

An Analysis of the Frameworks Used to Link TVET Institutions with Labour Market Skill – Requirements. A Case of Tanzania and Two Selected Asian Tiger Nations

Hildegardis E. Bitegera¹; Elifas T. Bisanda²

bestbitegera@yahoo.co.uk¹

Open University of Tanzania

ABSTRACT

This study intended to: identify frameworks for linking TVET institutions with Labour Market skill-requirements; establish approaches for linking TVET institutions and their stakeholders from industries and informal sector; and assess the role of the linkage between TVET institutions and industries/informal sector in promoting technological skills. The study adopted mixed-methods research approach. Questionnaires and semi-structured interviews were used to collect data from the three selected countries. The study established that Industrial Practical Training is one of the critical frameworks for strengthening the linkages, as it provides important opportunities for teaching staff and learners to acquire practical knowledge and skills. While majority of respondents from Tanzania cited corporate activities, internships, traineeships and incubation as less effective linkage avenues, almost all respondents from the two Asian Tiger Nations found them more effective. The study recommends TVET institutions in Tanzania to enter into agreements and sign MoU with industries and SMEs prior to the commencement of each academic year. This will facilitate accommodation of placement of graduates in industries with the involvement of teachers/tutors the same way it has been carried out in the two selected Asian Tiger nations.

Key words: *Technical and Vocational Education and Training (TVET), frameworks, linkages, industries and informal sector, technological skills*

INTRODUCTION

Available literature (Ejiofor & Chinedu, 2018; Rawashdeh, 2019; Raihan, 2014; VETA, 2012), indicates that frameworks such as internship, industrial practical training, curriculum design and review, labour market, traineeships, incubation, memorandum of understanding, TVET research, corporate activities, play an important role in enhancing linkages between Technical and Vocational Education and Training (TVET) institutions and industries. According to Raihan (2014), these linkages are vital to TVET institutions because of the existing demand for strong links between them and industries to improve networking between academia and industries. The linkages enhance both parties' understanding of each other's needs and create a platform for identifying ways for meeting them.

Strong linkages between TVET and industries have been associated with the Republic of Korea, Singapore and Malaysia's success in developing and implementing initiatives for developing workforces through strong collaboration and partnership between TVET and the private sector and, or industries (Rawashdeh, 2019). Therefore, for other countries' TVET to be able to meet institutional-industry needs, the existence of institutional and national legal and policy frameworks connecting TVET institutions to industries should not be underestimated. For instance, in Singapore, the Industry-TVET Partnership Policy enables TVET teachers and trainers to stay in touch with the constantly changing industry practices by upgrading their skills and knowledge. This is achieved through industrial and workplace attachment. In the Republic of Korea, the Work-Study Dual System discourages knowledge-based education; it favors strengthening practical training and the employability of students (UNESCO-UNEVOC, 2020; Lee, 2018). In other words, these countries present a perfect model for identifying weaknesses of linkage between

TVET and industries that exist in other countries. Industrial Practical Training (IPT) mainly contributes to practical knowledge and skills as well as practical experiences for TVET graduates and teaching staff. As such, it improves the employability of graduates, productivity of enterprises and the inclusiveness of economic growth (ILO, 2011). However, while this framework's potential to foster the linkage of TVET institutions to industries cannot be doubted, its effectiveness in Tanzania, where an IPT Policy is unavailable, is not clear.

This highlight the need for TVET Institutions to develop strong cooperative linkages with industries in order to design and implement programmes that will meet the industry needs (Agbeyewornu & Johnson, 2015). The strong cooperative linkages with industries should encompass efforts that seek to improve various areas including enhancing traineeship, internship, incubation and apprenticeship programmes with industries. This will enhance the bridging of technological skill-gaps, graduates' employability skills, and research capacities. Overall, this will reduce the gap between workforce supply to demand through enhancing curricula and, or learning packages. A situational analysis conducted by the Vocational Education and Training Authority (VETA) prior to development of VETA Corporate Plan IV (VCP IV), identified the existence of poor interaction between industries' experts and TVET trainers. It was observed that even cooperation in the form of joint meetings and forums industrial visits, internships and attachments as well as guest speeches from industrial experts did not exist (VETA, 2012). This further highlights the question of how TVET institutions are linked to industries to create avenues for ensuring that quality graduates are produced. Generally, this question needs answers considering the fact that without working linkages, graduates produced do not only lack skills needed by employers but also end up with limited entrepreneurial viability. This

presents Tanzania with a major challenge considering the scarcity of employment opportunities in the formal sector, which makes entrepreneurship an important livelihood alternative (Mwantimwa, Mayombwa & Sichalwe, 2019). In contrast, in Singapore and the Republic of Korea most of their TVET graduates are absorbed by formal sectors (Seng, 2012; Park, 2016). According to Korea Polytechnics [KOPO] (2015), the employment rate of TVET graduates in the Republic of Korea has been over 80% every year since 2011.

