitude that legitimises exclusion from school and the labour market and policies that do not understand them. Pathways suggested by participants are far-reaching and encompass diverse areas including attitudinal changes, adaptive curricula, and inclusive policies. These have been found to affect the culture and the structure and would be manifested in practices. For example, formulating an inclusive policy will probably change the admission criteria to TVET programmes and even the way for increased participation. In this regard, access and inclusivity in training is a critical component in establishing training institutions and training programmes. This auger well the inspiration of the Sustainable Development Goals of “*Leaving No One Behind*” (UNDP, Ghana, 2017).

There are other emerging issues that have been associated with poor access to training in Kenya. For instance, COVID-19 pandemic has caused a huge disruption around the world and Kenya included. It is estimated to have affected over 1.6 billion learners in over 190 countries and in all continents (World Bank, 2020). This calls for increased creativity in addressing access to training through distribution of centres for training across the country. According to the existing TVET policies in Kenya, one of the guiding principles in reinventing

TVET sub-sector is to promote access and equity. Every Kenyan has a right to access, quality and relevant education and training. It is, therefore, critical to create an enabling environment, opportunities and mechanisms to those seeking to pursue quality technical training at all levels.

Conceptual Framework

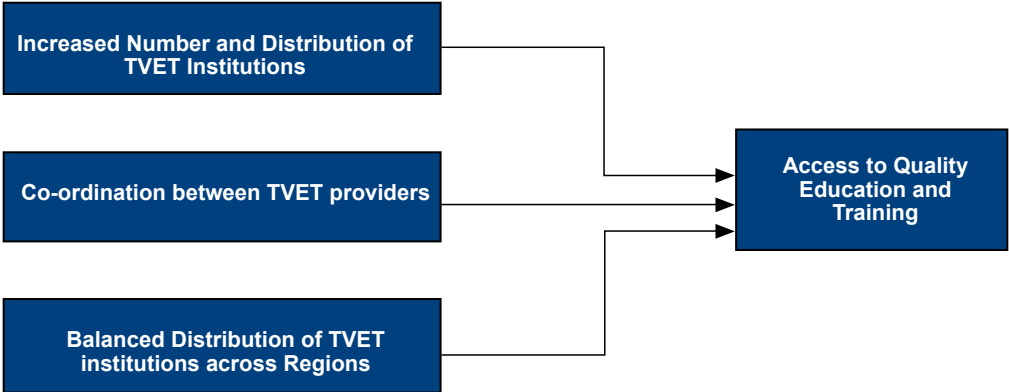


Figure. 1: Conceptual Framework

Based on the previous studies, it is clear that access to quality education and training depends on various factors that include but not limited to increasing the number and distribution of TVET institutions across the country. It also depends on the co-ordination of TVET providers to reduce either excess or inadequacy of TVET in institutions in respective regions. Both public and private TVET providers should have a clear framework that allows them to enhance even distribution of institutions. All providers should, therefore, be provided with universal conditions that enables them to provide training without compromising quality and access. Public private partnerships, therefore, are one of the opportunities that can be utilised in improving access to training. Regional balancing through even distribution of TVET institutions may be applied in order to minimise concentration in some regions and scarcity in other areas. In addition, inclusiveness in education and training requires that opportunities are created to allow all persons with interest in training to participate in acquisition of labour market demanded skills. Person with special needs and the vulnerable groups should be provided with equal opportunities in accordance to their aspirations.

Methodology

Based on the available details of accredited institutions in Kenya, the census approach was used hence all the registered TVET institutions were covered. The number and classification of the targeted institutions are as shown in Table 1. The TVETA research team developed a data collection tool that was used to collect the required information from the TVET institutions. The information

included institutional particulars, geographic locations, types as well as form of ownership. The institutional administrators were briefed on the nature of data that were required and were then given one week to compile the data in the prescribed format and send them to the team leaders. The high response rate showed that the data obtained in this survey and the conclusions made represent a true reflection on the general status of the institutions on the issues that were under study. Secondary data from TVETA accreditation records were also used to validate some of the collected data. The information was summarised, analysed, discussed and recommendations proposed.

Results and Discussion

Classification of TVET institutions

The Kenyan TVET institutions are classified into three main categories, Vocational Training Centres (VTCs), Technical and Vocational Colleges (TVCs) and National Polytechnics (NPs). The classifications are based on the levels of courses offered. VTCs offer training at basic levels up to Certificate/ Craft (KNQA Level 5) and most of them are managed through the county governments, while TVCs offer training up to Diploma (KNQA Level 6). NPs are allowed to offer training up to Bachelors' degree (KNQA Level 8).

Table 1: Number of Accredited TVET institutions per County

No.	County	National	Public	Private	Public	Private	Total
		Polytechnics	TVCs	TVCs	VTCs	VTC	
1	Mombasa	1	5	44	12	7	69
2	Kwale	0	3	5	15	1	24
3	Kilifi	0	2	15	29	4	50
4	Tana River	0	1	1	1	2	5
5	Lamu	0	0	0	0	0	0
6	Taita Taveta	0	4	5	23	0	32
7	Garissa	1	1	6	0	0	8
8	Wajir	0	1	0	0	0	1
9	Mandera	0	1	0	1	0	2
10	Marsabit	0	2	0	7	0	9
11	Isiolo	0	0	2	2	1	5
12	Meru	1	12	7	21	1	42
13	Tharaka Nithi	0	0	3	18	0	21
14	Embu	0	2	11	6	1	20
15	Kitui	0	1	8	62	8	79
16	Machakos	0	3	28	38	2	71

