



Challenges and Opportunities of Self-Employment among TVET Graduates: Evidence from Dukem Town, Ethiopia

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Abstract

The study explores challenges and opportunities of self-employment in Dukem Town, southwest of Addis Ababa, in Ethiopia, among Technical and Vocational Education and Training (TVET) graduates. This study used a sequential explanatory mixed-method research design with qualitative data that were used to explain quantitative findings. Questionnaires, interviews and focus group discussions are common methods for data collection. Out of 264 questionnaires distributed, three were excluded; consequently, a total of 261 (98.8%) responses were valid for analysis. The study participants included TVET graduates as well as qualitative inputs from six management staff working at the institutional level in TVET and five experts dealing with micro and small enterprises (MSE). Descriptive statistics were used to analyze quantitative data, and thematic analysis was used for the qualitative data. The findings reveal perceived limitations in teaching materials, practical training implementation, and industry-based training; poor delivery of entrepreneurship capacity-building programs; as well as weak responsiveness on the part of the stakeholders. Importantly, 89.3% of survey respondents cited lack of start-up capital as a major barrier to self-employment, suggesting access to finances is still the most constraint on graduate entrepreneurship. The study suggests enhancing linkages with industries to maintain a relevant curriculum and enhance training facility quality; initiating EDS (Entrepreneurship Development Service) programs; improving career guidance services; and encouraging the establishment of financial and institutional support systems for self-employed graduates.

Subject Areas

Higher Education

Keywords

Self-Employment, TVET Graduates, Graduate Employability, Industry-Based Training, Entrepreneurial Skills

1. Background of the Study

Youth unemployment is one of Ethiopia's significant socio-economic problems [1]. It is exacerbated by rapid urbanization, which increasing the number of job seekers and creating a tight labor market with limited capacity to absorb them in decent employment [2]. Furthermore, entrepreneurship and self-employment can be alternative routes to sustain one self and participate in the economy activity [3].

Labor market demand requires education systems to align skill formation with workforce needs, and sustainable economic growth depends on how effectively skills are developed in response to labor market demand [4] [5]. In Ethiopia, Technical and Vocational Education and Training (TVET), established under the 1994 Education and Training Policy, was designed to create competent human resources for national development [6] [7]. This demand-driven and outcome-based approach of the Ethiopian TVET strategy is the National Technical and Vocational Education and Training Strategy (NTVETS), which seeks to better, align training with labor market demands, enabling graduates engage in both their wage and self-employed [8].

However, doubts persist over the extent to which TVET (Technical Vocational Education and Training) was linked to sustainable self-employment. National and international reports emphasize ongoing implementation constraints among others and a lack of systematic assessments of the policy impacts [9]. Empirical evidence that can show on how structural constraints, institutional support mechanisms, practical training, and local administrative processes shape the transition of graduates into self-employment remains relatively limited [10]. Thus, the extent to which TVET systems are successful in aligning training with real enterprise creation remains insufficiently understood.

Dukem Town represents a suitable case to investigate these dynamics. The town is considered to be a strategic zone for industrial and urban development along the Addis Ababa—Adama industrial corridor [11]. Rapid urbanization in Ethiopia has created both opportunities and constraints for employment generation, especially in the newly emerging secondary towns [12]. Dukem thus provides a contextualized examination of how structural, institutional, and policy dynamics shape TVET graduates' transition into self-employment.

This study adds to the scant but growing body of empirical literature that draws on an entrepreneurial ecosystem framework to examine how entities embedded within the ecosystem impact self-employment development for graduates in emerging urban-industrial corridors [13]-[15]. The research provides context-specific evidence of increasing policy-financial-sector linkages retrieved from rap-

idly urbanizing secondary cities in the sub-Saharan African landscape, through an assessment on entrepreneurial engagement after graduation.

1.1. Statement of the Problem

While Ethiopia has targeted youth entrepreneurship through its TVET system, the majorities of graduates are still unemployed, or prefer wage employment instead of self-employment. The research evidence shows that these challenges such as insufficient practical training, weak industry linkages, low institutional support, and limited access to financial resources still hamper entrepreneurial engagement of TVET graduates [16].

