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Transition from Vocational Schooling to World of Work: Challenges of Graduates Working in Ethiopia's Polytechnic Colleges

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Abstract

The study looks at the difficulties that TVET graduates have when they enter the workforce, with a particular emphasis on Arba Minch, Hawassa, and Akaki TVET Polytechnic Colleges. Using a cross-sectional survey to address the dearth of research on this subject, the study discovered that low training quality, poor industry contacts, poor trainee performance, inadequate teaching techniques, and large class sizes all make it more difficult for graduates to enter the workforce. Consequently, the study found that 71.4% of TVET graduated trainers in polytechnic TVET colleges did not attempt to create their jobs, while 20.2% took up to five years and 8.3% took more than five years. The implications for generic TVET graduates are more severe than those for trainers to create self-business in their profession. Despite the initial investment needed to start a self-business, training in practical skills is the sole professional obstacle that both male and female TVET graduates are encouraged to overcome. Consequently, by showcasing exceptional performance and employable skills like internships and entrepreneurial ability, TVET graduates can thrive in the workplace. Further, it gives lending institutions a chance to guarantee loan availability and support middle-level skilled resources in their pursuit of self-employment prospects by recognizing the importance of both tangible and intangible assets. Thus, in developing nations like Ethiopia, TVET graduates face deep-rooted, multidimensional challenges when they enter the workforce.

Keywords*: challenges; graduate; transition; vocational schooling; world of work*

1. Introduction

1.1. Backgrounds of Study

Researchers and government officials anticipate that TVET will increase production and decrease poverty by giving graduates job opportunities (Abebe & Gemeda, 2020; Geresu, 2014; MoE, 2016, 2021; MoSHE, 2020). However, difficulties in easing the transition from graduation to employment may have a discouraging effect on the economic growth and development of emerging nations like Ethiopia (Abebe & Gemeda, 2020; Kibru, 2012; Mohammed, 2020; MoSHE, 2020; Taddesse et al., 2024). For these scholars, despite Ethiopia's high level of educational attainment, few graduates have been creating their jobs, which results in fixed work prospects.

Former higher education policies support engineering and technology expansion, but do not significantly direct graduates to create their own work. TVET graduates may transfer conceptual knowledge to practical skills, but they face challenges in creating work or hiring in fixed contract agreements. The study investigates the challenges faced by Ethiopian urban polytechnic TVET graduates when they enter the job market, as unemployment rates are noticed higher in urban areas compared to rural areas which have strong supports in the literature (Boulanger et al., 2019; Mengesha &Feto, 2023; Shuker & Sadik, 2024; Wieser & Mesfin, 2021). Next, the evolution of vocational education in Ethiopia gets clarified, shedding light on the contextual field of research area.

Evolution of Ethiopia's Vocational Schooling

Even though TVET appears to have received top priority in Ethiopia's 1994 education and training strategy, the country's conception and practice of vocational education go back to the 1940s. A pioneer in Ethiopian vocational education was the founding of Tegbared Technical School (now Tegbared Polytechnique College) in 1942. The government also founded Jimma Agricultural School in 1944, Ambo Agricultural School in 1946, Addis Ababa Commercial School in 1943, and Bahir Dar Polytechnic School in 1964. To generate a middle-skilled workforce for the nation, these technical institutions have developed their own technical and vocational school programs (MoE, 2008).

Ethiopia's technical and vocational schools were approved during the emperor’s rule from the 1940s to the mid-1960s. Later, under the emperor and "Military Junta" administrations, vocational education expanded as a comprehensive high school. The social community saw this growth as a step towards meeting labor market demand for middle-skilled workers, while the general public views it as a comprehensive high school providing job opportunities in the public sector.

The 1994 Ethiopian education and training policywas a base to reform vocational education. Additionally, Proclamation No. 391/2004 reinforced vocational education by establishing a technical and vocational education and training (TVET) system granting it formal independence via three programs (FDRE, 2004). These include the junior technical and vocational training program, the middle-level technical and vocational education and training program, and the fundamental vocational training program (FDRE, 2004). Later, MoE (2008), FDRE (2016) and MoSHE (2020) established a plan to improve TVET product quality by utilizing a demand-driven labor market system, which might facilitate the integration of TVET graduates into the workforce.

Ethiopia's TVET Graduates' Transition Challenges to Employment

Although the growth of TVET institutions in Ethiopia has greatly increased the number of graduates joining the workforce, there are still obstacles to overcome when adjusting to the workforce, particularly in urban areas (AU, 2007; Broussar& Tsegaye, 2010; Kibru, 2012; Krishnana &Shaorshadzeb, 2013; Matsumoto & Elder, 2010; MoLSA, 2013). According to the scholars, the main problems include a poor labor market, insufficient young employment information systems, and a lack of training-to-work linkage concerns. To increase employment rates, particularly for youth, the Ethiopian government has prioritized the expansion of SMEs and increased financing for microfinance organizations (Kibru, 2012; Krishnana &Shaorshadzeb, 2013;MoLSA, 2013;).

Some TVET graduates, however, continue to struggle to satisfy the basic requirements, which results in their loss of work chances (2012; MoE, 2021; MoSHE, 2020). The competitive knowledge economy, which has higher unemployment rates in urban areas, forces TVET graduates to contend for jobs. The challenges that TVET trainers and trainees encounter have an effect on output quality, performance, and preparedness for transitioning from vocational education to the workforce (Badenhorst & Radile, 2018; Geressu, 2014; Tadesse et al., 2024). Through demand-driven labor market tactics, this study investigates the difficulties middle-skilled, competent graduates encounter in finding work while preserving the supply-side quality of TVET products.