A similar but slightly higher rate has been reported in Singapore where the TVET's graduates' employment rate was 93.3% in year 2015. This has been associated with rapid industrializations in these countries. Arguably, this has lifted their Gross Domestic Product (GDP) per capita from US\$ 427.9 in 1965 to US\$ 101,352.6 in 2018 and from US\$ 158.2 in 1961 to US\$ 40,111.8 in 2018 (in Singapore and the Republic of Korea, respectively) (WB, 2018). In Tanzania, as in most other developing countries, the situation is quite different. This is associated with the fact that majority of the TVET graduates join the informal sector (Research on Poverty Alleviation [REPOA], 2020). On this, Lema (2014) informs that while about 700,000 Tanzanian graduates (TVET graduates inclusive) in Tanzania enter the job market annually, only 40,000 (5.7%) find jobs in the formal sectors. In the recent past, Mwantimwa et al., (2019) also highlighted an increased trend of unemployment of TVET and non-TVET graduates in the formal sector. Such a situation has been previously linked to the widening difference in the knowledge and skills provided to learners by TVET training systems, and those demanded by the labour market (Raihan, 2014). In fact, Raihan considers the collaboration and partnerships between TVET institutions and industries as an important highway for bridging such knowledge and skill gaps and enhancing the employability of TVET graduates. As such, the state of

employment of TVET graduates as highlighted earlier suggests that there are bottlenecks in the connection that exists between TVET institutions and the labour market. However, with limited knowledge existing on this topic, the whole issue remained a mystery hence prompting this study which sought to analyse how TVET is connected to industries in Tanzania and two selected Asian Tiger nations. The study focused on achieving the following specific objectives: identifying the frameworks for linking TVET institutions with labour market skill-requirements; establishing approaches for linking TVET institutions and their stakeholders from industries and informal sector; and assessing the role of the linkage between TVET institutions and industries/informal sector in promoting technological skills among TVET graduates and teaching staff.

Methodology

Research Approach and Design

In this study, a mixed-methods research approach and descriptive and exploratory-cross-sectional designs were employed. The combination of exploratory and cross sectional designs was necessary to gain deeper insights on the types of frameworks used to link TVET institutions with labour market skill-demands. In particular, the exploratory design was applied to determine if the countries under study are up to the task of facilitating TVET institutions in strengthening the linkage with industries so as to meet technological skills demanded by the labour market. The design was useful in identifying the types of frameworks for linking TVET institutions with industries. Besides, the design was also useful in determining suitable approaches for linking TVET Institutions and industries. The descriptive research design was used to determine the role of the linkage between TVET institutions and industries in promoting technological skills and linkage with informal sector of the economy.

The use of mixed-methods research approach allowed for the integration of both qualitative and quantitative aspects in carrying out this study. Generally, the quantitative aspects were used to identify frameworks used to link TVET institutions with labour market skill-requirements and types of approaches used to establish links between TVET institutions and their stakeholders from industries and informal sector of the economy. On the other hand, the qualitative aspects were used to assess the role of the linkage between TVET institutions and industries/informal sector in promoting technological skills of the graduates and TVET teaching staff as per industry technological skills requirements. The same aspects were also used to examine the role played by the informal sector in absorbing TVET graduates in the face of job opportunities scarcity in the formal sector.

Study Areas

This study was carried out in Tanzania, Republic of Korea, and Singapore. In Tanzania, the study was conducted in Dar es Salaam and Morogoro regions. In Dar es Salaam region, the study was conducted in Ilala City, Kinondoni, Ubungo and Temeke Municipalities. In Morogoro region, the study was conducted in Morogoro Municipality and Kilosa district (National Bureau of Statistics [NBS], 2014). The study involved twelve Vocational Education and Training (VET) centres and eight Technical Education and Training (TET) institutions. Out of these, twelve VET centres and six TET institutions are located in Dar es Salaam region whereas, two TET institutions are located in Morogoro region. Besides TVET institutions, the study also involved eight (8) light industries and companies located in Dar es Salaam region as well as six (6) informal workplaces and Small and Medium Enterprises (SMEs), located in the same region. In the Republic of Korea, the study involved three (3) VET centres, one (1) polytechnic located in the city of Seoul and the

Korea Tech University located in the Chung Num Province about 100km away from the city of Seoul. Moreover, the study involved five (5) medium and heavy industries located in the city of Seoul and Ulsan respectively. In Singapore, the study involved Institute of Technical Education (ITE) Colleges which include: ITE College Central, ITE College East, and ITE College West. Additionally, the study involved three (3) medium and heavy industries located in the island city-state. Generally, the Republic of Korea and Singapore were involved in this study following their success story in using TVET to transform their economies; they presented a modal that would be fundamental in understanding inadequacies that exist in Tanzania's TVET system.

