

# Contribution of Technical and Vocational Education Training towards Industrial Development in Tanzania

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## Conflicts of Interest

There are no conflicts to declare.

## ABSTRACT

TVET<sup>1</sup> and industrial development are two inseparable things as they depend on each other to bring sustainable country development. TVET is a bridge that can transform the country from consumer and final user of goods imported to producer and exporter of goods produced. Policymakers, scholars, and educators agreed TVET is a pivotal and instrument for industrial development and key for success.

However, there is the poor performance of TVET delivery in Tanzania that makes the researcher produce a more in-depth understanding of the phenomenon. After that, the empirical study was done to develop the contribution of TVET, according to the data obtained through the problem scoping and knowledge acquired in an extensive review of the literature. Nevertheless, the study scrutinizes lessons from China, a developing country but now is the world's workshop.

A qualitative approach is used to depict the in-depth contribution of TVET towards Tanzania's industrial development. The authors describe the importance of a well-defined TVET policy for the nation's industrial growth from the findings.

The analysis made in this study will yield Tanzania and other nations specifically developing to know the importance of TVET and its contribution to industrial development and in bringing sustainable development from individual level up to national level. This article will show the priority of TVET and the contribution of blue-collar jobs in development and in solving the unemployment problem. Hence, it will help the key player of TVET fulfill the responsibility and contribute to stepping ahead and reaching Tanzania development vision 2025

**Keywords:** TECHNICAL AND VOCATIONAL EDUCATION TRAINING, INDUSTRIAL DEVELOPMENT, POLICY

## Introduction

Globally youth unemployment is critical. More than half of young people – around 776 million – are outside the labor force, meaning they are not in employment (ILO, 2020). Unfortunately, the problem of

<sup>1</sup> TVET-Technical and Vocational Education Training

unemployment increase day after day from 1999 up to 2019. The global rate of participation fell by almost 12 percentage points over this period, from 53.1 to 41.2 percent; the total number of young persons in the labor force declined accordingly from 568 to 497 million, even though during this period the youth population rose from 1 billion to 1.3 billion (ILO, 2020).

Different countries, both developed and developing, take action including China which is the workshop of the world. Since the beginning of the reform era, China has become a manufacturing powerhouse (Manole, 2014). However, China faces the same problem of unemployment. As cited by Tang & Shi, (2017), Chinese youth are suffering from the employment crisis. They are experiencing a higher unemployment rate than adults, despite obtaining higher educational attainment.

The same problem facing developing countries ILO, (2014) the youth unemployment rate exceeds 12 percent in developing countries, East African countries including Tanzania facing the same problem. ILO (2014), in the Middle East and North Africa regions, has the highest youth unemployment rate. Whether applying the strict or relaxed definition, youth unemployment rates are high in Tanzania and higher than in most other sub-Saharan African countries. According to the strict report, the unemployment rate was 21.1 percent and the speed, according to the straightforward definition, was as high as 38.3 percent (Shamchiyeva & Kizu, 2014). Even those who are employed mostly remain in poverty situation. In 1999, the incidence of extreme working poverty among young workers was 12 percentage points lower than today, and this situation is expected to continue to worsen in the years up to 2023 (ILO, 2020). The problem of unemployment and poverty will continue to be critical, especially in the 21st century of automation. For young workers worldwide, advancements in automation and, increasingly, in artificial intelligence (AI) are putting unprecedented pressure on job availability (United Nations, 2018).

Meanwhile, globally, Africa, Sub-Sahara countries, and Tanzania have to think of a new alternative for unemployment and poverty reduction. New education paths have to be created, which will give more chance of self-employment, poverty reduction, and thinking out of the employment box (self-employment). Industrial development in Tanzania is the catalyst that will alter the rate of employment, self-employment, and poverty reduction. However, for the industry to develop TVET is inevitable.

TVET is the cornerstone and pivot of industrial development. Ministry of Education Science and technology is a pillar of Tanzania's industrial development since Education is the development and catalyst of any development. The first president of Tanzania, late Mwalimu J. K. Nyerere, after independence, addressed three enemies of Tanzania's development: ignorance, poverty, and disease (Nyerere, 1967). As argued by Haji, (2015) Tanzania has been growing fast, but poverty remains widespread.

To fight with those enemies, Education is the essential weapon. As late Mandela, (1990) argued, "Education is the most powerful weapon we can use to change the world. Also, Chinese philosopher Confucius said, "If your plan is for one year, plant rice; if your plan is for ten years, plant trees; if your plan is for one hundred years, educate children." The statement shows the necessity of Education in the community.

It is impossible to debate about development without talking about Education. Brew, (2016) education is a

vital vehicle for any civilization, socio-economic advancement. Nevertheless, discussing industrial development must go too far too technical Education. Industrial development needs human resources with a professional path. In Tanzania, only a few people receive professional training after either Primary education or Secondary education.