Linking TVET to Business Benefits

According to education sector development (ESDP) (I-VI), the goal of TVET has been intended to create a competent, motivated, adaptable, and innovative workforce to transfer accumulated and demanded new technologies to Ethiopia. Consequently, it contributes to poverty reduction and socio-economic developments by facilitating demand-driven, high-quality products that are relevant to all sectors of the economy, at all levels, and to all people (MoE, 2010, 2015). Hence, the main objective of the TVET sub-sector in Ethiopia is to train a middle-skilled work force and transfer the demand for new technologies, and by doing so that, to contribute towards poverty reduction and the sustainable development of the country (FDRE, 2004, 2016).

The MoE's target enrollment was intended to expand from 265,745 in 2012/13 to 365,154 in 2017/18, but the actual enrollment was 292,378 in the target year (MoE, 2018). The average growth rate for TVET enrollments was 6.14 in 2017/18, but the country failed to achieve this goal may be due to challenges in transitioning from TVET graduates to the world of work. The country implemented TVET proclamations and strategies for detained academic success (FDRE, 2004), potentially leading to societal perception that TVET graduates are inefficient and perform weaker than other subsectors.

Nevertheless, TVET legislative policy has improved in providing options for academically competent admittance (FDRE, 2016). Research conducted on vocational schooling throughout the world demonstrates that TVET has been used to spread technology that promotes both economic growth and the reduction of poverty (African Union, 2007; Broussar & Tsegaye, 2010; Kibru, 2012; Matsumoto & Elder, 2010; MOE, 2008). Transferring Polytechnic TVET graduates to the workforce is a significant issue due to the policy's inability to provide equal access to academically qualified students like Addis Ababa Tegbared College during the Emperor and military junta administrations.As a result, we must investigate a strategy to mitigate the psychological impact of the policy on TVET graduates, which perpetuates the notion that TVET is only for students with subpar academic standing (FDRE, 2004). It highlights the need for TVET policy to be rethought to ensure access to all students, including academically bright and creative students, as graduates may feel less employable and face unfavorable labor market consequences.

1.2. Statement of the Problem

We recognized the transitions of Ethiopian TVET graduates to the world of work as problematic in two dimensions: the mismatch between demand for TVET graduates and its equivalent supply to train in TVET colleges. As well, we considered graduate unemployment in literature as a severe problem in developing countries such as Ethiopia (Broussar & Tsegaye, 2012; Hailu, 2012; Kibru, 2012; Krishnana & Shaorshadzeb, 2013; Niyonasenze et al., 2024; Tadesse et al., 2024). Moreover, despite the weakness of TVET research activities, legal documents such as ESDP-V in Ethiopia indicate that the research on TVET has not addressed labor market conditions. As evidence,

> TVET research activities are still weak and not systematically planned. The Federal TVET Agency, though lacking an appropriate organizational structure, has been conducting minor research in the areas of Occupational Standards (OS), assessment, curriculum development, and quality management with the support of expatriate experts (MoE, 2015, P. 22).

As noticed, the former research activities have addressed how to set OS, the assessment styles, what to build the curriculum, and the overall managerial aspects, including market-driven strategies. On the other hand, past research on TVETs has given less emphasis to studying the market-driven strategy consequences for trainees and the challenges of transitioning from TVET

graduates to the world of work. In the labor market concern, the ESDP-V is further noticed as the research gap for future researchers who may be concerned to fill the gap as follows:

> Research at the TVET level focuses on the links and relations between the TVET system and the labor market and contributes to the analysis, improvement, and further development of vocational education and training in the country (MoE, 2015, P. 23).

In this focus, the legal document witnessed that the TVET system process and its link with the labor market have been one of the prioritized areas for future research activities in Ethiopia. As a response, the proposed research problems that focus on the transition challenges of TVET graduates to the world of work can endorse the priorities of the national and regional governments to produce middle skilled human capital in Ethiopia.

Although the ultimate goal of TVET was to produce middle-skill human capital for employment, employment opportunities were scarce in the study area context (Wieser & Mesfin, 2021). Current and previous government agendas also promoted self-employment by encouraging trainers to start their own businesses (FDRE, 2004, 2016; MoE, 202015; MoLSA, 2009; MoSHE, 2020). Therefore, it was still unclear what the primary barriers were to the employment transfer of Polytechnic TVET graduates, particularly with regard to launching their own small enterprise.

Assuming that the primary factors are inadequate training in practical skill development, continuous trainee performance, and graduates' readiness for the workforce, the study aimed to examine the difficulties akin with the transition from vocational education to professions. This study aimed to address the following research questions utilizing data from the Arba Minch, Awassa, and Akaki Polytechnic TVETs.

1.3. Research Questions

1. Do the work conditions of TVET trainers vary based on their location, gender, and the amount of time since their graduation before becoming self-employed?
2. To what extent do trainers perceive quality issues among their trainees related to practical training, performance, and preparation for their future careers?
3. Are there statistically significant differences in perception between male and female participants regarding their trainees' abilities in practical skill development, performance, and readiness for the workforce?

1.4. Framework of School-to-Work Transition Challenges

The study uses school-to-work transition survey (SWTS) to analyze the transition challenges faced by TVET graduates to occupation, focusing on personal characteristics, family support, school-related variables, and job market conditions.As well, the study addresses the challenges faced by TVET graduates in Ethiopia in transitioning from vocational training to employment, focusing on practical skill development, training performance, and occupational preparation.