Study Population, Sample Size and Sampling Technique

Extant studies (e.g Amitav & Suprakash, 2010; McLeod, 2019) have revealed that there are two types of population in research. These are target population and accessible population. A target population is the entire group of individuals or objects on which researchers would like to generalize conclusions while an accessible population is the population to which the researchers can apply their conclusions. This population is a subset of the target population and is also known as the study population. It is from the accessible population that researchers draw their samples (see McLeod, 2019; Amitav & Prakash, 2010). In this study, the accessible population included groups of academic staff from Tanzania (720), from Republic of Korea (220) and from Singapore (120). Specifically, vocational teachers and tutors were the intended study population (See Table 1). These were identified from an accessible population of 1,060 academic staff from TVET institutions of three selected countries. Another accessible population included a group of 24 key informants, taking the study population to

1,084. These were TVET stakeholders selected purposively from Tanzania (14), Republic of Korea (6) and Singapore (4), (See Table 1).

Table 3: Study Population

S/ N	Study Area	Population Category				Total
		Vocational Teachers	Tutors	SUB-TOTAL	TVET Stakeholders	
1.	Tanzania	440	280	720	14	734
2.	Republic of Korea	-	220	220	6	226
3.	Singapore	-	120	120	4	124
	Total	440	620	1,060	24	1,084

Source: Field Data

Based on the individual countries' populations, an applicable sample size was drawn from each by adopting a proportional allocation method. Through this method, the sample sizes for the different strata i.e. 36 respondents (Tanzania), 11 respondents (Republic of Korea) and 6 respondents (Singapore) were obtained as a rationale for a total sample of 53 respondents (See Table 2). After determining the number of respondents to be involved from individual countries, the researcher used the same method (proportional allocation method) to determine corresponding samples for vocational teachers (22) from Tanzania and tutors categories i.e. 14 tutors (Tanzania), 11 tutors (Republic of Korea) and 6 tutors (Singapore) respectively. In selecting institutions to be involved in this study, all institutions (Technical

Institutions, VET Centres, Public Vocational Schools, Polytechnics, Korea TECH and ITE Colleges) from Tanzania, Republic of Korea and Singapore were listed down. Within the list, the institutions were stratified based on their location (Dar es Salaam and Morogoro; Seoul and Chung Nam Province; as well as ITE Colleges: Central, West and East), and then their types so as to form strata to ensure that a representative sample was drawn. After this, 28 institutions were selected based on their enrolment sizes; the emphasis was on those with huge annual enrolment, which was considered a good sign of an institution's experience with producing graduates.

To identify sample units, a list of long serving tutors and vocational teachers of technical and hospitality programmes was obtained from Principals of the twenty (20) TVET institutions in Tanzania, and from the Korea Chamber of Commerce and Industry (KCCI) for the five (5) TVET institutions in the Republic of Korea and from the Institute of Technical Education (ITE) Services for the three (3) TVET institutions in Singapore. Thereafter, simple random sampling technique was used to select a sample of 53 respondents; 5% of the target population (1,060) which was considered sufficient to provide quantitative data (Lund Research Ltd [LRL], 2012; Hayes, 2014; Cohen, Manion and Morrison, 2003). See Table 2 details. The return or response rate was 100 percent. In this regard, therefore, 53 respondents responded to the questionnaire and participated in the study. Additionally, the researcher purposively selected twenty four (24) key informants who represented various TVET stakeholders, namely: experts from selected industries (16) out of which, eight (8) were from Tanzania, five (5) from Republic of Korea and three (3) from Singapore (see Table 2). Out of the other eight (8) key informants, six (6) were from Tanzania, one (1) was from the Republic of Korea and another one (1) was from Singapore. All of them were purposively selected from informal

workplaces and SMEs. Therefore, the study involved a total of 77 participants.