*Table 1: Higher level of education attained in Tanzania*

	Tanzania		Tanzania Mainland		Tanzania Zanzibar	
	Number	Percentage	Number	Percentage	Number	Percentage
<b>Higher level of education attained</b>						
<b>Total number of Graduate</b>	<b>14,954,447</b>	<b>100.0</b>	<b>14,172,350</b>	<b>100.0</b>	<b>323,097</b>	<b>100.0</b>
Primary school	11,848,323	81.7	11,799,695	83.3	48,628	15.1
Training after primary	107,173	0.7	105,625	0.7	1,548	0.5
Secondary school	2,085,854	14.4	1,829,927	12.9	255,927	79.2
Training after secondary	116,216	0.8	112,212	0.8	4,004	1.2
University and others	337,881	2.3	324,891	2.3	12,990	4.0

Source; (United Republic of Tanzania, 2014, Pg 3)

From the table, the populations with the minimum level of bachelor degree are only (2.3%), while people with training education skills after both primary and secondary school are only (1.5%); this makes the total of only (3.8%). This means (96.2%) have no formal professional path.

Massive youth in Tanzania end with only primary education, the number of students not enrolled in form one (I) after completion of standard seven (VII), and the number of students not enrolled in form five (V) after completion of form four (IV) is so high. Massive youth end with primary education indicates many graduates end nowhere after basic education.

*Table II: Total number of students not enrolled in form one and form five for consecutive five year from 2011 up to 2015*

Year	F4 Leavers	Joined F5	Std VII Leavers	Joined F1	Missing from F5	Missing from F1	Total missing
<b>2011</b>	333,638	40,890	1,028,480	522,379	292,748	506,101	<b>798,849</b>
<b>2012</b>	404,585	39,173	909,435	514,592	365,412	394,843	<b>760,255</b>
<b>2013</b>	368,600	42,484	885,749	439,816	326,116	445,933	<b>772,049</b>
<b>2014</b>	1,870,280	77,069	792,118	451,392	1,793,211	340,726	<b>2,133,937</b>
<b>2015</b>	1,774,383	126,024	763,603	518,034	1,648,359	245,569	<b>1,893,928</b>
<b>Total</b>	<b>4,751,486</b>	<b>325,640</b>	<b>4,379,385</b>	<b>2,446,213</b>	<b>4,425,846</b>	<b>1,933,172</b>	<b>6,359,018</b>

Source; (URT, 2018, Pg 32)

When concentrating on Tanzania's industrial development vision 2025 and looking into Tanzania education analysis, it is essential to think about globally education requirements in the present generation in Tanzania. TVET can be the panacea for the professional education path's growth and accommodate the low-skilled workforce, whom stands at 85%, and the medium-skilled workforce stands at 12%. Through a skilled

workforce, Tanzania's industrial development vision 2025 will be attained and the 2030 world development agenda. TVET can prepare people to work as skilled laborers and even employ themselves and open small industries that will gradually grow to large industries.

- Therefore, this paper investigates the contribution of TVET towards industrial development in Tanzania by depicting some lessons from China; an emerging country now is a world workshop.

## Conceptual framework

The conceptual framework (Fig 1) displays a pictorial representation of the relationship between TVET education, society, and industrial development. In other words, it expresses how industrial development dependent on TVET education and the importance of a well-defined TVET education policy in Tanzania. Even during post-independence, the elites argue the importance of Vocational Education Training (VET). During the post-independence era, arguments have also been advanced in favor of VET in developing countries; Mahatma Gandhi, Mao, and Julius Nyerere quoted such educational reforms (Tilak, 2008).

The conceptualization holds that the adoption of TVET education by policymakers can transform life. Endorsed by Dasmani (2011), the expectation is that TVET will promote skills acquisition through competency-based training. Changing education productivity involves Government joins hands with the international organization in insisting on TVET education. UNESCO (2016a) argued that the international community had set an ambitious 2030 Agenda for Sustainable Development. It calls for an integrated approach to development recognizes that eradicating poverty in all its forms and dimensions. TVET education can be attained when the Government insists and through mixed TVET education with industrial productivity and economic activities to virtually graduate. The Government can achieve this aspect by the long-term plan with out-door school or college activities like the linkage between industry and college.

Adopting the TVET education system ensures self-employment to the graduate, which will lead to industrial development and poverty reduction and bring sustainable development, as stated by (UNESCO 2016a). Education and training are central to the achievement of the 2030 Agenda. The conceptual framework further depicts that transforming the country to TVET education means changing society's quality of life and solving unemployment. Some people can employ themselves; hence they will have freedom. As Sen (1999) argued, development is expanding the real freedoms that people enjoy.