No.	County	National	Public	Private	Public	Private	Total
		Polytechnics	TVCs	TVCs	VTCs	VTC	
17	Makueni	0	3	7	33	1	44
18	Nyandarua	0	3	2	15	1	21
19	Nyeri	1	7	24	10	0	42
20	Kirinyaga	0	2	10	12	0	24
21	Murang'a	0	4	5	58	2	69
22	Kiambu	0	4	78	34	5	121
23	Turkana	0	1	3	7	1	12
24	West Pokot	0	0	2	2	1	5
25	Samburu	0	0	1	1	0	2
26	Uasin Gishu	1	4	41	13	4	63
27	Trans-Nzoia	1	3	11	31	1	47
28	Elgeyo-Marakwet	0	2	3	11	0	16
29	Nandi	0	5	3	11	1	20
30	Baringo	0	3	5	9	0	17
31	Laikipia	0	1	4	13	3	21
32	Nakuru	0	12	43	21	4	80
33	Narok	0	3	8	6	0	17
34	Kajiado	0	4	22	5	2	33
35	Kericho	0	4	10	7	0	21
36	Bomet	0	4	10	19	0	33
37	Kakamega	1	8	10	67	5	91
38	Vihiga	0	1	1	25	3	30
39	Bungoma	0	4	6	62	2	74
40	Busia	0	3	2	13	1	19
41	Siaya	0	5	8	17	1	31
42	Kisumu	1	5	24	22	3	55
43	Homa Bay	0	4	2	18	1	25
44	Migori	0	1	8	15	1	25
45	Kisii	1	3	12	42	0	58
46	Nyamira	0	3	3	20	0	26
47	Nairobi	2	26	247	18	16	309
Total		11	170	750	872	86	1889

A total of 1889 institutions across the country were visited and the details of the institutions from all the 47 counties are shown in Table 1. Lamu County did not have a registered institution while Mandera had only one accredited TVET

institutions. From the table, it is quite clear that the distribution of the institutions is uneven. Nairobi county had the highest number (309) of accredited institutions followed by Kiambu County with a total of 121 accredited institutions.

The geographical distribution of the institutions has a great effect on accessibility to quality training. It is critical to consider the inequality informing the key stakeholders in establishing institutions of training particularly on the depleted regions/counties. The worst affected counties are also associated with low economic development and this could be a gap worth considering for future strategic decisions in TVET sector. The analysis, therefore, may explain why the general perception that the recent efforts of establishing more institutions may have solved the problem of accessibility. Through this evidence, it is clear that there still exist gaps in the attempt to ensuring that TVET training is available for those who may need. These results should, therefore, provide information for consideration by TVET providers to consider while establishing new institutions in the future.

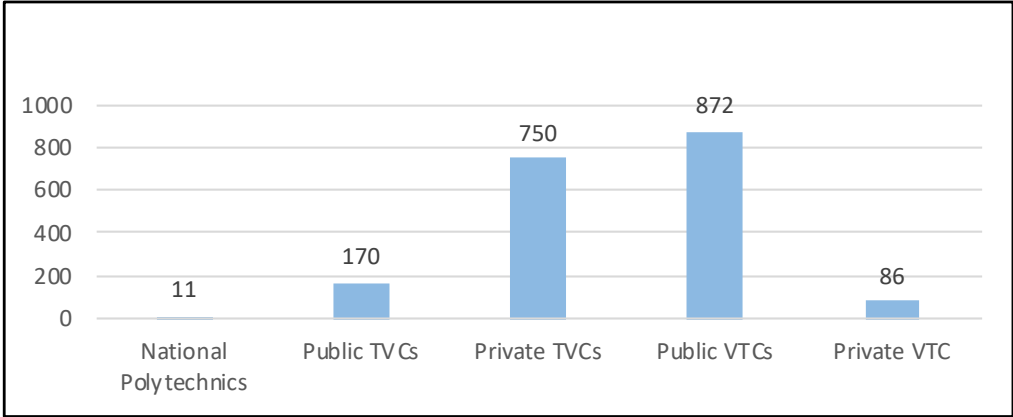


Figure 2: Class distribution of Accredited Institutions in Kenya

From Figure 2, there were more Public institutions than the Private institutions in Kenya. This is as a result of the government effort through legislations, funding and establishment of new institutions in Kenya. However, the number of National Polytechnics needs to be increased and be distributed evenly across the country to support the career growth of trainees. The private institutions are significantly low which suggest more engagement with the private sector stakeholders to support in increasing the access to quality training in Kenya.

National Polytechnics

There were 11 accredited National Polytechnics distributed across 10 counties within Kenya. Nairobi county had 2 NPs, while the other nine were distributed in different counties as shown in Table 2.

Table 2: Distribution of NPs within the Counties

No	Name	County
1.	North Eastern Kenya	Garissa
2.	Sigalagala	Kakamega
3.	Kisii	Kisii
4.	Kisumu	Kisumu
5.	Meru	Meru
6.	Kenya Coast	Mombasa
7.	Kabete	Nairobi
8.	Kenya Technical Trainers College	Nairobi
9.	Nyeri	Nyeri
10.	Kitale	Trans Nzoia
11.	Eldoret	Uasin Gishu

The 11 NPs were located in only 10 Counties and this could result in reduced access for trainees from certain marginalised counties without the NPs. Additionally, since the NPs are expected to offer diverse solutions to problems facing local communities, the lack of these institutions in particular counties could also lead to reduced economic growth. However, the development of standards for National Polytechnics and centres of excellence by TVET Authority is expected to provide mechanisms for elevation of more TVET institutions to National Polytechnics and centres of excellence and hence ensure regional balance.

Although most of the NPs mainly offered various programmes up to Higher National Diplomas examined by KNEC, the legal order creating the NPs allows them to develop their own syllabi, award internal certificates and offer programme up to degree level. Most of the NPs have not exploited these options. This could be attributed to lack of sensitisation or capacity to develop their own programmes. The option of developing their own curricula is expected to enable the NPs to develop programmes that are geared towards solving common challenges in their areas of operation.

Correlation between Existence of Private Institutions and the regional distribution of Public Institutions

A correlation test was done to establish whether the lack of TVET institutions

would attract more private institutions in various regions. However, there was a positive correlation in the sense that, regions with more TVET institutions also had a significant high number of private institutions. The presence of private institutions may be as a result of high demand for training and not because of limited number of institutions in a particular county. On the other hand, many other factors may be considered. For instance, Kiambu and Nairobi counties have the highest number of institutions and this may be associated with urban environment where level of development is considered high. This result introduces another unique factor for investigation. From the previous studies, there has been assumptions that, accessibility to TVET is dependent on the distribution of TVET institutions in Kenya. However, this is an evidence, which shows that those seeking TVET training are motivated by other factors. From this point, it suffices to make assumptions, based on different dynamics. For instance, in populated institutions, factors of institutional reputation and long-term existence may have attracted more trainees than others. Figure 3 shows the results obtained from the correlation test.