The level of practical skill development at TVET institutions is examined in this study, with special emphasis paid to instructors, learning environments, academic support services, and training protocols so as to establish a component of the conceptual framework (MoE, 2016; MoSHE, 2020). It also draws attention to issues such as these trainees' lack of industry connections, subpar training techniques, lack of enthusiasm, erroneous teaching materials, and difficulties overseeing sizable classes (Kibru, 2012; Krishnana & Shaorshadzeb, 2013; Matsumoto & Elder, 2010). These issues lead to worse working performance and make it more difficult for recent graduates to compete in the job market (Geressu, 2014; Nurjanah et al., 2022; Tadesse et al., 2024). To improve the performance of graduates, the government places a strong emphasis on giving students access to sufficient training materials, real-world experience, practice time, and effective learning opportunities (MoE, 2008, 2021;MoSHE, 2020).

In this wisdom, the conceptual framework for this study includes indicators of quality problems in practical skill development, trainees' performance, and graduates preparation to world of work. To better examine the research questions using inferential statistics with respect to examining gender advantages, there is a need to formulate null hypothesis.

$H_{0M} = H_{0F}$

$H_{AM} \neq H_{AF}$

This is because, in the former studies, gender disparity information regarding to TVET graduates' employment advantage has notyet documented in the study area context.

2. Method

2.1. Research Design

The study utilized a quantitative, cross-sectional survey research design to examine if transition challenges faced by TVET graduates stem from inadequate training quality in developing practical abilities, performance, and preparation for acquiring soft and practical skills.Using the collected primary data sources, the study scrutinized the transition of challenges from vocational schooling to occupation; whereas using secondary data sources, such as legal documents, government reports, and empirical studies employed to verify the quantitative results.

2.2. Population and Sample of the Study

The study surveyed 5,481 polytechnic TVET trainers and specialists in Arba Minch, Hawassa, and Akaki, located in the former Southern Region, as well as in Addis Ababa City (MoE, 2018). Among the three-sample polytechnic TVET institutions, 1,371 TVET graduates were employed, with an average of approximately 457 trainers per polytechnic college. The research selected appropriate participants from a pool of employers, graduates, and trainers using Cochran's technique to determine the sample size. The data was based on statistics from the Ministry of Education (MoE, 2018). To find the right sample size for the quantitative investigation, we utilized the formula that uses the degree of significance that is often used in education research,

95%; population variance, p = 0.5 (maximum variability), and 1 - p = q, assuming that the overall population size is massive.

$$n_0 = \frac{z^2}{e^2}\, pq = \frac{(1.96)}{(0.05)(0.05)}(0.5)(0.5) = 385 \text{ subjects}$$

Considering that 385 participants were anticipated to be the target audience for the three polytechnic TVETs. Additionally, Cochran's (1977) finite population size adjustment process was used to modify the sample size (no) based on the study's assumed target population of 1,371 TVET graduates who were actively working at sample polytechnic colleges.

$n = \frac{n_o}{1+\frac{n_o-1}{N}} = \frac{385}{1+\frac{385-1}{1371}} \approx 301$ TVET graduates; where n_o- is sample size, n- is corrected sample size, and N- is the target population size of the study.

The pilot test of this study yielded a response rate of 96.7% and helps to estimate with a minimum sample size of 312 participants. A survey that was developed and evaluated the cultivation concerns of TVET graduates was completed by the participants. The study used stratified proportional random sampling techniques to choose representative sample units. SPSS was used to collect, arrange, and analyze the data in order to address the study themes.

2.3. Measurements

At three randomly selected polytechnic TVET colleges, we developed a questionnaire to collect information on the challenges faced by graduates transitioning from vocational education to the workforce. Two sections make up the questionnaire: the first covers demographics, including the participants' employment status in relation to the sample areas, gender, length of employment, and time to launch their own business; the second section covers quality issues in the development of practical skills, the expected performance of trainees, and the graduates' general preparedness for the workforce.

The first element of the instrument aligns with the views of the ILO labor market standards profession regarding working circumstances, which often influence the transition from vocational schooling to employment. The quality of TVET graduates' training, their present performance, and their preparedness for the workforce are the main issues that have been addressed in the study. Using a five-point Likert scale, we created fifteen items: "0 = strongly disagrees, 1 = disagrees, 2 = undecided, 3 = agrees, and 4 = strongly agrees." Division of the entire sum of the scales by five yielded the five-point scale average of two.

Consequently, for this study, the severity of the problematic obstacles to firm operations for TVET graduates in the research location was interpreted using the following decision rules: 1) With scores over three mean scores (> 3), the survey emphasizes the most pressing perceived problems that TVET graduates face when conducting business. 2) Medium-level problems were defined as those with mean scores ranging from two to three [2, 3]. 3) The results showed that the transfer of TVET graduates to the workforce was less affected by scores below two mean

scores (< 2). Additionally, the study prepared the generated components for a pilot test to guarantee the content validity and reliability of the instrument.

2.4. Pilot Testing

We ensured the tool items were suitable for their intended use by confirming the reliability and content validity before distributing the research instrument. At the Addis Ababa Polytechnic TVET, which was not part of the study's sample, we conducted a pilot test. To confirm the material's authenticity, we invited eminent academics to share their experience-based tacit knowledge. Based on the information gathered, the study examined the tool items to see whether they accurately reflect employability issues that polytechnic TVET graduates face, including the barriers to job creation for both recent graduates and seasoned trainers. As a result, trainers with two to twenty years of expertise in both the hard sciences and soft sciences streams participated in the pilot test.