Unemployment can be solved through graduate recruitment, both Government and non-government. As it is claimed by Rufai et al. (2013), the need to link training in TVE to employment, either self or paid career, is at the base of all the best practices and approaches observed throughout the world, especially in the 21st century. A sequence of these transformations translates into poverty reduction, which amounts to sustainable development. The future and prosperity of Tanzania depend on the number of persons in employment and how productive they at work (Mpanju, 2012).

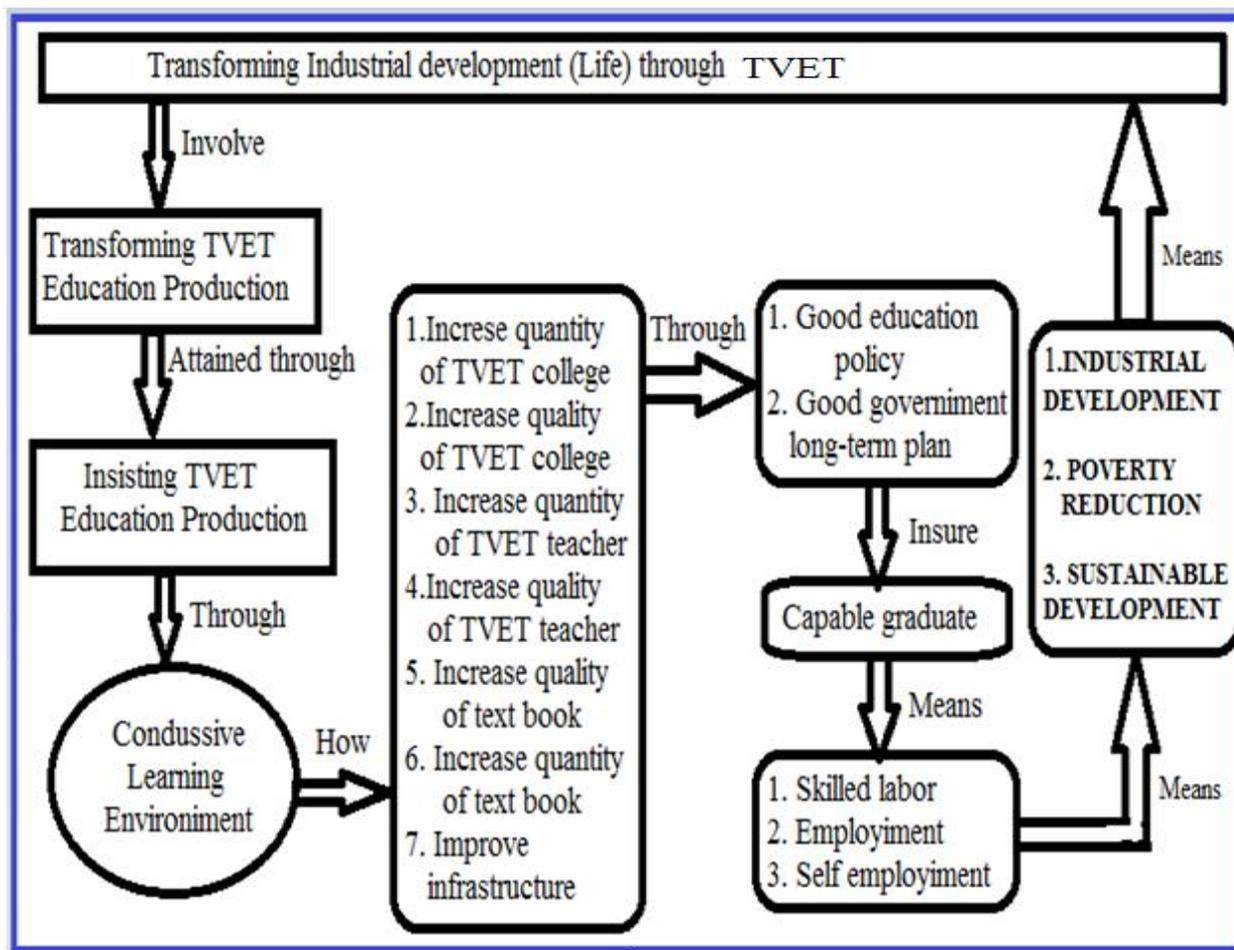


Figure 1. Conceptual framework, Source; self-compiled

Generally, the framework depicts that adopting TVET education is significantly vital to the community. However, a big question arises; if the benefits associated with this education are so high, why is the adoption rate so low? Is it not the Government's priority and is limited to only a few people – mainly those who live in town? Hence the framework relates to the study objectives as evidenced by the depicted variable interrelationships.

## Literature Review

### Global perspective about TVET

International cooperation will keep on supporting TVET. UNESCO will promote a whole-of-government approach to TVET transformations that foster youth employment and better connect and align relevant policy areas, including but not limited to education, employment, industrial and economic development, agriculture and rural development, health, and social policy (UNESCO, 2016b). The technical and vocational education and training (TVET) system is frequently perceived as the primary Source of workforce skills development (World Bank, 2013). Governments can encourage the private provision of training by reducing entry barriers into the training market, such as a required official curriculum, and allowing institutions to set tuition charges freely (John Middleton, 1991).