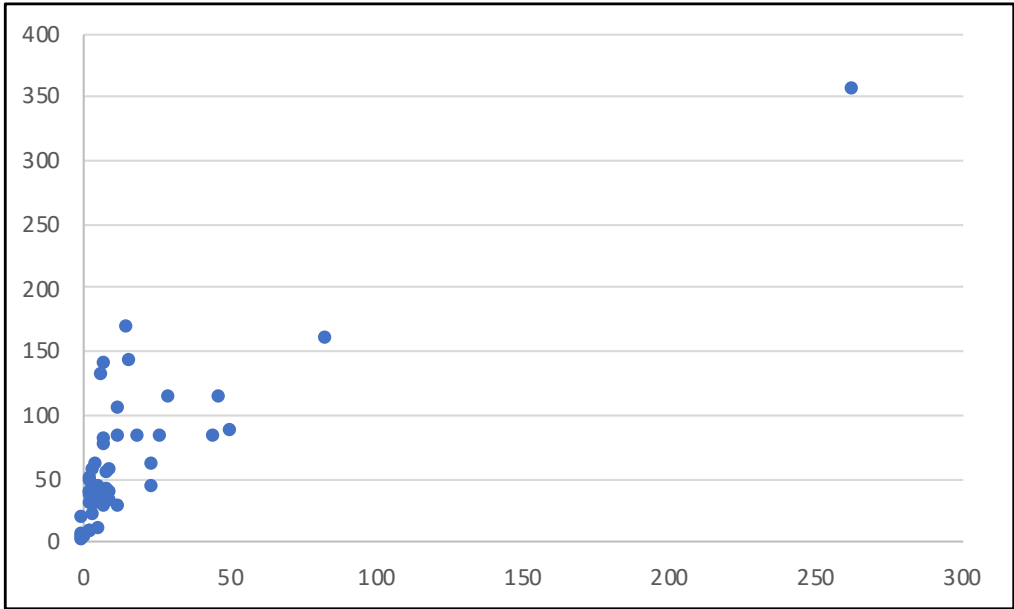


Figure 3: Correlation between Existence of Private Institutions and the regional distribution of Public Institutions

Conclusion and Recommendations

The findings from this study showed that some regions of the country had a higher number of TVET institutions than others hence leading to easy accessibility by prospective trainees. The uneven distribution of TVET institutions across the

country is, therefore, an issue of concern that should be urgently addressed. There are counties with no TVET institution at all while in other counties, particularly those with industries, cities and urban environment have more. The government leads in the establishment of TVET institutions in Kenya as compared to those established by private sector players. For government, the large number established may be attributed to the national aim to provide skilled force to support in the implementation of national development plans while the private sector providers may have been motivated by pecuniary benefits associated with TVET Training. It is necessary to identify a holistic approach that will minimise the distribution gaps and possibly establish a policy framework that guides all TVET providers.

There is need to engage other players particularly from the private sector to support the initiative of increasing access to TVET Training. Existing avenues like Public Private Partnership Programmes may be considered to enhance the establishment of the institution across the country.

The authors recommend that the government's initiative of establishing TVET institutions in various parts of the country should consider the distribution and population of the regions to improve access. A collaborative framework needs to be identified that ensures that both Government and Private sector providers focus on accessibility to TVET training, and with consideration to gender, disability and marginalisation. They should refocus the purpose of training as a way of skills development for prosperity, a consideration that should not compromise on access, inclusivity and quality. Future researchers may also try to do comparative analysis between TVET training in Public versus Private institution, and to highlight the kind of anticipated scenario of accessibility to training in the future.

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ENROLLMENT TRENDS IN KENYAN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS

K. Langat, J. K. Ngeno, D. B. Omboto and A. M. Ambuli
Technical and Vocational Education and Training Authority,

P. O. Box 35625 – 00100, Nairobi

Abstract

The availability of accurate, valid and reliable information in any sector provides an important basis for decision making. Data is an essential ingredient for improving the ability of education stakeholders to develop appropriate policies, plans and monitor and evaluate the quality and relevance of training. The purpose of this study was to determine the enrollment trends in the targeted public institutions in the country and provide the government and other stakeholders with essential statistics that can be used for evidence-based decision making. The study employed census inquiry by targeting all public Technical and Vocational Colleges (TVCs) and National Polytechnics (NPs) in the country. A data collection tool was developed and pretested to ascertain its reliability before being deployed for data collection in the target 119 public TVCs and 11 NPs. The information collected included institutional particulars, gender disaggregated enrollment of trainees in each course and level of training and dropout rates for the years 2014 to 2018. A response rate of 98.32% was attained, which is sufficient to make generalisation of the findings. The data collected was sorted, edited, coded, analysed and presented in the form of tables, bar graphs and pie charts. Results from this study showed that enrollment in both NPs and TVCs in the country has been on an upward trajectory with the greatest increase noted in the year 2018. Enrollment in both STEM programmes and business related programmes grew significantly over the past five-years albeit at varying rates. Male trainees dominated enrollment in STEM programmes while female trainees lead in business related programmes. However, the number of female trainees enrolled in STEM was much higher than that of female trainees enrolled in business related disciplines. Overall, more trainees are enrolled in STEM based programmes in the targeted institutions. The dropout rates in both NPs and TVCs are significantly high and urgent action needs to be taken to reduce internal inefficiencies in institutions in order to address this issue.

Key words: Enrollment, Public TVCs, National Polytechnics.

Introduction

Technical and Vocational Education and Training (TVET) and skills development plays a vital role in the development of both human and social capital as well as promoting necessary skills, knowledge and expertise needed for sustainable societies and green economies. TVET provides a strategic entry point for ensuring appropriate supply of skilled workforce for the world of work and contributes to social cohesion by promoting environmentally sound and sustainable development (UNESCO-UNEVOC, 2012). Improving access to TVET can greatly enhance attainment of sustainable development goals and enable the country to achieve both its short and long-term development plans.