Table 4: Summary of Respondents Selected in the Study by Different Categories

S/ N	Category of Respondents	Tanzania	Rep. of Korea	Singapore	Total	Perc.
1.	Vocational Teachers	22	0	0	22	28.6
2.	Tutors	14	11	6	31	40.2
	Sub – Total	36	11	6	53	68.8
3.	Respondents from Medium and Heavy Industries and Companies	8	5	3	16	20.8
4.	Informal Workplaces Operators and SMEs	6	1	1	8	10.4
	Sub – Total	14	6	4	24	31.2
	Grand Total	50	17	10	77	100

Source: Field Data

Data Collection Methods

The study employed a combination of methods including semi-structured interviews and questionnaires. Quantitative data were collected from 53 respondents, out of which 36 were vocational teachers and tutors from Tanzania, 11 tutors from Republic of Korea and 6 tutors from Singapore (See Table 2). Questionnaire items that consisted of closed-ended questions were used. The major attraction to closed-ended questions lies on the fact that they provided a greater uniformity of responses and are more easily processed than open-ended questions. On the other hand, qualitative data were collected from 16 respondents residing from medium and heavy industries and

companies from the three selected countries, as well as from 8 respondents who reside from informal workplaces in the same countries (See Table 2). Semi-structured interviews were used. Semi-structured interview method was chosen due to its flexibility nature – it allowed for probing, as well as arrangement of questions which helped to find reliable information. Through this method, a set of predetermined questions and a highly standardized technique of recording information were used (Kothari, 2014).

Data Analysis

A Statistical Product for Service Solutions (IBM SPSS) version 22 was used to analyse quantitative data. This software was used to generate descriptive statistical outputs. Quantitative data were organized and classified into meaningful categories that were assigned codes to assist in their analysis. The statistical analysis included both manual and computer analysis. Raw data were edited, classified, assigned numbers through IBM SPSS during the design of the data entry template. On the other hand, thematic analysis was used to analyse qualitative data. The results of the analysis have been presented using tables. The researcher used informative qualitative responses as quotations to support the results presented. All scores of vocational teachers and tutors were converted to percentages so as to generate meaningful comparisons and enable the interpretation of results.

Findings and Discussion

Response Rate

A total of 53 questionnaires were administered to 36, 11, and 6 respondents from Tanzania, Republic of Korea and Singapore respectively (See Table 3). These questionnaires were formed with closed-ended questions. In fact, all questionnaires were completed and

returned successfully, giving a 100% response rate. The number of data collection tools used in each country corresponded with the numbers of respondents targeted in each particular country. Table 2 and Table 3 show the composition of respondents based on countries where the study was carried out.

Table 5: Respondents by Country

Category of Respondents (n=53)	Tanzania	Republic of Korea	Singapore	Total
Vocational Teachers	22	0	0	22
Tutors	14	11	6	31
Sub – Total	36 (68.0%)	11 (20.7%)	6 (11.3%)	53 (100%)

Source: Field Data

Table 3 shows that Tanzania contributed majority of respondents (68.0%) compared to the other two countries. This is basically because of the sizes of the targeted population found in each country at the time of the study. It is argued here that the composition of respondents suggests optimum representations of the target population in the three individual countries where this study was carried out.

Frameworks for Linking TVET Institutions with Labor Market Skill-Requirements

The linkages of TVET institutions and industries depend on different frameworks and avenues in place. A question on kinds of frameworks that foster the linkage of TVET institutions and industries/informal sector was quite important for this study. Therefore, TVET teaching

staff from all three countries were asked to cite the kinds of frameworks used to establish and strengthen linkages between their institutions and industries/informal sector they work with. The results out of this investigation are presented in Table 4:

Table 6: Frameworks for Linking TVET Institutions with Labour Market Skill-Requirements

Frameworks for the Tanzania (n=36)	Rep. of Korea (n=11)	Singapore (n=6)	Total	
Policy and Legal Framework	18 (50.0%)	10(90.9%)	5(83.3%)	33 (62.3%)
Internship of graduates	10(27.8%)	9(81.8%)	6(100%)	25 (47.2%)
Industrial Practical Training	30(83.3%)	11(100%)	6(100%)	47 (88.7%)
TVET Research	15(41.7%)	8(72.7%)	4(66.7%)	27 (50.9%)
Curriculum design and review	25(69.4%)	11(100%)	5(83.3%)	41 (77.4%)
Incubation	05(13.9%)	8(72.7%)	4(66.7%)	17 (32.1%)
Traineeships	05(13.9%)	10(90.9%)	5(83.3%)	20 (37.7%)
Industrial and Institutional Boards	20(55.6%)	9(81.8%)	6(100%)	35 (66.0%)
Corporate Activities	08(22.2%)	9(81.8%)	5(83.3%)	22 (41.5%)
Labour Market	28(77.8%)	11(100%)	6(100%)	45 (84.9%)
Memorandum of Understanding	22(61.1%)	8(72.7%)	4(66.7%)	34 (64.2%)