TVET can equip youth with the skills required to access the world of work, including self-employment (UNESCO, 2016b). VET has returned to the global policy table since the mid-2010s, led by UNESCO, and echoed by regional development banks (Mcgrath, 2018).

### **Developed nations perspective about TVET**

The Vocational Education and Training (VET) sector fulfills a critically important role in Australia in preparing adolescent and mature-aged students for their chosen vocation or career (Downing, 2016). Then children can choose between two pathways, a vocational training track (vocational colleges, vocational schools, and apprenticeship training) and a general education track (secondary academic school) (Gessler, 2016:50). In Australia, there is a dual training college, as stated by Gessler (2016:50). The dual training in Austria is an apprenticeship program that encompasses two learning venues, the company (80% of learning time) and the vocational school (20% of learning time), with a 24 months training period.

In Germany, Education is dual, as stated by (Gessler 2016:54). The German dual model consists of alternating school-based courses (one to two days per week) with company training (three to four days per week).

### **Sub-Saharan African countries and TVET**

This renewed focus on work opens up the possibility of greater international focus on training and preparation for employment and an enhanced role for TVET linked to the Sustainable Development Agenda (Todd & Dunbar, 2018). TVET has an excellent link with the sustainable development agenda. Technical and Vocational Education and Training (TVET) is a tool for productivity enhancement and poverty reduction in the region (Pavlova, 2014:2). Even in poverty reduction, TVET is a tool.

It is different in regarding TVET as a priority. As Pavlova (2014) said, "However, there is a difference between developed and less developed countries in terms of their preferences regarding TVET. The first group of countries emphasizes quality improvement, monitoring, and evaluation of TVET, the availability of national development plans. Still, the second group of countries focuses on the cost of enrolment and implementation of TVET. The level of emphasis is inverse proportional between developed and developing countries. TVET can contribute to economic development through skills provision (Matenda, 2017:3).

### **Methodology**

The study employs a qualitative approach phenomenon. The study aims to discover the underlying motives and desires, using in-depth interviews and document analysis for the purpose. Quinn, (1990) Qualitative methods permit the researcher to study selected issues in-depth and detail. Therefore, primary and secondary data were collected.

Primary data was collected from eighteen TVET education stakeholders in whom the purposive sampling technique, also called judgment sampling, was applied. Purposive sampling is the participant's deliberate choice due to the participant's qualities (Almalki, 2016). The study uses purposive sampling because the majorities have no idea about TVET. The participant for the interview includes Industrial owner, TVET

institutions authority, officers from education ministers and TVET teachers and students from TVET colleges (See table 1).

Secondary data scrutinized from Tanzania Government such as Technical and Vocational Education and Training Development (TVETDP) 2013/14-2017/18 of 2013, The VETA Corporate Plan of 2012, Tanzania Education and Training Policy of 1995 and Tanzania development vision 2025. Never the less, the researcher review supranational document such as the World Bank, UNESCO, and ILO to have a holistic knowledge of Technical and Vocational Education Training (TVET). Besides, the researcher scrutinizes China's document based on the contribution of TVET towards powerhouse country. Document analysis based on the approach of TVET and blue-collar job to the Tanzania industrial development.

*Table III. Participants' profile*

Characteristics	Description	Interviews (Number) N=18
Sex	Male	10
	Female	8
Age	18-35	6
	36-46	6
	47-60	4
	61+	2
Qualifications	Certificate	4
	Diploma	4
	Degree	5
	M.A	2
	PhD	3
Position	Managers/ Industrial owner	7
	Expert	3
	Lecture/ Trainee	3
	Students	3
	Retired	2
Work experience in years	1-10	4
	11-20	5
	21-35	7
	40+	2

Source: Self complied

Participant in this study is closed hence letters and numeric used to identify them, therefore "P" means participant, "F" means female, "M" means male and number "1-18" represent participant one up to participant eighteen. For example, "PF5" means female participant number five.

### Contribution of TVET

TVET produce skilled labor who can work in industries, and this is because industries are the first consumer of graduate from TVET. Therefore, having industries without skilled labor is like working in vain. Industries will fail to run and, at last, will disappear. TVET can be used to prepare the workforce for industrial development and the new global economy. Moreover, TVET improves the quality of education by facilitating learning by doing.

*"TVET prepare human resource which industries can consume. Industries are the first consumer of TVET products (students graduate). When planning to do something, it is crucial to think about the strategies towards those goals. In one way or another, TVET is the heart of industrial development. For industrial efficiency and quality products to compete in the 21st century, skilled labor should be on the front line" –PF3.*

They are upgrading Human resources, which represent an essential factor in any country's economic development (UTR, 1996). TVET education boosts human resource from what they know and prepare people to be more creative and innovative, hence work according to the changes of technology. Technical personnel's availability in the right numbers, at the right time, in the right place, and the right balance of technical knowledge and practical skills determine the pace and direction of industrial innovation and social and economic development (URT, 1996).