The TVET system in Kenya has suffered greatly from historical perspective of poor image, negative perception and low attractiveness due to societal bias towards academic degrees. TVET has generally been viewed as an inferior second alternative to the academic education that is suited for students with lower intellectual capabilities (King, 1987). However, recent Government initiatives of re-engineering the image of TVET through rebranding and increased funding to both trainees and institutions has led to a shift in the way the sub-sector is viewed by the Kenyan society. The government has provided increased funding for construction of new and existing institutions, procurement of new training equipment, and provision of capitation and loans for TVET trainees. These initiatives have led to improved interest and enrollment in the various programmes offered in the TVET institutions.

The Kenyan Medium-Term Plan (MTP) III has prioritised inclusive and quality education and training to provide globally competitive workforce for driving industrial and economic growth (GoK, 2008). This shall be achieved through the ongoing reforms in the education and training sector by ensuring that graduates are equipped with the 21st century labour market skills. Other additional measures that have been put in place include expansion and modernisation of TVET institutions to increase the pool of middle level workforce, aligning curriculum with the needs of the labour market by establishment of Curricula Development, Assessment and Certification Council (CDACC) to improve youth employability (TVET Act, 2013). The advancement of TVET infrastructure, equipment and integration of ICT, innovation and research in education and training is expected to greatly expand digital literacy as well as inclusive and quality TVET.

The regulation of the TVET sub-sector has improved tremendously since the establishment of TVET Authority six years ago as the overall regulatory body. Prior to its establishment, the regulation of training was basically fragmented under different line Ministries and County Governments (TVETA Strategic Plan, 2018-2022). The creation of the Department of Research and Development, establishment of TVETA Research Advisory Committee and takeover of management of Kenya Journal of TVET by TVETA is expected to provide renewed impetus on research and innovation in the TVET sector. The TVET research and surveys shall also provide essential information for appropriate decision making in the sub-sector.

Enrollment in TVET institutions

The Kenyan TVET institutions are classified into three main categories, Vocational Training Centres (VTCs), Technical and Vocational Colleges (TVCs) and National Polytechnics (NPs). The classifications are based on the levels of courses offered. The enrollment in the Kenyan TVET institutions has been mainly male dominated. Chege and Kariuki (2018) showed that 65% of the trainees were males while 35% were females. They noted that enrollment could be improved by integrating ODeL in TVET. Simiyu (2009) noted that some of the factors that influence the attractiveness of a TVET institution include effective and qualified administrative staff, reduced bureaucracy, incentives to staff to encourage them to work harder and increase productivity.

Objectives

The main objective of this study was to collect and provide the government and other stakeholders with essential statistics on enrollment trends in public TVET institutions in Kenya. The information collected will provide a wide range of TVET indicators on access and equity, internal efficiency and resource utilisation in TVET institutions.

The specific objectives of the study were:

- (i) To determine the enrollment levels in National Polytechnics and public TVCs.
- (ii) To compare the levels of enrollment of male and female trainees in STEM and Business courses in NPs and TVCs.
- (iii) To determine dropout levels in National Polytechnics and TVCs.

Methodology

A data collection tool was developed, pre-tested and used to collect the required information from the public TVET institutions. The pre-test was done to ascertain

reliability of the instrument. The information collected included institutional particulars, gender disaggregated enrollment of trainees in each course and level of training and dropout rates over a period of five years (from 2014 to 2018). Research officers visited all the targeted 119 Public TVCs and 11 NPs in various parts of the country to collect data. The institutional administrators were briefed on the nature of the required data and were given one week to compile the data in a prescribed format and send it to the researchers. All the 11 NPs and 117 public TVCs sent their data, representing a response rate of 98.32%. The high response rate showed that the data obtained in the survey and the conclusions made represented a true reflection on the general status of the institutions on the issues that were under study.

Sampling Design

The study used census enquiry that targeted all public TVCs and National Polytechnics in the Country. It was presumed that in such an inquiry, all institutions were to be covered and that no element of chance was left hence highest accuracy was obtained.

Data Analysis

The primary data collected was sorted, edited, coded, analysed and presented in the form of tables, pie charts, bar and line graphs. Simple statistical measures such as aggregates and means were also used for easy interpretations of the study results. The purpose of coding was to classify responses into meaningful categories and bring out their essential pattern. These analyses helped the researchers in making valid inferences from this study.

Results and Discussion

National Polytechnics

National Polytechnics operate at the highest level of the TVET institutions hierarchy. They are established through legal orders that allow them to offer diverse and unique solutions to problems facing host communities and the country at large. Although most of the NPs mainly offered various programmes up to Higher National Diplomas developed by KICD and a few other curriculum developers, the legal orders creating them allow them to develop their own curricula, award internal certificates and offer programmes up to degree level in collaboration with universities. Most of the NPs were yet to exploit these options. This could be attributed to lack of sensitisation or capacity to develop their own programmes and train up to Bachelors Degree level. The option of developing

their own curricula is expected to enable NPs come up with programmes that are geared towards solving common challenges in their areas of operation.

Enrollment in National Polytechnics

The total enrollment in the 11 NPs increased drastically from 20,338 in 2014 to 65,289 in 2018 over the five-year period, representing a percentage increase of 221.02%. The highest increase in enrollment was recorded between 2017 to 2018 with the exception of North Eastern National Polytechnic which showed no significant increase. This could be attributed to the intensified initiatives put in place by the government over the same period to improve access to training. Some of these initiatives included introduction of government capitation and provision of HELB loans and bursaries to TVET trainees (MoE, 2019). The construction of new institutions and equipping of both new and existing institutions with state-of-the-art training equipment also led to improved interest from trainees to enroll in the TVET institutions. Similarly, recent reports from KUCCPS have shown an increase in the number of students qualifying for university programmes opting for TVET courses.

Sigalagala NP recorded the highest increase in enrollment of 250% during the five-year period while North Eastern NP registered the lowest growth of 19%. Table 1 and Figure 1 summarise the variation in the total overall enrollment in the 11 NPs and individual enrollment for each NP from 2014 to 2018. This finding is consistent with the data provided in the Economic Survey report on Education and Training (KNBS, 2019) that show similar trends in enrolment.