Source: Field Data

Based on the results, there are several frameworks for linking TVET institutions and industries/informal sector. However, the results show that Industrial Practical Training (IPT) is one of the important frameworks that foster the linkage of TVET institutions and their stakeholders from industries as mentioned by 47 (88.7%) respondents. Apart from that, 45 (84.9%) respondents indicated labour market as an

important framework for linking TVET institutions and their stakeholders from industries. The results further show that 41 (77.4%) of the respondents indicate curriculum design and review processes, 35 (66%) cited industrial and institutional boards, and 34 (64.2%) mentioned Memorandum of Understanding (MoUs). Other 33 (62.3%) respondents identified legal and policy frameworks as valuable mechanisms for linking TVET institutions and their stakeholders from industries. These mechanisms appear to be common in all the three countries that participated in the study. The availability of diverse frameworks for linkage was further backed up by the data from interviews with one of the key informants from the Electronic Development Company in Republic of Korea. This participant stated that:

The linkages with stakeholders are through practical training, job markets, boards, curriculum design and reviews, as well as workshops and trade fairs.

Further interviews with various participants from the three study countries showed that Internships of graduates, TVET research, incubation, traineeships and corporate activities, are more effectively used as linkage avenues in Republic of Korea and Singapore than in Tanzania. Besides, the results show that 27 (50.9%) of the respondents indicated that TVET institutions are linked with stakeholders through research. This suggests that surveys conducted by TVET institutions in the selected three countries are important in the establishment and strengthening of linkages with their stakeholders from industries. Furthermore, the results reveal that internship of graduates is another approach for linking the two as noted by 25 (47.7%) respondents. This study informs that internship of graduates was moderately used (specifically in Tanzania) to forge a linkage between TVET institutions and their stakeholders. On the same note, the results show that 22

(41.5%) of the respondents cited corporate activities, 20 (37.7%) indicated traineeship, and 17 (32.1%) mentioned incubation as moderately used avenues for linking TVET institutions and their stakeholders. In this study, the majority of respondents from Tanzania cited corporate activities, traineeships and incubation as less effectively used as linkage avenues. This is different from responses from the two Asian Tiger nations, where almost all respondents found them more effective. Regarding research activities, respondents noted that research initiatives among TVET institutions in Tanzania are insufficient. This is associated with poor investments made in this area. This further suggests that limited funds put aside for research activities for TVET institutions in Tanzania is a challenge. Based on the findings of this study, one would argue that IPT provides important opportunities for teaching staff and learners to acquire practical knowledge and skills from formal and informal sectors. This finding is in connection with the findings of other studies (Raihan, 2014; Choy & Haukka, 2018) which noted that field attachment is a potential avenue for enhancing such linkages. It enhances confidence in the one's ability to apply technological knowledge and skills.

It is clear in this study that majority of respondents are familiar with the frameworks that connect them with their stakeholders; they mentioned several of them. This is not a new phenomenon; other studies (Rawashdeh, 2019; Raihan, 2014) have also noted diverse frameworks for linking TVET institutions and stakeholders from industries and informal sectors of the economy. The absence of close linkages between TVET institutions and their stakeholders would adversely affect TVET delivery. Regarding existing boards, it is clear in this study, both industrial and institutional boards are made of stakeholders from different sectors and organizations. The stakeholders' involvement in these boards nurtures common

understanding and viable decision making. Furthermore, it is argued here that agreements through MoUs tend to strengthen the linkages. For instance, when industries and TVET institutions enter into agreement (MoU) to accomplish joint activities or projects, they tend to increase commitment, accountability, and transparency on agreed projects or activities. Studies suggest that MoU is an important tool for fostering linkages between education system and business enterprises (Elkins, Krzeminski, & Nink, 2012). Institutional and national legal and policy framework provide guidance and speed up the implementation of various activities (Elkins et al., 2012). The use of these approaches has been noticed in all the three countries involved in the study, though the level of implementation of these approaches differs. For instance, in the Republic of Korea and Singapore there is a systematic approach in training which, among others, accommodates placement of graduates in industries with the involvement of teachers/tutors. This results into imparting the right knowledge and skills to TVET graduates.