TVET prepares people to know the specific career and be professional in different career paths, for example, carpenter plumber, tailor, and mason.

*"I choose the TVET path as I know from the beginning that I am preparing to be an electrical worker. I like electricity, through TVET I am sure I will work as an electrician the field I like most"-PM6.*

TVET help in environment conservation because it prepares people to know how to deal with their environment. Environment conservation includes doing economic production without destroying the environment.

TVET contributes to Self-employment. Graduates from TVET can employ themselves, and this includes opportunities for new TVET graduates. Endorsed by John Middleton (1991), these other objectives include reducing youth unemployment, creating a reserve of skilled workers to attract new capital investment. Education, particularly technical and vocational education training (TVET), has a crucial role in this new era (Rufai et al., 2013).

*"TVET can help graduate to employ themselves and solve the problem of employment. Moreover, the graduate can start a small industry-like workshop that will gradually grow into a manufacturing factory"-PF7.*

Moreover, people can open a home industry that can lead to the development at an individual level and development at the national level due to tax collection and at last poverty reduction and bringing sustainable development. The technical problem can be solved in time as there will be enough human resources.

*"I am happy because when my machine has a technical problem; Mr. Taganisha can solve it timely. He is an output of TVET education that studied electrical engineering, and he is very competent. Five years ago, it was not easy to find a person who can solve a three-face machine's technical problem. It was too costly to see them from town, paying transport fare and accommodation in days when they will be repairing the appliance. It takes up to three or four weeks because demand was higher, but the supplier was small, now a day's at least repairing machine can be done timely; hence it does not affect production" –PM4.*

Presence of graduate from TVET help the technical problem to be solved timely and bringing sustainable development. Technical Vocational Education (TVE) has been recognized the world over as an instrument for empowering people, especially the youth, for sustainable livelihood, social-economic, and industrial development (Rufai et al., 2013).

### **Challenges facing TVET in Tanzania**

However, the study focuses on the contribution of TVET towards industrial development. From the findings, the researcher examines some challenges facing TVET. When the participant explains the contribution of TVET towards industrial development, they go far away to the obstacles that hinder the growth of TVET. Those challenges are as follows.

Unequal regulation of the Government in education issues, there are few ordinary level technical secondary schools in Tanzania. Technical Secondary School is the root of TVET education since they can excel knowledge. In Tanzania, few technical secondary schools lead to inadequate knowledge excel to technical colleges because most technical colleges are from non-technical ordinary secondary schools.

Education policy challenge, the policy provides focus on the achievement of the white-collar job. Hence, most students studying at TVET colleges as an alternative "B," this argued by Hg et al. (2016:206) VET in most Sub-Sahara African countries viewed as a carrier path for those who do not qualify to go to universities. Some students study TVET because parents could not secure higher education funding, as they are from poor or low economic backgrounds. Other they scored grades that could not allow them to join higher education. Out of five students interviewed, four students join TVET education because they are from a low-income family. Hence, parents could not afford to pay the fee for higher education. Even one student with the right economic background family chooses TVTE because the grades scored at advanced secondary education could not allow him to join higher education. From results found, it seems like in Tanzania, TVET is the field for the poor-dominated family.

Lack of professional Teachers, most TVET teachers, have no pedagogical background. As is stated by Lolwana (2019), only a few lecturers combine pedagogical competencies with technical qualifications and

industry experience. However, in Tanzania, there is one Teachers training college located in Morogoro, which is not enough. [European Commission \(2014\)](#) stated that much remains yet to be done to establish clear pathways for professional TVET teachers' development.

Lacks of industrial training, colleges have no industrial training since students are prepared more theoretically than practically. For the sake of skills, the students should be exposed to a high degree of practical hands-on training. That way, they will meet the challenges of the 21st century ([Mack & White, 2019](#)).

*"Time for the field is not enough. Hence we need more time for practice. Our skills involve solving problems using hands this means we need more time of working practically than theoretically"-PF1*

The pace of change is very high; this is due to the innovation of science and technology in the 21<sup>st</sup> century, which leads to an outdated curriculum. Hence students who graduate from TVET colleges are not fitting in the industrial market. As it is argued by [Dasmani \(2011\)](#), TVET curricula must focus on outcomes in terms of the skills, knowledge, and attitudes required industry. That is, TVET provision should be responsive to the demands of the sector.

*"They need more time of experience after they have been employed since they are not capable of using the machine in the real field."-PF14*

Lacks of an effective TVET teacher, most of the TVET Teachers are not professional teachers; hence they lack Teaching skills (pedagogy) and industrial experience. From the findings, most Technical and Vocational Education Training (TVET) Teachers have no industrial experience. Hence, teachers teach without knowing precisely what is needed in the entire field (Industry). Some, they know, but they lack skills of imparting knowledge to the students.