Table 1: Enrollment Trends in National Polytechnics 2014 to 2018

NPs	Enrollment					% Increase in Enrollment			
	2014	2015	2016	2017	2018	2015	2016	2017	2018
Meru	1635	1797	2975	4442	7861	9.91	65.55	49.31	76.97
Kisumu	4549	4564	4253	4474	7984	0.33	6.81	5.20	78.45
Kenyan Coast	1785	979	2079	2829	3932	-45.15	112.36	36.08	38.99
North Eastern	912	532	750	1035	1234	-41.67	40.98	38.00	19.23
Nyeri	1667	1818	1510	1923	4682	9.06	-16.94	27.35	143.47
Sigalagala	1227	833	933	1855	6507	-32.11	12.00	98.82	250.78
Kitale	751	597	1826	2824	4858	-20.51	205.86	54.65	72.03
Eldoret	2461	3065	3515	4772	7249	24.54	14.68	35.76	51.91
Kabete	1352	1624	4156	6095	10444	20.12	155.91	46.66	71.35
Kisii	2312	2340	3168	4819	7409	1.21	35.38	52.11	53.75
KTTC	1687	1893	2200	2519	3129	12.21	16.22	14.50	24.22
Total	20,338	20,042	27,365	37,587	65,289				

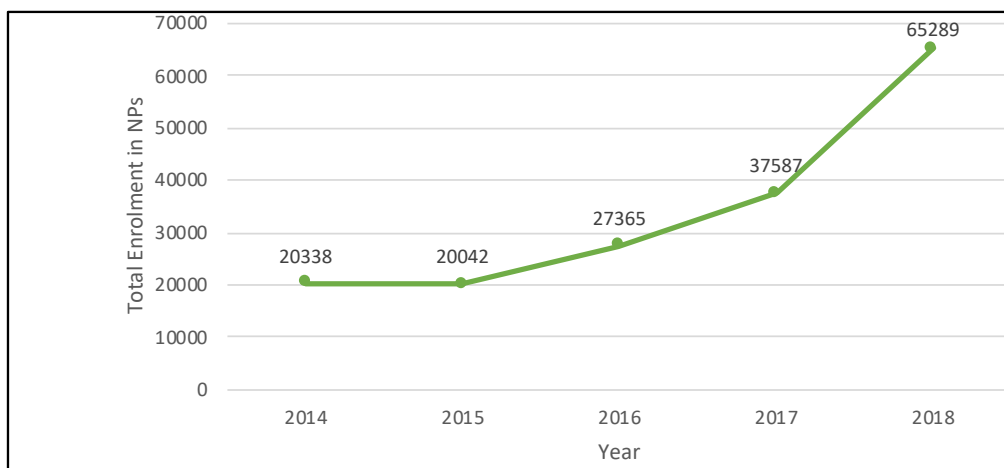


Figure 1: Enrollment Trends in National Polytechnics over the Past 5 Years (2014-2018)

Enrollment in STEM and Business Programmes in National Polytechnics

A steady increase in enrollment was recorded in both STEM and Business courses in NPs over the five-year period as depicted in Figure 2. The increase in the STEM programmes, however, outweighed that in the Business Courses

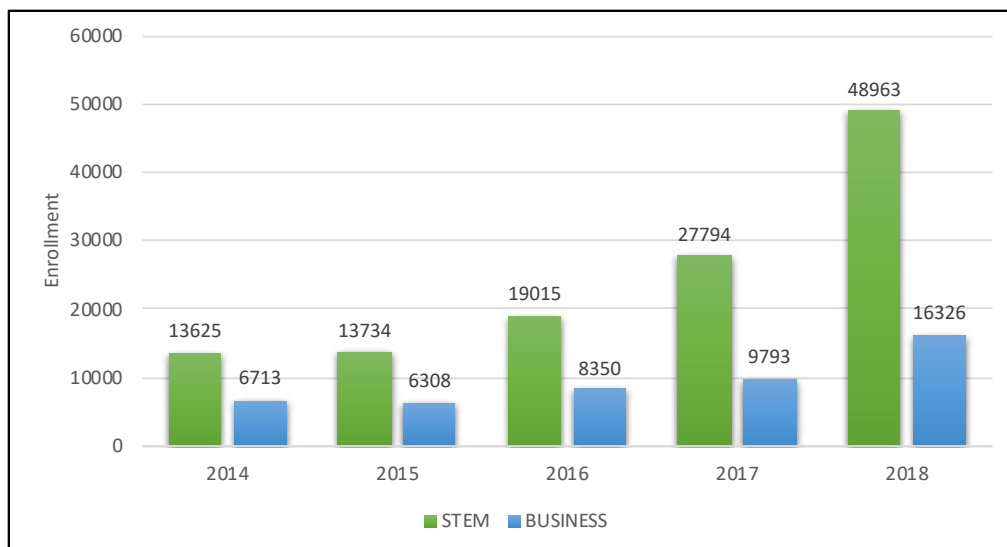


Figure 2: A Comparison between Enrollment Trends in STEM and Business Programmes in NPs for the Period 2014 to 2018

The higher increase in enrollment in STEM programmes could be attributed to both the market demands and the fact that graduates from these programmes can easily establish their own enterprises without relying on established organisations for employment. It could also be as a result of government and

development partners' increased efforts in equipping public TVET institutions with state-of-the-art training equipment that is now earning confidence in the eyes of the public.

Although female trainees had higher enrollment in Business courses, they lagged behind their male counterparts in STEM based courses as shown in Figure 3. This could be attributed to societal stereotypes that perceived some courses as feminine and others masculine. Special efforts should be made to break these stereotypes and accord all trainees equal opportunity to access training. Additionally, it is essential to enhance gender mainstreaming initiatives in National Polytechnics to ensure both genders are fairly represented in all the courses offered. This finding corroborates data provided by the Economic Survey on Education and Training (KNBS, 2019). An earlier study by Lauren (2014) also revealed that career patterns are influenced by a variety of forces among them, gender role stereotype. The study had purposed to determine factors influencing female students' enrollment in technical courses.