Accordingly, we selected 30 TVET graduates who were working as trainers at Addis Ababa TVET university using a random sampling technique; 12 (40%) of them were females.Based on their experiences from graduation to continued employment and launching their own business, we asked participants to rank each item that usually poses a problem for TVET graduates making the move to the workforce. Finally, 29 (96.7%) of the 30 randomly selected participants filled and returned the research tools.

Table 2.1.

Pilot test to measure reliability statistics

Items	Cronbach's Alpha	No. of Items
Quality problems in practical skill development (QPPSD)	0.93	5
Performance of Trainees in Training (PTT)	0.9	5
Preparation of trainees to world of work (PTWW)	0.84	5
Overall items	0.933	15

According to Table 2.1, the computed overall items result ($\alpha = 0.93$) was within the acceptable range of Cronbach's Alpha coefficients ($\alpha > 0.7$) for the 15 tool items. We ultimately rebuilt the tool components based on the information identification in order to solve the major issues faced by polytechnic TVET graduates as they transition to the workforce.

3. Results

In this part, we noticed the overall participant characteristics with respect to employment conditions to recognize if demographic features influence employment conditions in the study area context. Among the randomly selected participants, the proportions of graduates' employment in satisfactory work were higher in Arba Minch (76.2%), moderate in Hawasa (43.9%), and lower in Addis Ababa Akaki (32.6%) polytechnic colleges. This study examined the challenges faced by TVET graduates as they move from vocational schooling to the workforce, including launching their own businesses.

The respondents were 75% male and 25% female. Due to their training experience at polytechnic TVET colleges, their perception of the benefits and drawbacks of training programs, and their firsthand knowledge of the transition from TVET graduation to employment and unemployment conditions at their vocational institutions, the participants were appropriate for the study.

3.1 Employment Conditions by Demographic Features

Among the randomly selected participants, the proportions of graduate employment out of the trained fields of study in the polytechnic TVET colleges were higher within Addis Ababa Akaki (26.7%), moderate within Hawasa (15.9%), and lower within Arba Minch (4.8%).The percentages of self-employed individuals and those with jobs in the sample polytechnic colleges were also lower in Arba Minch (2.4%), moderate in Hawasa (14.6%), and higher in Addis Ababa Akaki (16.3%).

Based on employment-unemployment interpretation of MoLSA (2013), the proportion of those who were employed in satisfactory work (50.8%) and those who were self-employed with respect to their professions (11.1%) was determined to be about 61.9%, which could be noticed as employed personnel in sample polytechnic TVET colleges. The remaining participants sum of proportions that were categorized under employment in unsatisfactory work (20.6%), employed out of fields of study (15.9%), and unemployed but worked for free service (1.6%) was 38.1%, which could be interpreted as unemployed in the sample public polytechnic TVET colleges.

Table 3.1

Participants' location and employment conditions

Employment Type	**Institution**			**Total**
	Arba Minch polytechnic college	Hawasa polytechnic college	AA Akaki polytechnic college	
Employed in satisfactory work	64(76.2%)	36 (43.9%)	28 (32.6%)	128 (50.8%)
Employed in unsatisfactory work	14	21	17	52 (20.6%)
Self-employed + ESW[1]	2	12 (14.6%)	14 (16.3%)	28 (11.1%)
Unemployed	0	0	4	4 (1.6%)
Employed out of trained field	4 (4.8%)	13(15.9%)	23(26.7%)	40 (15.9%)
Total	84	82	86	252

In this aspect, the advantage of graduate employment in satisfactory work was better in the semi-urban area than the urban area TVET polytechnic colleges, whereas the self-employment advantage and the out-of-training fields' employment conditions were higher in the urban area than the semi-urban area TVET polytechnic colleges. To end, we recognized that 38.1% of unwaged graduates were working in the sample public polytechnic TVET colleges.

[1]Employed in satisfactory work

Table 3.2

Participants' sex and employment conditions

Employment Types	**Sex**		**Total**
	Male	Female	
Employed in satisfactory work	102 (54%)	26 (41.3%)	128 (50.8%)
Employed in unsatisfactory work	38 (20.1%)	14 (22.2%)	52 (20.6%)
Self-employed +ESW	22 (11.6%)	6 (9.5)	28 (11.1%)
Unemployed	0	4	4 (1.6%)
Employed out of trained field	27 (14.3%)	13 (20.6%)	40 (15.9%)
Total	189 (75%)	63 (25%)	252

The advantage of employment in satisfactory work was for male participants (54%) than female participants (41.3%), whereas among female participants, those who were victims of employment in unsatisfactory work conditions (22.2%), those who employed out of professions (20.6%), and those unemployed (free service) (6.3%) were considered unwaged (disadvantage group) compared to unwaged male participants who employed in unsatisfactory work (20.1%) and out of profession (14.3%). In this regard, the advantages of the transitions from graduation to the world of work were for males compared to females in Ethiopia's sample polytechnic TVET colleges.

Table 3.3

Timeframe for TVET trainers' attempt to start their own work

	Own Business Starting Years						**Total**
	Not yet start	< 1	1-3	3-5	5-10	> 10	
Soft sciences	41	1	3	4	1	3	53
Hard sciences	139	2	20	21	11	6	199
Total	180 (71.4%)	3	23	25	12	9	252

The participants' responses on the duration of their attempts to create their own work from the graduation were presented in Tables 3–3. Accordingly, 71.4% of the TVET graduates who were currently working as line and staff personnel in polytechnic TVET colleges did not attempt to create their own work. For about 20.2% of the participants, it took up to five years to make an effort to create their own job. The remaining 8.3% of these participants have taken more than five years to rethink about creating their own jobs in the study area context. The majority of these participants was senior trainers and has additional university degrees from BA/BSc up to MA/MSc.