The training centres, colleges and polytechnics in the Republic of Korea and Singapore do sign MoUs with industries prior to the commencement of each academic year. However, the approach is not implemented this way in Tanzania. Other frameworks (internship of graduates – 47.7%, corporate activities – 41.5%, traineeship – 37.7%, and incubation – 32.1%) are moderately used to link TVET institutions and stakeholders from industries in Tanzania. This suggests that a few organizations and industries provide opportunities for graduates to participate in incubation, internship and traineeship in Tanzania. This is different from the two selected Asian Tiger nations, where these frameworks are optimally used. On these, numerous scholars (see for example, Gault, Redington & Schlager, 2000; Hiniker & Putnam, 2009) support that traineeship, incubation, and internship provide avenues

for strengthening linkages between TVET institutions and business enterprises. The authors added that internship, traineeship and incubation expose learners to industrial technology and business environments. Hence, it is suggested that Tanzania needs to optimally use these frameworks to improve linkages between TVET institutions and industries.

Approaches for Linking TVET Institutions and their Stakeholders from Industries and Informal Sector

To increase understanding on how TVET institutions link themselves with their stakeholders, TVET teaching staff were asked to identify types of approaches used to establish links between their institutions and stakeholders. Their responses are summarized in Table 5:

Table 7: Approaches for Linking TVET Institutions with their Stakeholders

Approaches (n = 53)	Freq	%
The linkages are through workshops and seminars	39	73.6
TVET institutions invite industrialists during graduation ceremonies	31	58.5
Sharing labor market information and data through different media	28	52.8
Using industrial visits to initiate partnerships and collaborations	24	45.3
Using trade fairs to link institution with industries	24	45.3
Experts from the industry (demand side) visit TVET Institutions as guest speakers	22	41.5
Using Public Private Partnership (PPP) instrument to strengthening linkages	21	39.6
Organization of study fairs where industrialists are invited	19	35.8
Invitation of top management from industries for round table discussions on various issues	17	32.0

Source: Field Data

The results in Table 5 show that 39 (73.6%) of the respondents indicated that workshops and seminars are important approaches for linking TVET institutions and their stakeholders. This informs that majority of the respondents recognize workshops and seminars as important avenues for linking TVET institutions with stakeholders. Apart from that, 31 (58.5%) of the surveyed teaching staff noted that the linkage is established through invitations of industrialists during graduation ceremonies. Moreover, 28 (52.8%) of the respondents under study said that sharing labor market information and data through different media promotes the linkage of the two. These were followed by 24 (45.3%) who said that industrial visits and trade fairs are important avenues for initiating and promoting partnerships and collaborations between TVET institutions and their stakeholders.

On the same note, 22 (41.5%) respondents indicated that visits paid to TVET institutions by experts from industries as guest speakers are exploited to establish such linkages. Based on the available data, tutors and vocational teachers from Tanzania noted that experts from the industry occasionally visit TVET institutions as guest speakers to expose students and TVET teaching staff to new and emerging technologies. Likewise, TVET teaching staff members seldom pay visits to different industries and enterprises for the same purpose. This tendency undermines voluntary acceptance of TVET graduates directly at workplaces. As seen in the data (Table 5), 21(39.6%) respondents mentioned Public Private Partnership instrument as an approach for linking TVET institutions with their stakeholders while 19 (35.8%) identified study fairs. These findings appear to suggest that PPP and study fairs are moderately used to promote linkages. Apart from that, the results show that 17 (32.0%) indicated the invitation of

top management personnel from various industries to TVET institutions for round table discussions on various issues as an approach used to enhance the linkages. In a general view, Table 5 shows that approaches for linking TVET institutions and their stakeholders are diverse. This means workshops, meetings, and seminars, among others, are the approaches used to connect TVET institutions with their stakeholders, as testified by majority (73.6%) of surveyed teaching staff. Similarly, industries in Tanzania participate in designing and reviewing learning packages and, or curricula through workshops, meetings and seminars organized by TVET institutions. The data have also shown that stakeholders' participation in graduation ceremonies and study fairs strengthen the linkages of TVET institutions and their stakeholders as indicated by 58.8% of respondents. Also, it is suggested that institutional and industrial boards meetings are important in the processes of designing and reviewing curricula and learning packages and the overall linking TVET institutions and industries.