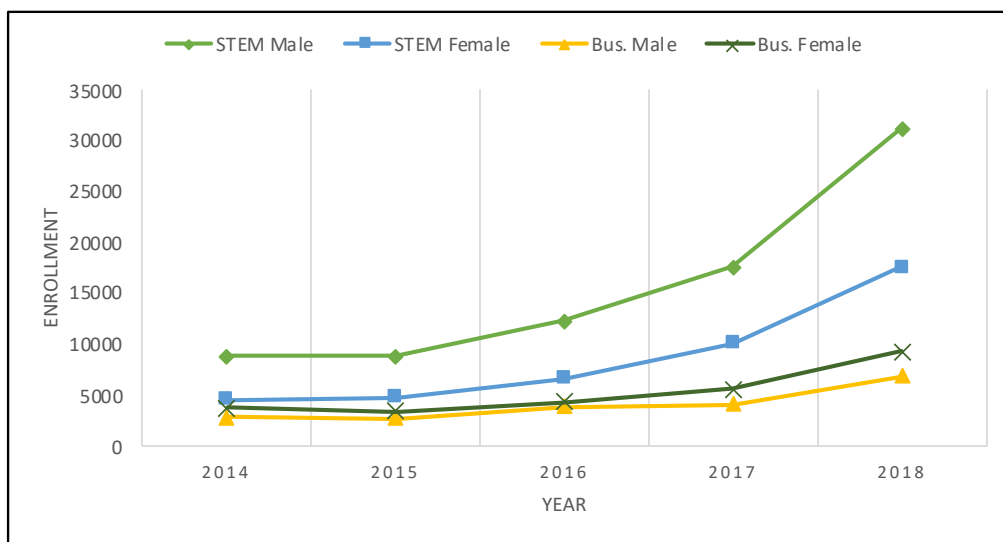


Figure 3: Enrollment Trends by Gender in STEM and Business in NPs for the Period 2014-2018

In the area of business, male to female representation seems to be fair at an overall ratio of 4:5. Female trainees have a slight advantage in business related disciplines in terms of enrollment than their male counterparts.

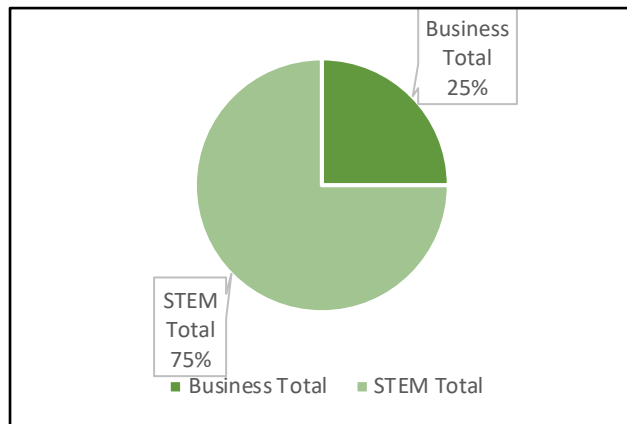


Figure 4: Overall Enrollment in STEM and Business in NPs for the Year 2018

In 2018, 75% of all trainees in NPs countrywide were enrolled in STEM programmes compared to 25% in business related programmes, see Figure 4 above. This year, the government in collaboration with development partners focused on TVET financing, equipping and recruitment of more trainers. It is at the same period when various policy changes were implemented across the education sector, including the introduction of CBET programme and increased involvement of industry players in training.

Public Technical and Vocational Colleges

Technical Vocational Colleges (TVCs) are by law allowed to offer training up to Diploma level. Unlike National Polytechnics, they can neither develop their own programmes nor award certificates (TVET Act,2013). The number of public TVCs, especially those under the Ministry of Education drastically increased from 40 in 2010 to 132 in 2018 due to the implementation of the Government’s TVET policy of constructing and equipping one TVC institution in every Constituency.

Enrollment in Technical and Vocational Colleges

The percentage increase in enrollment in the public TVCs rose steadily from 18.44% between 2014 and 2015 to 52.65% between 2017 and 2018 as shown in Table 2 and Figure 5. The rapid growth rate in 2018 could be attributed to the various government intervention programmes which included establishment of new TVCs in each constituency, access to HELB loans and bursaries by TVET trainees, capitation programmes among other measures which have been applied in strengthening the sector. Enrollment in public TVCs has tripled up from 31,190 in 2014 to 90,924 in 2018 which could also be attributed to the

operationalisation of the TVET Act, 2013 in 2014 that partly addresses access and equity in training. This may imply the key role of the TVET Act, which may have influenced a lot in the revitalisation of training in the country.

Table 2: Enrollment Trends in Public TVCs over the Past 5 Years (2014-2018)

Year	2014	2015	2016	2017	2018
Enrollment	31,190	36940	44,781	59,564	90,924
% increase	-	18.44	21.23	33.01	52.65

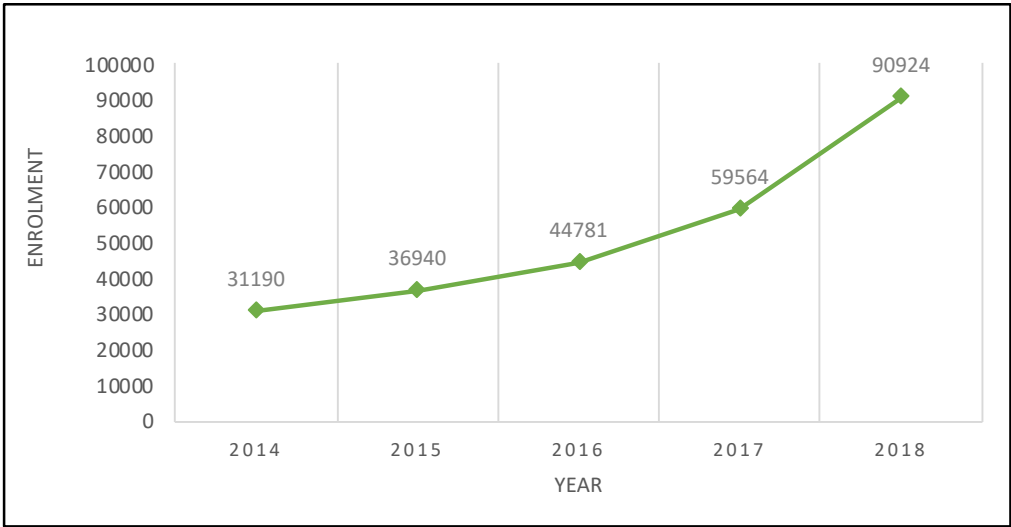


Figure 5: Enrolment Trends in Public TVCs over the Past 5 Years (2014-2018)

Figure 5 shows that there was a steady increase in enrollment from 2014 to 2017. A sharp increase was witnessed from 2017 to 2018. More resources should be provided to respond to the rapid growth in enrollment in TVET institutions.