Moreover, little empirical research exists about the interaction of these factors at a micro level, especially in the case of emerging urban towns such as Dukem. Consequently, the role of TVET institutions, support agencies, and government policies in enhancing graduate self-employment or hindering its growth is insufficiently understood.

Hence, this study aims to investigate the opportunities and challenges that affect TVET graduate self-employment in Dukem Town as well as analyze how their transition to entrepreneurship is shaped by institutional arrangements at different levels and government initiatives.

1.2. Research Questions

- 1) Which structural and institutional constraints limit TVET graduates' participation in self-employment?
- 2) What institutional opportunities enable graduates' transition into self-employment?
- 3) How effective is the implementation of support services at Dukem TVET College?
- 4) What is the effectiveness of practical training and internship delivery programs at Dukem TVET College?
- 5) What is the perceived influence of government policies and administrative actions on TVET graduates' self-employment?

1.3. Research Objective

- 1) To examine structural and institutional constraints on TVET graduates' participation in self-employment.
- 2) To identify and analyze institutional opportunities that enable graduates to transition into self-employment.
- 3) To evaluate the effectiveness of support services implemented at Dukem TVET College.
- 4) To assess the delivery and the labor-market relevance of practical training and internship programs at Dukem TVET College.
- 5) To analyze the perceived influence of government policies and administrative actions on the self-employment of TVET graduates.

2. Research Design and Methodology

A sequential explanatory mixed-methods design was performed in which quantitative data were collected first priority and analyzed before qualitative interviews and focus group discussions. The qualitative aspect was in a supportive role and served to explain and explore key themes emerging from the survey findings (See **Figure 1**).

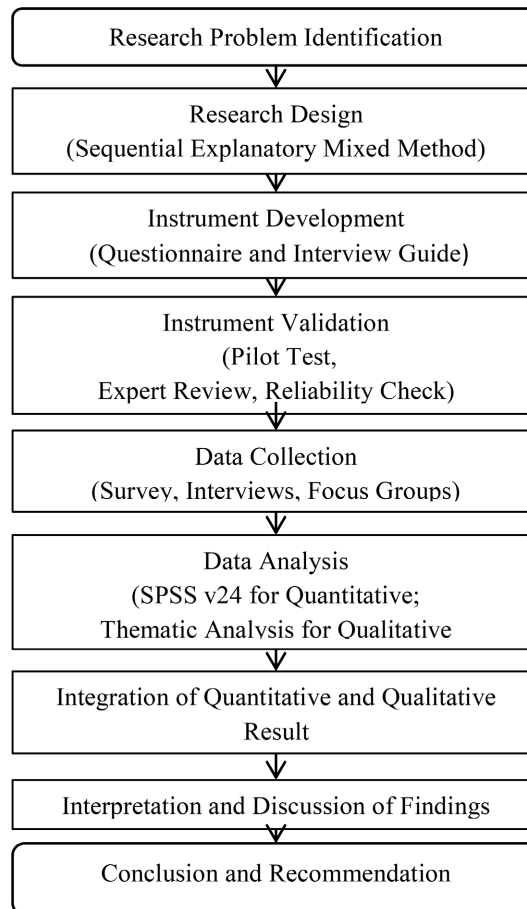


Figure 1. Research process of the study.

2.1. Research Population

The target population included trainers, managers and other support staff for TVET graduate self-employment in Dukem Town. Key informants included the Dean and Vice Dean, outcome-based training coordinators, vocational counselors, trainers, and self-employed TVET graduate and micro- and small-enterprise experts. These stakeholders were chosen, as they are key actors that directly influence the preparation, transition and sustainability of TVET graduate engagement in self-employment.

2.2. Sampling Technique and Procedure

Dukem Town has a total of 16 work specialties in which TVET graduates are self-

employed. This study considers 10 specializations while excluding six specializations due to a lack of self-employed graduates in the period studied (2023-2025). The lack of empirical data rendered these six specializations methodologically unjustified and thus not appropriate for inclusion, given that no self-employed graduates were available to interview. The inclusion of those cases would provide no analytical value and could affect proportional representation in the analysis. Ten eligible specializations were selected using simple random sampling, while proportional sampling was employed to determine the number of respondents per specialization. Out of those identified a total of 780 self-employed TVET graduate were recorded. Using the finite population correction formula developed [17]. A sample size of 264 graduates was determined. The allocations were proportional so that each specialization was adequately represented in the sample. A census approach was used for TVET managers ($n = 6$) and MSE experts ($n = 5$). Such a census strategy was adopted since the number of individuals in these categories was low and manageable, and each individual had high administrative or technical responsibility for TVET implementation and graduate self-employment support. Including all members meant that representation was by experts, not statistics. To triangulate and contextualize the quantitative findings, semi-structured interviews were also conducted with managers, trainers, counselors, and experts. This study is focused only on self-employed TVET graduates in Dukem Town; hence, the results reflect perspectives among this group and not all TVET graduates.