Society perception about TVET, the majority think TVET is the education path of the people who fail. Therefore, most parents do not yet educate their children through the TVET path. Even youth are not ready to join TVET colleges as they feel shy and lack confidence because they think TVET is an educational path for people who fail and those with no future.

## **Lesson from China**

China knows the importance of Technical and Vocational Education Training (TVET), so TVET starts from the grassroots of Education in China. The present TVET system in China comprises three divisions, i.e., primary, secondary and higher divisions ([Fan, 2017](#)).

Central and Local Government is responsible for TVET in China. Skills-based vocational education is receiving unprecedented attention from the central Government as China seeks to ensure high employment rates and improves the image of perceived 'cheap' made-in-China products ([Tang & Shi, 2017](#)). At both the central and local levels, the Chinese Government has played a crucial role in the reform and development of the TVET system ([Sun et al., 2009](#)). When the Government focuses on something, it will be easy for people to know it's essential.

The Government of the Peoples Republic of China decided to invest in TVET to solve employment and bring sustainable development. The recent years witness the significant growth of TVET in China, which is featured with the expanding scale, good quality of school-based vocational education, and rapid development of informal training in China (Zang, 2009). China, in recent Five-year National Plans, 'enhancing the development of TVET' is repeatedly mentioned as a national priority in 'building strong human resources' (Siriwardene & Qureshi, 2009).

When China realizes they are going into the industrial era, they decided to put much effort into TVET to produce human resources. It's believed that China is entering the age of late industrialization. More flexible and better learned human resources are essential to building a harmonious society (Tang & Shi, 2017).

When China reached the climax of industrialization in 1950, they realized a shortage of skilled labor; hence, they decided to put much effort into TVET education. Zang (2009) stated that thousands of government-run factories and companies were straightly confronted with a shortage of skilled workers. They had to open their affiliated Skilled Worker Schools to train such workers.

In China, TVET starts from primary school. TVET in the primary division consists of some elementary knowledge input and standard practices to the pupils (Fan, 2017). Grow with the necessary knowledge and skills of solving a technical problem. As it is known, no national will stay as an island, even an island itself. So China, in developing its education, learned from other developed nations. The development of China's higher TVET is also a process of learning and adopting valuable experiences and practices from the advanced countries to China's actual context (Fan, 2017).

The TVET in China is a blueprint for development, as is stated by (Sun et al., 2009). Finally, the development of TVET in China has a promising future while the country continues its successful economic development.

Moreover, China changed its education policy and added much effort to TVET from early 1980, when the state council adapted the report on secondary education structure reform. This report officially launched the nationwide reform of secondary education and began the rapid expansion of the TVET system (Sun et al., 2009). The policy makes an expansion of TVET to the community.

## Results and discussion

Discussion and data analysis based on the objective, which is the contribution of TVET towards industrial development in Tanzania, found different efforts done by the Government of the United Republic of Tanzania through education, science and technology to rouse awareness to the stakeholder. The efforts often include TVET policy restructuring since independence. Moreover, Tanzania development vision 2025 focuses on industrial development wake up the importance of TVET. Based on document analysis and intensive interviews, there is still a lot to be done to make sure TVET stakeholders are aware of blue-collar jobs and professional paths to industrial development.

## Scrutinize technical and vocational education training (TVET)

There are different perceptions about the contribution of TVET to Tanzania industrial development. The finding revealed fewer stakeholders know the vital of TVET, while most know nothing. Few people talked about the contribution of TVET as follows.

*"Towards Industrial development, industries are the first consumer of TVET products (Students graduate). For the sake of industrial quality, products and industrial machines operate as well as technical problem solving. If there will be no technician (students graduate), industrial development is doomed to fail" -PM16.*

The work of TVET is to make sure people are prepared with the right professional path, for example, electrician, plumber and carpenter. TVET can solve the problem of a professional path.

Also, TVET can solve the problem of graduate unemployment. This is because the majority of graduates from a different level of education face the challenge of employments. *Young people's situation and prospects are of vital concern to us all. Many of them face high unemployment or joblessness and severe difficulties in getting a firm foothold into the labor market. Many leave school without the requisite skills or competencies needed in today's economy and society (Ndyali, 2016).* Endorsed by ILO (2014), *the highest youth unemployment rates are found in the Middle East and North Africa regions.*

Never the less many people who are employed remain in poverty situation. *In 1999, the incidence of extreme working poverty among young workers was 12 percentage points lower than today, and this situation is expected to continue to worsen in the years up to 2023 (ILO, 2020).*

*TVET graduates are employable, and investments in TVET are justifiable. A tracer study conducted by the Government in 2010 showed that the average employment rate of VET graduates was close to 85% (African Development Fund, 2014, Pg 3).* Therefore, through TVET, there will be sustainable development in Tanzania and other nations. For industrial efficiency and quality products to compete in the 21st century, skilled labor should be on the front line. In Tanzania, to have effectively skilled labor, TVET is inevitable.