Besides, the number of industries participating in workshops, meetings and seminars organized by TVET institutions is limited, hence limiting their participation in the process of designing and reviewing learning packages. Notwithstanding this deficiency, Terblanche (2017) informs that such reviews have the potential to contribute in various ways to the employability, productivity, and success rates of TVET graduates. On top of that, Eddington and Eddington (2010) reported that TVET systems' capacity is created through linkages established through engagement, collaboration and partnership. These platforms appear to provide TVET staff with opportunities to share labour market information and knowledge on types of technology, innovation, and competencies required, hence enabling them to understand issues pertaining to the development of

their institutions, and formal and informal sectors. The findings of the current study are in line with what was reported by Raihan (2014) who also suggested that adequate collaboration between TVET institutions and industries leads to the provision of relevant practical skills for industrialization. This argument is in line with Grollmann and Hoppe (2009) who support that engagement and partnerships in the promotion of TVET system boost efficiency and competitiveness of technical and vocational education and training. However, on a different note, while institutional visits of industrial experts as guest speakers are common in Republic of Korea and Singapore, the practice is rare in Tanzania. The same is true for TVET staff's visits to industries and other business enterprises, as well as informal sectors. Based on the findings, it is argued here that approaches for linking TVET institutions and their stakeholders depend on the frameworks available to regulate the linkages, collaboration and partnerships.

Role of the Linkage between TVET Institutions and Industries/Informal Sector in Promoting Technological Skills

Respondents from selected industries and informal workplaces were asked to indicate the role of the linkages that exist between their industries/informal workplaces and TVET institutions in matching graduate and teaching staff's technological skills with their skill demands. The data suggest that the linkages enhance technological skills acquisition among TVET graduates and teaching staff. On this issue, one key informant said:

The linkage between industries and TVET institutions enhances the process of designing and reviewing TVET curricula and learning packages. The linkages also enable the strengthening of access to diverse technological information, innovation and knowledge.

Through these linkages, one would argue that TVET institutions are able to obtain inputs for inclusion into their curricula and learning packages. As such, these findings support the argument by Ejiofor and Chinedu (2018), who highlighted the importance of fully involving stakeholders during Learning Packages (LPs) and TVET curriculum development processes to ensure that the skills focused on by TVET institutions are those needed by industries. Similarly, Kawar (2011) argued that connecting TVET institutions' skills development to the world of work increases the chances of ensuring that the skills in demand in the ever evolving labour markets of different economic sectors and industries are the ones focused on by TVET institutions. The findings show that, with these linkages, TVET teaching staff and graduates have a better chance to be equipped with knowledge and skills needed to promote locally made products. Generally, in this study, the respondents thought that linkages between TVET institutions and the informal sector enhance capacity building in terms of confidence, employment and learning opportunities. This reflects what Choy et al., (2018) noted. The researchers found that Industrial Practical Training (IPT) enhances one's confidence in their ability to transform theoretical knowledge into practice. In a similar view, one key informant noted:

The linkage between TVET institutions and our sector provides important avenues for TVET graduates to practically learn from the real world of work. As a result, graduates acquire entrepreneurial knowledge and skills which encourage them to establish their own business start-ups - Woodwork business owner, Dar es Salaam, Tanzania.

On the same note, another key informant (a VET graduate) said:

TVET graduates must practice all what has been taught to them in classes and in workshops at workplaces. Tutors and or vocational teachers also need to be exposed to live production

and maintenance work at workplaces. This will let them cope with changes that come with new and emerging technologies. On the other hand, training institutions should accommodate data from workplaces for preparing and/or reviewing learning package and curricula. All these are possible if TVET institutions are linked to.

One respondent working in one visited workplace located in the Island City State, Singapore, indicated that: *“some workplace workshops are used as incubation centres which in turn, are used by TVET graduates to acquaint themselves with technologies through hands-on practices and entrepreneurial aspects”*. In other words, these centers are used to provide graduates with skills so as to cover skills shortages caused by lack of facilities at TVET institutions. This role of such centers was noted in Tanzania where respondents confirmed it. For instance one key informant said:

Sometimes we have exchange programmes through which TVET trainees and students are required to come to various workplaces to perform their practical sessions using facilities that are not available at their TVET institutions - VET graduate, Dar es Salaam.

These narrations indicate the importance of linkages between TVET institutions and stakeholders from industries and informal sector. In general, the quotations indicate that through these relationships, institutions are able to equip their learners with skills that would otherwise be difficult to equip due to lack facilities. With the availability of sophisticated and modern machinery in various workplaces, students get to learn through practice as Plate 1 shows.