Moreover, their average monthly wage was expected to be an average of 12,000 ET[2]B (nearly 96 USD). However, 28.5% of these TVET graduates took more than 10 years to be initiated to create their own job in the study area context. In this economic condition, how can the new TVET graduates, in which the majority of the trainees coming from families earning income

[2]1 USD = 125 ETB , December 2024

below the GDP per capita (1000 USD in 2023), create their own jobs in an Ethiopian context seem problematic. As well, the government's TVET policy intentions that are intended to prepare TVET graduates to create their own jobs will be questionable. For a variety of reasons, including starting capital, workplace difficulties, and legal restrictions on starting even a modest commercial enterprise, 20.2% of employed graduates who want to start their own business after five years did so with an average monthly net salary income below 80 USD.

3.2 Training Quality, Performance, and Preparation to Employment

The study examines the transition of TVET graduates to the workforce, focusing on practical skills development, performance, work preparation, and potential challenges. It highlights the perceived reality gap between male and female participants in Ethiopia's public polytechnic TVET colleges.As shown in Table 3.4, the perceived mean scores about quality problems of practical skill development of graduates were noticed to be above average, which were > 2 for both parties in the scale ranges from zero up to four scores. The study found that both male and female participants found inappropriate teaching methods to be severe quality problems that impacted the development of practical skills. In addition, the perceived realities, which range from 2.7 to 2.1, informed the status of quality problems in the practical skills development of trainees were >2. The study reveals that practical skill development issues in Ethiopia's polytechnic TVET colleges were primarily due to inadequate training, lack of industrial attachment, trainees' apathy, and large class sizes.

Table 3.4

Quality problem in practical skills development in polytechnic TVET colleges

Quality Issuesin Practical Skill Development Items	Sex	N	Mean	Std. Dev.	Std. Error Mean
Inadequate practical training of trainees	Male	189	2.51	1.02	.075
	Female	63	2.27	1.08	.136
Lack of industrial attachment for TVET trainees	Male	189	2.33	1.04	.076
	Female	63	2.30	1.12	.141
Lack of motivation to workshop practice	Male	188	2.5	1.01	.073
	Female	63	2.62	1.11	.140
Inappropriate teaching methods	Male	189	2.67	.98	.072
	Female	63	2.7	1.19	.15
Inability to control large class size in practice	Male	188	2.38	1.07	.078
	Female	63	2.08	1.34	.168
Overall items	Male	189	2.54	.768	.0559
	Female	63	2.44	.929	.1171

As shown in Table 3.5, there was no statistically significant perceptual difference between male and female participants about the quality problems of practical skill development of the TVET graduates in Ethiopia.Both the male and female participants' perceptions revealed that all the depicted quality glitches in the practical skill development of the trainees in Table 3.5 were the issues that influence the overall TVET graduates without gender favoritism.

Table 3.5

Perceptual gender gap about quality problems of practical skills development

Items	t-test for Equality of Means						
	t	Df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% CI of the Difference	
						Lower	Upper
Inadequate practical training	1.58	250	.116	.238	.151	-.06	.536
Lack of industrial attachment	.206	250	.837	.032	.154	-.272	.336
Trainers' apathy to workshop practice	-.83	249	.409	-.124	.150	-.421	.172
Inappropriate teaching methods	-.21	250	.834	-.032	.151	-.329	.266
Inability to control large class size	1.80	249	.073	.298	.166	-.028	.625
Overall problems of practical skill training	.807	250	.420	.095	.118	-.137	.328

In this focus, we failed to reject the research proposition that says there was no statistically significant difference between male and female participants about the quality problems of the practical skill development of Ethiopia's TVET graduates. This is because both parties commonly interpreted the quality problems of practical skill development graduates in Ethiopia's polytechnic TVET colleges. Next, we presented the perceived performance of TVET trainees in the study area.

Table 3.6

Performance of TVET Trainees

Performance of trainees build using	Sex	N	Mean	Std. Dev.	Std. Error Mean
Sufficient practical skills	Male	189	2.68	1.04	.076
	Female	63	2.25	1.231	.155
Adequate training materials	Male	189	2.44	1.028	.075
	Female	63	2.16	1.167	.147
Suitable time to practice requisite skills	Male	189	2.77	.926	.067
	Female	63	2.62	1.038	.131
Practical component of technical curriculum	Male	189	2.57	.906	.066
	Female	63	2.21	1.152	.145
Quality of practical training opportunities	Male	189	2.34	1.043	.076
	Female	63	2.27	1.211	.153
Overall items	Male	189	2.56	.814	.059
	Female	63	2.35	1.080	.136

As portrayed in Table 3.6, the perceived performance mean scores ranged from 2.2 up to 2.8 for variables in the questionnaire items. These determined mean scores were above average rating scale point ranges (0–4) of the components of the research tool items. The study found that TVET graduates' technical and practical skill competency was moderately trained, with both male and female participants interpreting their performance in skill development, acceptance of training materials, utility of time, relevance of the curriculum to practice, and quality of training processes. However, further investigation is needed to determine if there is a perceptual gap between the two parties regarding the performance of trainees in practical skill preparation in the study area context.