2.3. Sampling Frame

The sampling frame was the total number of 780 self-employed TVET graduates registered in Dukem Town during the graduation years (2023-2025), as well as five MSE experts and six staff from TVET management. Self-employed graduates were determined by using the formula for determining sample size from a finite population [17] (See **Table 1**).

$$n = \frac{N}{1 + N(e^2)} \quad (1)$$

where:

n = sample size (total sample size)

N = population size (780)

e = margin of error (0.05)

$$n = \frac{780}{1 + 780(0.05^2)} = 264$$

To determine the sample number per specialization, proportional allocation was applied:-

$$n_k = \left(\frac{n}{N}\right) \times N_k \quad (2)$$

This ensured that all ten eligible specializations were equally represented in the

study population without bias.

where:

n_k = sample size for stratum k

N_k = population size of stratum k

N = total population (780)

n = total sample size (264)

Table 1. Sample distribution of self-employed TVET graduates by department.

No.	Department	Number of self-employed (N_k)	Sample size (n_k)
1	Manufacturing	100	34
2	Bar bending	47	16
3	Furniture making	55	17
4	Auto mechanics	69	22
5	Electric & electronics	56	20
6	ICT	22	7
7	Cattle fattening	60	21
8	Dairy farming	111	38
9	Poultry	140	48
10	Block production	120	41
	Total	780	264

2.4. Sampling Units

A total of 275 respondents were included as sampling units; which consisted of 264 self-employed TVET graduates, five MSE experts and six TVET management staff. This insures that both levels of experience (graduates) as well as institutional support were adequately represented within the study.

2.5. Reliability and Validity of Research Instrument

2.5.1. Reliability

To determine the clarity and internal reliability of the questionnaire, a pilot test was performed on 20 participants. Cronbach's alpha was used to determine reliability, yielding $\alpha = 0.755$ (See **Table 2**). This value was within an acceptable range for internal consistency of the 30-item scale which shows a reliable instrument in data collection [18].

Table 2. Reliability analysis of the scale.

Cronbach's alpha	Number of items
0.755	30

2.5.2. Validity of Research Instrument

Its face and content validity were established by receiving reviews from the Dukem

TVET College academic staff members and trainers. The instrument was designed based on general methodological discussions with the research advisor. Construct validity was also further supported by alignment with recognized TVET and youth entrepreneurship frameworks.[19].

2.6. Measurement Scale

Responses were obtained from five-point Likert scales. Depending on the item, scales ranged from 1 = strongly agree to 5 = strongly disagree, or from 1 = very low to 5 = very high. Mean values were calculated to summarize response tendencies. Before analysis, items responding in the opposite direction were reverse-coded to align with the other variables so that lower mean values indicated greater agreement or higher perceived effectiveness.

2.7. Operational Definitions of Variables

The main constructs in this study were operationalized using specific questionnaire items.

Structural constraints represent barriers, including the lack of start-up capital, limited access to finance, and regulatory challenges measured through items Q1-Q5.

Institutional opportunity is operationalized as the availability of institutional support mechanisms (training programs, advisory services, and policy assistance) through items Q6-Q10.

Support services (Q11-Q15) comprising entrepreneurship training and career guidance, business advisory support offered by TVET institutions and government agencies.

Q16-Q20 measured practical training effectiveness, which is the sufficiency and relevance of learning in hands-on training and internship.

2.8. Qualitative Procedure

Semi-structured interviews (N = 6) and one focus group discussion were undertaken with participants purposively selected according to their role within institutions and their experience of supporting self-employment for TVET graduates at dukem town. The duration of each interview was around 40 - 60 minutes. Data were familiarized, coded, and themes developed, using thematic analysis.