Enrollment in STEM and Business Programmes in Public TVCs

The enrollment in STEM programmes was higher than that of business related programmes. A steady increase in enrollment was recorded in both STEM and business courses from 2014 to 2018 as shown in Figure 6. However, the rate of increase of enrollment in STEM programmes was higher than that of Business courses in all the years. This was a changing trend from previous years when

business programmes were popular among trainees (especially female trainees). Some of the factors that might have contributed to this trend included government strategies that had been implemented to improve excellence in STEM training in the TVET institutions. Some of the strategies included massive recruitment of trainers in STEM as well as equipping TVCs with state of the art training equipment. These findings are similar to Ngugi and Mutima (2017) whose study examined female participation in technical, vocational education and training and concluded that appropriate funding for equipment and resources should be allocated in order to stimulate student interest in mathematics and science.

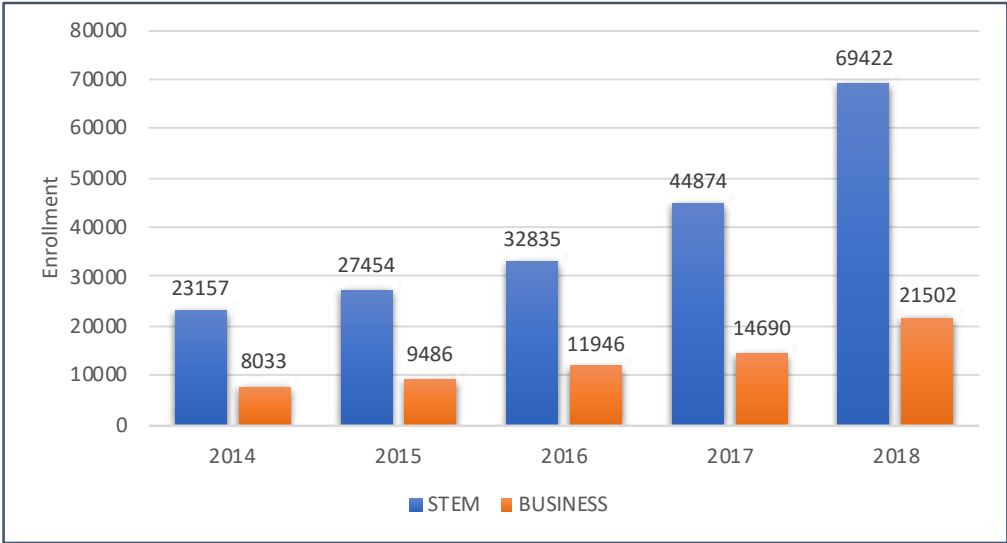


Figure 6: Comparison between Enrollment in STEM and Business in Public TVCs (2014-2018)

During the year 2018, 76% of all trainees in TVCs countrywide were enrolled in STEM programmes compared to 24% in business related programmes as shown in Figure 7 and 8. A similar trend was obtained for the National Polytechnics.

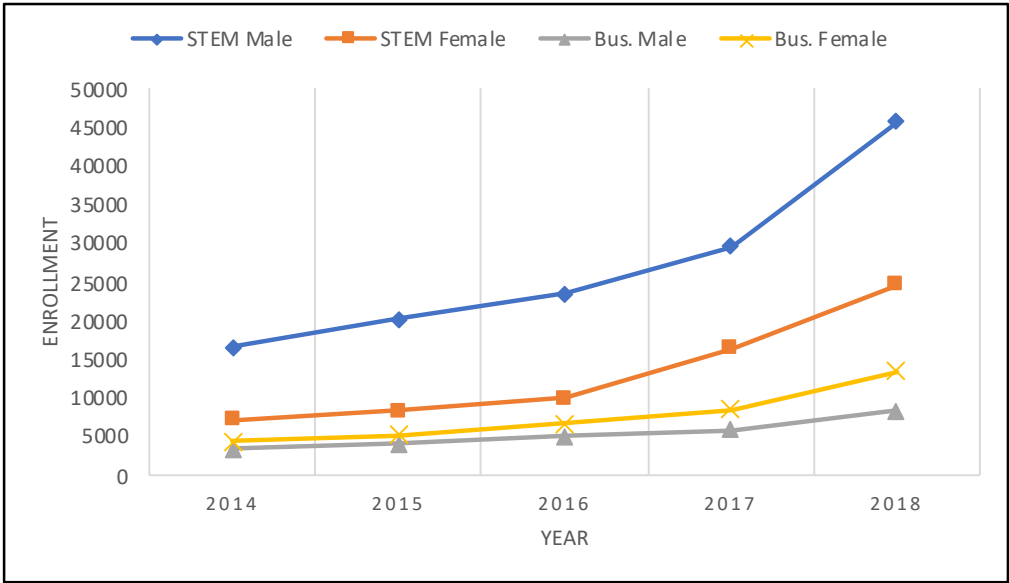


Figure 7: Enrollment Trends by Gender in STEM and Business in TVCs for the Period 2014-2018

The public TVCs were generally evenly distributed across the country, with most constituencies having at least one institution. The enrollment in different institutions were, however, not uniform. Enrollment in both STEM business courses for male and female trainees was on an upward trajectory though at different rates as shown in Figure 7. This could be attributed to the increase in number and uniqueness of each institution. Some of the possible reasons could be period of existence, unique intervention programmes in respective regions, the nature of the catchment area (source of trainees), the specific training programmes among other factors.