Also, participants come with the idea of self-employment, as they agree that it is possible when people have enough skills to conquer 21st-century technical problems. TVET can help in one way or another to prepare skilled labor that will be able to open workshops and small industries that will gradually grow to manufacture goods.

Stakeholders agreed TVET is the heart and catalyst of industrial development. TVET and industrial development go simultaneously. They also argued that, because the Government of the United Republic of Tanzania targeted industry development, TVET is pivotal to industrial development; hence they participate in industrial action as a human resource.

Also, interviewers talked about the industry's growth, and they do not doubt that big industries are the product of small industries. It is essential to start with what we have while we are stepping forward to a large venture. They gave an example of nations that have gone industrial revolution that they start far from respecting small things.

The Government should put more emphasis on the SIDO industry as a stepping stone towards large manufacturing goods. *SIDO is the small industries development organization act of 1973 (URT, 1973)*. The function of SIDO was to uphold the development of small industries in Tanzania and plan and coordinate small industry enterprises activities in Tanzania (URT, 1973). It is vital to support small organizations and to make the environment attractive for sustainable projects.

### Scrutinize TVET policy in Tanzania

The study scrutinizes the scope understanding of the stakeholder about TVET policy. Based on the findings, different stakeholders respond;

*"However, TVET is very important, mainly when focusing on industrial development. But still, TVET is not a priority in Tanzania"-PM11.* They were endorsed by European Commission (2014, Pg 27). *The TVET systems generally face insufficient budgets to realize the policy objectives, and TVET systems are suffering from fragmented governance and institutional structures.*

The policy of education gives more priority to white-collar jobs. Even the Government itself gives more importance to higher education and white-collar employment. But in reality, white-collar job produces people who can work as a manager and leader, while TVET can create job creators and people who can be employed as producers. *This endeavor is geared towards contributing to job creation and self-employment (MoEVT, 2007, Pg 3)*. We need more producers and workers (blue-collar jobs) than the manager (white-collar jobs) for more development. Those producers can be produced from TVET colleges. The producer is indeed more needed than managers.

Participants said an acceptable TVET education policy is a stepping stone towards Tanzania's industrial development. *However, the low perception of TVET is because education policy is not given priority to TVET.* Therefore, it is about education and its impact on society; therefore, Technical and Vocational Education Training (TVET) is needed to be a priority. TVET can produce people who can solve society's challenges and technical problems, people who can open small industries that will gradually grow into a large industry. Also, the participant talks about the link between policymakers and policy implementers.

*"There should be a link between policymakers and policy implementers. Policymakers can make excellent policies and strategies towards that policy. Still, if policy implementers cannot be ready to implement policy as it is written, the policy's effort is doomed to fail"-PM9.*

People have to know that they have the responsibility in making development from an individual level. Talks about development at the national level simply mean development from an individual level that will gradually grow and contribute to the national development.

*"If every individual will understand his or her commitment towards growth and fulfill his or her duty, then a national development plan will be reached"-PF10.* From the response, TVET policy has to be reviewed to meet industrial development vision 2025. Moreover, *every stakeholder has to know his or her responsibility towards Tanzania's industrial development vision 2025.*

### Scrutinize curriculum

The study investigates if the TVET curriculum is effective and favors the preparation of graduates towards industry development. Response from participant-based to present curriculum, which is a competency-based curriculum, argued it is suitable for TVET quality. As argued by MoEVT (2007, Pg 4),

*Vision 2025 underscores the importance of curriculum transformation, focusing on promoting creativity and problem solving to achieve high-quality science and technology at all levels of education hence a well-educated and learning society. The problem is not all which is written in the curriculum are implemented.*

This is endorsed by Hoadley, U. & Jansen (2002). *What is set out in the intended curriculum is not always what occurs in practice.* Therefore, it is essential to follow up on the curriculum and makes sure what is written is considered. *Adopting a competence-based curriculum can realize the philosophy of self-reliance and develop the industrial economy in Tanzania* (Mkonongwa, 2017). From the finding, if almost all written in the curriculum could be implemented, Tanzania could produce practical graduates. The curriculum is well written, and the problem is to change those written words into action. There is a need for the curriculum implementers' team to make an adequate follow-up to the colleges, both private and public, to ensure the curriculum is well implemented.

### Society involvement

Towards industrial development, TVET and social involvement are significant. From the finding, regardless of TVET contribution to industrial development, society is less involved. Less society involvement leads to slowly contribution of TVET towards industrial development.