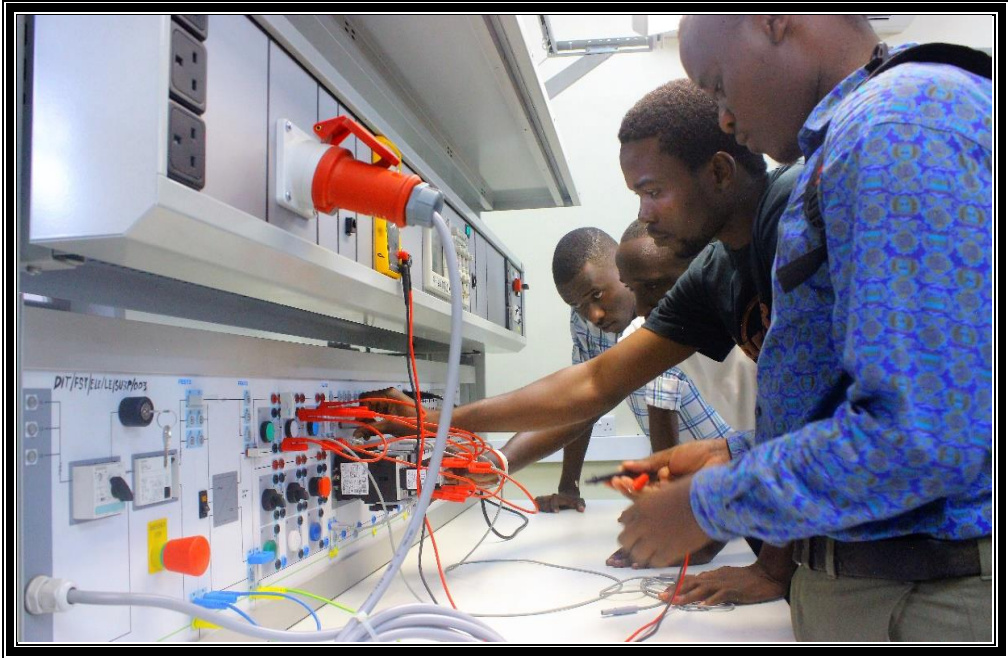


Plate 1: Students from one of the TET Institutions in Dar es Salaam learning during a practical session at SilAfrica Tanzania Ltd in Dar es Salaam, Tanzania

Source: Field data

The data obtained by this study also show that, through engaging in practical activities in the formal and informal sector, students learn to become flexible so as to abide by work ethics and adapt to work environments. This is associated with the fact that learning by doing harmonizes theoretical and practical knowledge, thus providing important avenues for TVET graduates to learn from the practical world of work and prepare them for life after graduation.

Conclusions

On the whole, the Industrial Practical Training (IPT) is one of the important frameworks that foster the linkage of TVET institutions and their stakeholders. This, among other frameworks, provides important opportunities for teaching staff and learners to acquire practical

knowledge and skills from formal and informal sectors. However, frameworks such as internships of graduates, TVET research, incubation, traineeships and corporate activities are more effectively used as linkage avenues in Republic of Korea and Singapore than in Tanzania. This can be attributed to the absence of an IPT policy in the country which results in few organizations and industries providing opportunities for graduates to participate in incubation, internship and traineeship in Tanzania. Notwithstanding this deficiency, TVET institutions in Tanzania use workshops, meetings and seminars as linkage avenues through which industries participate in designing and reviewing learning packages and, or curricula. However, the number of industries participating in such platforms is limited, hence undermining the quality and relevance of TVET Learning Packages (LPs) and curricula. Despite that, the availability of exchange programmes for TVET trainees and students at various informal workplaces to perform their practical sessions using facilities that are not available at their TVET institutions, confirm the importance of linkages.

Recommendations

Based on the findings and conclusions of this study, it is recommended to the government of Tanzania that a dialog should be initiated with organizations and industries on the need to provide graduates with opportunities to participate in incubation, internship and traineeship. This will improve graduates' acquisition of relevant technological skills. Regarding TVET research, the government is advised to allocate adequate funds for TVET institutions' research activities so as to improve the quality of LPs and, or curricula. This can contribute to the adoption of modern industrial technologies and integration of new competencies. TVET institutions should encourage their stakeholders to fully participate in workshops, meetings and

seminars organized by them, so as to improve the quality and relevance of TVET LPs and, or curricular. Also, TVET institutions should enter into agreements and sign MoU with industries and SMEs prior to the commencement of each academic year. This will probably facilitate the placement of graduates in industries, with the involvement of teachers and tutors as carried out in the two Asian Tiger nations. In addition, to enhance graduates' IPT opportunities, an IPT Policy should be established and streamlined in the country's education system to compel industries to fully participate in IPT training of teaching staff and students.

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