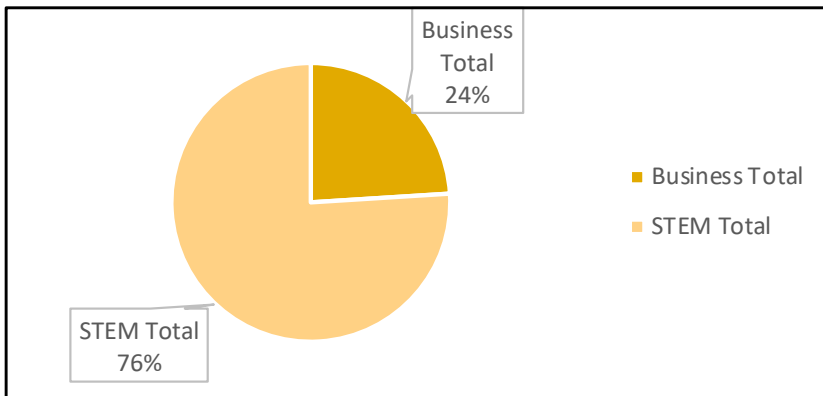


Figure 8: Overall Enrollment in STEM and Business in the Year 2018

Dropout rates in NPs and Public TVCs

This study sought to establish the number of trainees in National Polytechnics and public Technical and Vocational Colleges who enroll but do not progress through to sitting their final/end of module examinations/ assessment. The study revealed that 9.9 and 5.3 per cent of trainees enrolled in NPs and TVCs respectively in 2018 did not sit for their end of stage/module exams. Figure 9 shows the numbers of trainees who dropped out of training.

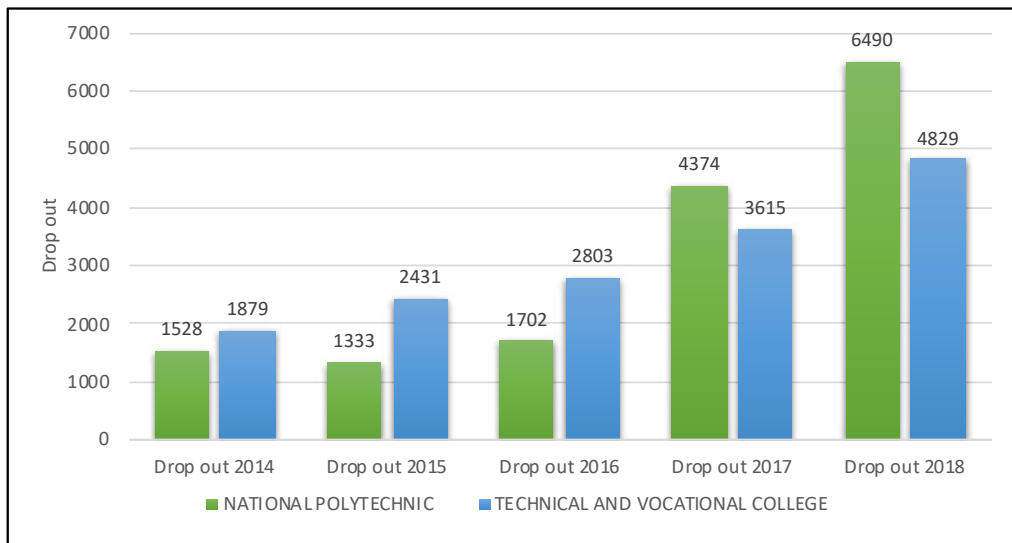


Figure 9: Drop out Comparison in NPs and TVCs for the Period 2014-2018

A general rise in dropout rates was observed from 2014 to 2018. The dropout rate at the end of 2018 was 9.8% (N=6490) for the National Polytechnics and 5.1% (N=4829) for the public TVCs. This could be attributed to internal inefficiencies within the institutions and needed to be studied to establish the root cause and help address the issues. There is scarcity of published data on drop out and graduation rates in local TVET institutions. However, a study conducted by Yi, H *et al* (2015) found that TVET programmes in developing countries experience generally high dropout rates.

Conclusion

The increase in the number of TVET institutions has led to improved access to training for potential trainees. Enrollment in both NPs and TVCs in the country has been on an upward trajectory with the greatest increase noted in the year 2018. Enrollment level for the past five years from 2014 to 2018 has tripled from 20,338 to 65,289 and from 31,190 to 90,924 for NPs and public TVCs respectively. Most of the TVCs especially the newly constructed ones are under-enrolled hence are not operating optimally. This is evidenced by the fact that the

more than 100 TVCs in the Country had a total enrollment of 90,924 compared to the 11 NPs which had a total enrollment of 65,289 trainees.

Enrollment in both STEM and Business related programmes grew significantly during the period under study at varying rates. Male trainees dominated enrollment in STEM programmes while female trainees lead in business related programmes. However, the number of females enrolled in STEM was higher than that of female trainees enrolled in Business related disciplines. As at 2018, an average of 75% of all trainees enrolled in NPs and public VTCs were enrolled in STEM programmes while 25% were enrolled in business related programmes. This was a significant departure from the trends in the earlier years. Finally, the worrying trend of dropouts noted in the public TVET institutions needed to be addressed immediately.

Recommendations

The authors recommend that stakeholders in the TVET sector should devise additional initiatives to enhance access and guarantee quality training to sustain the current growth in enrollment. The rebranding and marketing of TVET should be enhanced, especially for the newly developed courses and institutions to improve their enrollment. Stereotypes associated with certain programmes and negative perceptions of TVET in general should be urgently addressed in order to afford all youth equal opportunity for training in programmes of interest. Enhanced gender mainstreaming initiatives could also boost efforts of developing inclusive TVET systems. National Polytechnics should improve their capacity to develop courses that address the needs of the local communities in order to attract more trainees and use their facilities to benefit these communities. It is also important to conduct a study to identify internal inefficiencies within institutions to reduce dropout rates.

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Utalii House 8th Floor, Utalii Street

P.O Box 35625 - 00100,

Tel: +254 20 239 2140, +254 700 015 440,
+254 733 480 391, +254 733 799 291 +254 20 351 0701

Email: info@tveta.go.ke