Table 3.7
Perceptual gender gap about trainees' performance

	t-test for Equality of Means						
	T	Df	Sig. (2-tailed)	Mean Diff.	Std. Err. Diff.	95% Confidence Interval of the Difference	
						Lower	Upper
Sufficient practical skills training	2.7	250	.008	.423	.159	.111	.736
Adequacy of training materials	1.8	250	.071	.280	.155	-.024	.585
Nonviolent time to practice vital skills development	1.1	250	.271	.153	.139	-.120	.427
Practical component in technical curriculum	2.6	250	.010	.365	.142	.086	.644
Quality of training opportunities	.34	250	.738	.053	.158	-.258	.364
Overall items	1.6	250	.111	.206	.129	-.048	.461

The study used t-test to determine if gender differences in interpretations significantly influenced the training performance of polytechnic TVET graduates in Ethiopia. As shown in Table 3.7, for three of the items (60%), the male and female participants' perceptions did not make statistically significant differences about the practical training performance of TVET graduates. The t-test for equality of means, which examined the quality of training opportunities ($t = 0.34$, $p = 0.72$), the usefulness of time for critical skill development ($t = 1.10$, $p = 0.271$), and the sufficiency of training materials ($t = 1.81$, $p = 0.07$) at the $df = 250$ and $\alpha = 0.05$ level of significance, demonstrated that there was no statistically significant difference between the opinions of male and female participants regarding the performance of TVET graduates in the study area.

However, the assumed hypothesis was rejected for two of the items, such as providing sufficient practical skill training ($t = 2.7$, $\alpha < 0.01$) and practical components of technical curriculum ($t = 2.6$, $\alpha = 0.01$). In general, the hypothesis was rejected because at least there were two items that exerted statistically significant differences between the male and female participants' interpretations about the practical performance of polytechnic TVET graduates.

Table 3.8

Graduates' preparation for world of work

Trainees' preparation for world of work	Sex	N	Mean	Std. Deviation	Std. Error Mean
Provision of training materials	Male	189	2.33	1.101	.080
	Female	63	2.05	1.337	.169
Class size effect on practical teaching	Male	187	2.44	1.063	.078
	Female	63	2.25	1.15	.145
Provision of basic workshop	Male	189	2.46	1.103	.080
	Female	63	2.21	1.233	.155
Attention to industrial attachment	Male	188	2.26	1.054	.077
	Female	63	2.30	1.026	.129
Parents involvement in training materials	Male	189	1.51	1.539	.112
	Female	63	1.54	1.401	.177
Overall items	Male	189	2.21	.847	.062
	Female	63	2.11	1.094	.138

Regarding trainees' preparation for the world of work, Table 3.8 depicts the perceived mean scores with respect to trainers' responses for two purposes. In one way, they were training the TVET graduates. Instead, they were graduates of technical and vocational colleges, including TVET institutions. In this concern, the computed perceived mean scores for four of the mentioned items were determined to be above average scale points as rated by male and female participants. These variable items that moderately prepared TVET graduates for the world of work were the provision of training materials, the large class size effect, the provision of basic workshop tools and equipment, and training attachments to industry. Instead, both male and female participants rated the involvement of parents in complement training materials below average scores on the scale range points. In sum, the preparation of TVET graduates to world of work was moderate for the majority of the variable items.

Nevertheless, we need to examine if there were statistically significant differences between the male and female perceptions of reality about the preparation of TVET graduates for the world of work in the Ethiopian context. For all variable items, both the male and female participants' interpretations did not exert a statistically significant difference about the preparation of TVET graduates for the world of work, as shown in Table 3.9.

Table 3.9

Perceptual gender gap about graduate preparation to world of work

	t-test for Equality of Means						
	t	Df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% CI of the Difference	
						Lower	Upper
Provision of training materials	1.7	250	.093	.286	.16	-.048	.619
Class size effect on practical teaching	1.2	248	.231	.190	.158	-.122	.501
Provision of basic workshops	1.5	250	.134	.249	.165	-.077	.574
Attention to industrial attachment	-.3	249	.762	-.046	.152	-.347	.254
Parents involvement in training	-.15	250	.885	-.032	.219	-.463	.400
Overall items	.72	250	.475	.095	.133	-.167	.357

The survey discovered no discernible difference between male and female respondent opinions about TVET graduates' preparedness for the workforce. Both sides concurred that their preparedness was greatly impacted by the provision of training materials, class size, hands-on instruction, basic workshop equipment, industrial attachments, and parental support. This implies that when it comes to preparing for the workforce through TVET, Ethiopian men and women profit equally.

4. Discussions

The study employed the literature reviewed and legal documents to examine the ongoing employment conditions of TVET graduates in Arba Minch, Hawasa, and Addis Ababa Akaki polytechnic colleges, focusing on their practical skills, work-related knowledge, and experience, as well as their overall training performance and preparedness for employment.

Employment Conditions by Demographic Features

The study revealed that TVET graduate employment in study areas was higher in Arba Minch TVET polytechnic institutions, moderate in Hawasa, and lower in Arba Minch, and higher in Addis Ababa Akaki. The poll indicates that 38.1% of individuals in polytechnic TVET institutions are unemployed, whereas 61.9% are self-employed (11.1%) and in decent employment (50.8%). Graduate employment in rewarding positions is better in semi-urban areas, although self-employment benefits and out-of-training fieldwork situations are more common in metropolitan areas. The decrease in worker migration to urban regions may be the result of rural job opportunities (Boulanger et al., 2019; Mengesha & Feto, 2023; Wieser & Mesfin, 2021). This might be the cause of the experts' findings that addressing rural youth unemployment is essential to the development of one country (Shuker & Sadik, 2024).