*"Society has to be involved directly to the TVET; hence Colleges have to be used as a workshop or small industry. An introduction of projects like carpenter workshops can help and build student competence while learning"-PM18.*

Students can learn theory in the classroom and do real practical by producing things needed in the market and selling them directly to society. Here, humanity will give feedback about the quality of TVET students by crediting the products made.

*"In college, there are human resources and cheap labor (students). It is essential to have good management and introduce projects like the mechanical garage, so the technical problem of people's cars and motorcycles can be solved at a low price" -PF4.*

College used as a workshop is significant because students will have a chance of learning practically in a real environment under teachers' guidance while involving direct in solving social problems. *Finally, the Tanzania Development Vision (TDV) 2025 and the Five-Year Development Plan (FYDP) envisage a significant technological up-skilling of Tanzania's humans* (URT, 2018, Pg 48).

Moreover, society will benefit as they will solve a technical problem at a low price. At the same time, colleges will benefit as they will get money from the project introduced. The finding shows it essential and possible to

present different projects, which can help students improve their education and experience capacity while learning what is required in the virtual environment (society).

## Conclusion

The world recognizes that TVET is pivotal to economic development and can contribute to economic development from the individual to the national level. Moreover, it is urging that TVET is the panacea for youth unemployment, making different nations take effective measures and prioritize TVET. However, in some countries, including Tanzania, TVET is not a priority. Referring to the Tanzania development vision 2025 and 2030 global sustainable development plan, the time has come when the United Republic of Tanzania Government has to prioritize TVET for better industrial development.

## Recommendations

Facts from the discussions indicate an urgent need for a well-defined TVET education policy. As is stated by [ILO \(2014\)](#), rising youth unemployment, including among new graduates, stubbornly high employment informality, and significant income inequalities requires urgent policy attention. TVET education policy has to be re-conceptualized, rejuvenated, and fortifying to flourish industrial development. Tanzania focuses on industrial development, and human resources should be well prepared. Failure to prepare human power and effort for industrial development is doomed to fail. TVET education policy has to be independent of the guideline of a mother education policy. Once the TVET policy is separate, it will give full responsibility and priority to the TVET.

Preparation of dual production college means colleges that will produce both human power and consumable goods. The dual college will increase the number of industries because the college's workshop can be used as a small industry to produce consumable goods. Students can also learn to multitask, as they have learned theoretically in the classroom and work practices in the workshop, then find a market for those produced while college earning money from those projects. Some institutions have generated income through integrating training with production, where the institution can recover some of the training costs through sales of students' projects ([Ngerechi, 2003](#)). In other countries like Germany, this is done by the cooperation between industries and colleges. As [Gessler \(2016\)](#) stated, the German dual model consists of alternating school-based courses (one to two days per week) with company training (three to four days per week). In the beginning, this can be done through the strong partnership between colleges and industries. The only way out is to develop collaboration between schools and the industries. Modern apprenticeship or 'dual system' might be a better solution! The dual college can flourish student's experience ([Tang & Shi, 2017](#)). Moreover, TVET colleges should put much emphasis on practical than theory. Hence students will be more effective in solving technical problems.

TVET institutions should be increased as per development plan each district has to have TVET institutions then ward and at last villages. The increase of TVET institutions will help TVET education be accessible by

many people from different corners of the country, hence producing skilled labor and poverty reduction. [Ogwo \(2016\)](#) endorsed that the FEPs would accelerate economic development, resulting in a professional/globally competitive workforce, increased GDP, poverty reduction, a decrease in youth unemployment, and creating outsourcing destinations in SSA countries.

TVET School has to demonstrate the highest possible level of innovation in its approach in preparing young people to learn to be more creative and responsible for going with the global village and modern 21<sup>st</sup>-century society of artificial intelligence and automation.

The foundation of the TVET should start and be conducted from childhood. Children's dreams should be known from their family level, and dreams should be cultivated and grow to become a reality. The primary school has to continue building the capacity of skills imparted by parents from home.

Graduates from TVET colleges should be given capital in one way or another; this can be done through loans with simple conditions and policies that will help people (Graduate) to establish the small industry. Hence, Tanzania will step forward to industrial development, and the problem of unemployment will be solved.

There is a need to prepare TVET teachers with pedagogical skills and industrial experience. Teachers with pedagogical and industrial skills will teach while knowing precisely the knowledge required in the working field. Well-defined and clear teaching target direction is significant. Teachers should understand how they can import a new understanding of solving the 21<sup>st</sup> science and technology era's technical problems. As it is argued by [Tang & Shi \(2017\)](#), what matters is a clear definition of the teaching targets. Policymakers must learn to avoid vagueness in society.

TVET should start from primary education; it is important to have TVET deviation from secondary school. There should be TVET deviation, Science deviation, and art deviation; hence, TVET skills will be imparted to students from their education's grassroots. Currently, there should be seminars and workshops for TVET teachers about pedagogy. Seminars and workshops are essential as it going to improve teachers teaching skills.

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