Despite having a 54% higher job satisfaction rate than women, male trainers at Ethiopian TVET colleges are more likely than unwaged males to work outside of their areas of expertise, have unfavorable working conditions, and be unemployed, indicating that they transition to the workforce more easily. The literature provides strong arguments to support this finding. The literature supports the finding that women's participation in Ethiopia's rural and urban labor markets is significantly lower than men's, possibly due to various economic barriers (Mengesha & Feto, 2023; Wieser & Mesfin, 2021). The studies further verified that discrimination against women is greater in rural labor markets when compared to urban labor markets. Nevertheless, gender distribution in trade, hotels, and other services shows women dominate in paid jobs, while men dominate construction and transportation (Wieser & Mesfin, 2021). Men continue to have a job advantage over women in numerous industries, including manufacturing, agriculture, and occupations requiring technical and practical skills, despite the fact that both male- and female-dominated employment opportunities exist in both urban and rural areas.

The study reveals that 71.4% of TVET graduates from polytechnic schools did not start their own businesses, with 8.3% taking more than five years and 20.2% taking up to five years. Senior trainers (28.5%) with BA/BSc to MA/MSc degrees and a net average monthly income above 12,000 ETB (96 USD) took over ten years to launch their businesses. These graduates, from households earning less than the GDP per capita, find it challenging to start their own businesses due to the current economic climate.

Perceived Quality Problems in Practical Skills Development

The study found that trainees who emphasized the advantages men had over women had issues with the quality of their development of practical skills. Inadequate training, a lack of industry affiliations, poor teaching methods, trainees' disinterest in workshop practice, and too many classes that prevent hands-on work activities are just a few of the problems that have been identified and strongly supported by the literature (African Union, 2007; Haruna et al., 2019; Kibru, 2012; Krishnana & Shaorshadzeb, 2013; Matsumoto & Elder, 2010; MoE, 2016; MoSHE, 2020). These issues meaningfully influence the quality of training for TVET graduates,

preventing them from finding fulfilling jobs (Geresu, 2014; Niyonasenze et al., 2024; Tadesse et al., 2024). Perceptual mean reaction scores for these issues are higher than the mean of the five-point Likert type rating scales that ranges from 0-4 points (> 2).

The study looked at the performance of the trainees and found no appreciable gender variations in perceptual interpretation of the level of practical skill development among Ethiopia's TVET graduates. The finding has strong support from the government legal documents and study reports in the Ethiopian context (Kibru, 2012; MoE, 2021; MoSHE, 2020; Tadesse et al., 2024). MoSHE (2020) identifies several factors contributing to the low quality of the TVET system, including a lack of an effective quality assurance system, outdated and insufficient training equipment, inexperienced TVET trainers, and inadequate training infrastructure.

Likewise, empirical data backs up the current study's conclusions. Geresu (2014) argues that the TVET program is failing due to a lack of facilities, labor market data, advisory services, collaboration, internet connectivity, and training evaluation. TVET institutions should enhance training quality by increasing practice time, conducting research, and enhancing teacher skills. The program aims to produce graduates capable for economic progress, but low quality in the Oromia region's TVET subsector in Ethiopia persists (Geresu, 2014).

Tadesse et al.'s (2024) study in the Amhara region highlights the underdevelopment of TVET programs due to inadequate occupational norms, trainer availability, and skills, suggesting sustainable solutions to improve performance. Academics emphasize the importance of micro, small businesses (MSEs) in Ethiopia's fight against unemployment and promoting change, but acknowledge a lack of enterprise-focused training, a gap between planning and implementation, and insufficient consistent efforts. The two areas of Ethiopia have had a lack of excellent TVET training (Geresu, 2014; Tadesse et al., 2024), which supported our study’s results as well.

In the context of Rwanda, steady professional development significantly affects the quality of training provided by TVET institutions (Niyonasenze et al., 2024). The results of the study showed that criteria related to evaluated continuing professional growth explained high-quality training options. Expanding high-quality training options that align TVET training with labor market demands can enhance practical skill development quality, as noted in the legal documents (MoE, 2021; MoSHE, 2020).

According to Haruna et al. (2019), work based learning (WBL) in TVET can help analyze the connection between school and industry learning. Policymakers should consider the benefits of WBL in TVET. For scholars in Nigerian TVET context, the current curriculum is ineffective due to economic issues, poor governance, and low education systems (Haruna et al., 2019; Osidipe, 2017). Adopting WBL in TVET could ensure graduates have the necessary skills for industries, allowing them to self-employment if they cannot join paid employment (Haruna et al., 2019). According to Osidipe (2017), TVET is crucial for skill development, reducing poverty, and advancing the country. The government must, however, improve marketable competencies, solve

staffing, equipment, and facility shortages, and integrate labor market data into curriculum design.

The quality challenges in acquiring practical skills enlargement, particularly in developing nations like Ethiopia, have strong support in the literature. These challenges include inadequate training, industry linkages, trainee enthusiasm, instructional methodologies, and huge class numbers that impede hands-on work experiences.

Perceived Training Performance of TVET Trainees

The study found that TVET graduates' technical and practical skill competency was moderately prepared in the study area. Both male and female participants moderately interpreted the performance of trainees, ranking factors such as unfortunate time to practice, deficient skill development, poor technical curriculum design, derisory training materials, and subsidiarity of practical training opportunities as transition challenges of TVET graduates to get employment. These findings are in line with the studies in the literature reviews in the study area context (Geresu, 2014; Tadesse et al., 2024) as well as in African context (Haruna et al., 2019; Niyonasenze et al., 2024). The deficiency of the quality indicators are also the indication of paucity in the performance of trainees in the TVET colleges.

The study used a t-test to compare perceptions of training performance of polytechnic TVET graduates in Ethiopia. Results showed that while 60% of participants had similar opinions, there were significant differences between the two groups regarding the practical training offered and the inclusion of practical components in the technical curriculum. In this concern, the practical skill preparation provides advantages for males compared to females (Mengistu et al., 2024). Rather, without imposing gender differences in perception of the specified difficulties, the t-test for equality of means showed that the quality of training opportunities, the usefulness of time for skill development, and the sufficiency of training materials are viewed similarly. Government legal papers on TVET policy components in Ethiopia provide considerable support for the findings (MoSHE, 2020).

As evidence, “TVET qualifications are still not widely accepted in other educational fields; there is a lack of a creative and sustainable TVET financing framework” (MoSHE, 2020, P. 7). Further, this policy considerationdocument confirmed that TVET graduates frequently lack foundational abilities in reading, writing, mathematical concepts, computing, communication, teamwork, problem solving, customer relations, and foreign languages. In this regard, the present performance of TVET trainees falls short of the expected level, which further encourages existing TVET graduates to compete in the job market and start their own businesses as micro or small enterprises.

Perceived TVET Graduates’ preparation for world of work

The study found that TVET graduates' preparation influence for the workforce was moderate for most variable items. Factors such as class size impacts on practical training, availability of basic

workshop tools and equipment, training attachments to industry, and availability of training materials had mean scores higher than the overall average mean scores. The graduate preparation influence to employment is one of the core issues that impeded TVET graduates transition to world of work. These findings have strong support in the literature including legal documents in the study area context (MoSHE, 2020). More importantly, parents' participation in supplement training materials perceived mean score is rated below average, indicating their estimated contribution to vocational schooling was lower.

In this concern, both male and female participants rated the involvement of parents in supplement training materials, indicating their contribution to vocational schooling is perceived awkward. In this aspect, the study found no significant gender differences in perceptions of TVET graduates' preparation for professional work in Ethiopia. Both genders agreed that training materials, class size, workshop equipment, industrial attachments, and parental support influence their preparation for the world of work. In Ethiopia, the perceived reality of TVET graduates' readiness for global employment is modest, with no discernible gender differences. The identified variables influencing TVET graduates preparation to world work in this study have strong supports in the literature (Nurjanah et al. 2022; Paterson et al., 2017).

Nurjanah et al. (2022) conducted a study on 13 journal papers from 2016 to 2021 to identify ten job preparedness skills for graduates. The study partly supports Ethiopian context by highlighting practical skills such as technology adoption, communication, teamwork, adaptability, analytical thinking, innovativeness, independence, creativity, and curiosity. Scholars aim to prepare graduates for advanced Industry curriculum development, but institutes may struggle to prepare TVET students for integrated practical skill development. Scholars suggest that human resource professionals can address stakeholders by implementing a dual system training program that includes internships, innovative learning techniques, teacher professional development, and industrial work practices in collaboration with government, employers, and industry (Geresu, 2014; Nurjanah et al., 2021;Tadesse et al., 2024).

According to Paterson et al. (2017), developing a values-based intervention for young people to enhance their career prospects and understanding of working life difficulties is helpful in preparing graduates for the workforce. Giving people the self-assurance they need to navigate relationships with managers, supervisors, and coworkers at work is the intervention's main objective, based to these academics. Beyond weak employability programs, it promotes young people to engage with their job with respect, creativity, and responsiveness while addressing TVET values in South Africa (Paterson et al., 2017). In this acumen, Ahmid et al. (2023) emphasize the importance of inventive traits, job preparedness, and vocational self-concept in creating educational and career programs for vocational students. The study suggests that enhancing these qualities can address graduate employment concerns and improve career advising and counseling processes for both male and female students.

Concerning this issue, the TVET curriculum may help graduates enhance their entrepreneurship abilities, practical experience during internships, and work-related competencies (MoE, 2016, 2021; MoSHE, 2020; Nurjanah et al., 2021, Paterson et al., 2017). In addition to material and service inputs that show graduates' readiness for the workforce, the work motivation of trainers, trainees, and supervisors further influences the quality of TVET training in practical skill development.

5. Conclusions

The research is to look at the challenges experienced by TVET graduates when they enter the workforce using a framework of quality metrics. These metrics include trainee performance metrics, gaps in the development of practical skills, and the preparedness of graduates for the workforce. The study found that when it comes to training in practical hard labor, TVET institutions favor males over women, and the degree of quality issues in the development of practical skills influences the job prospects of graduates. Graduates' preparation for the profession mediates their transition even in the absence of parental support, and trainees' actual performance influences the advantages of professional job options for both men and women.

For both male and female TVET graduates, the primary quality issues in the development of practical skills range from the most serious to the least serious, and they include inadequate training, industry affiliations, trainee enthusiasm, instructional methodologies, and large class size. However, the remaining performance-related features, like the quality of training opportunities, the usefulness of training time, and the sufficiency of training materials, are the same for both parties. This is in contrast to gender disparities, which show that male TVET trainees perform better than females in practical aspects of curriculum design and training competency. Rather, there are no notable differences in the preparedness of TVET graduates for the workforce based on gender.

The quality of integrated practical skills development, which includes entrepreneurial skills, internship experiences, and work-related competencies, is crucial for addressing the transition challenges faced by TVET (Technical and Vocational Education and Training) graduates in the workplace. Additionally, TVET graduates encounter several barriers when attempting to start their own businesses, such as a lack of startup funding, insufficient workspace, and inadequate professional conditions. To overcome these challenges, financial policies need to be updated to facilitate loans that can be secured using both tangible and intangible assets, enabling access to necessary startup capital. In developing countries like Ethiopia, it is also important for workplace layouts and curriculum designs to focus on transforming job seekers into job creators. Furthermore, employment policies—particularly those in the private sector—should guide the labor market in countries like Ethiopia to provide career-specific job opportunities.

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