2.9. Ethical Consideration

Ethics approval was granted for this study by Dukem TVET College. The study was based on voluntary participation and informed consent from all the participants. The respondents were guaranteed confidentiality of their information and its use for academic research purposes only. Personal identifiers have been removed to protect anonymity.

2.10. Demographic Characteristics of Respondent

Out of the total 261 edited questionnaires, respondents included 147 (56.3%)

males and 114 (43.67%) females. Most (246, 94.25%) were aged 18 - 30, suggesting that predominantly respondents were young adults in the early stage of their careers. The majority of respondents were diploma holders (244, 93.48%), followed by degree holders (16, 6.13%) and one master's degree holder (0.38%). With respect to work experience, most people (92.3%) indicated that they had 1 - 5 years of work experience, indicating that the majority were new entrants into self-employment (See **Figure 2**).

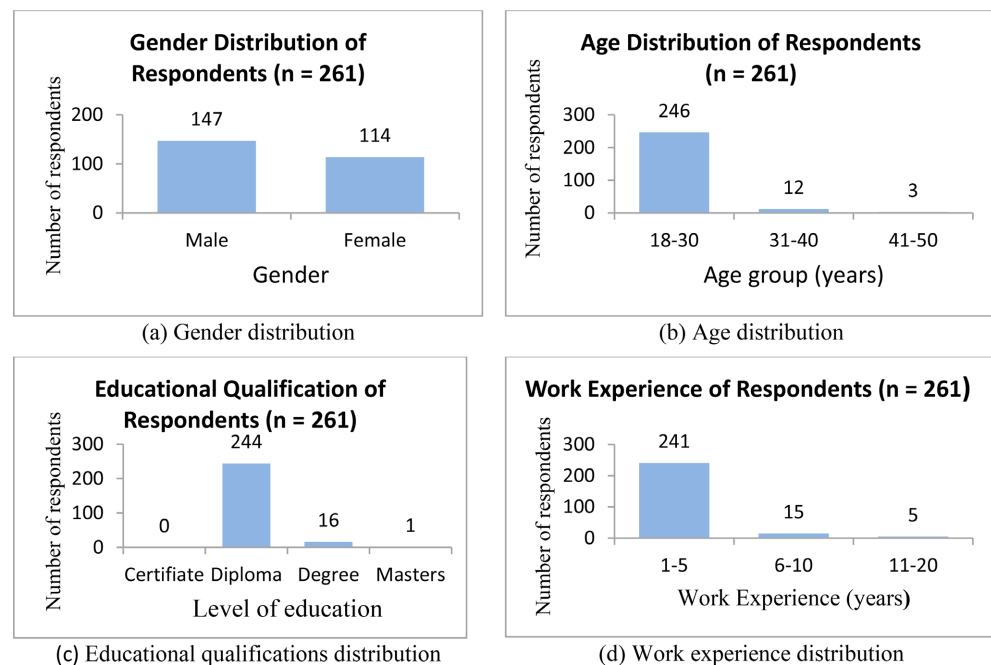


Figure 2. Demographic Characteristics of respondent (a) gender distribution; (b) age distribution; (c) educational qualification; and (d) work experience.

3. Major Finding

In this study, institutional opportunities refer to financial, training and curriculum-related support mechanisms offered by institutions to support graduates for self-employment.

3.1. Structural and Institutional Constraints on Graduates' Self-Employment (n = 261)

This section of the analysis focuses on the structural and institutional barriers that define TVET graduates' participation in self-employment in Dukem Town. Based on the 100% stacked horizontal bar chart and, qualitative interviews, responses indicate a clear ordering of barriers (See **Figure 3**).

Financial constraint is the main structural barrier. A combined 89.3% of respondents rating lack of start-up capital as high or very high, showing that access to capital perceived as the first binding entry barrier in entrepreneurship. This asserts that the constraint is structural rather than motivational, which indicates limited access to credit, startup finance, and risk buffering instruments. *Interviews*

support this finding (TVET) instructor commented that “Although these graduates are trained theoretically and with minimal practical experience, most of them do not operate their own businesses owing to a lack of capital, fear of the risk involved, and an unfavorable business environment”.

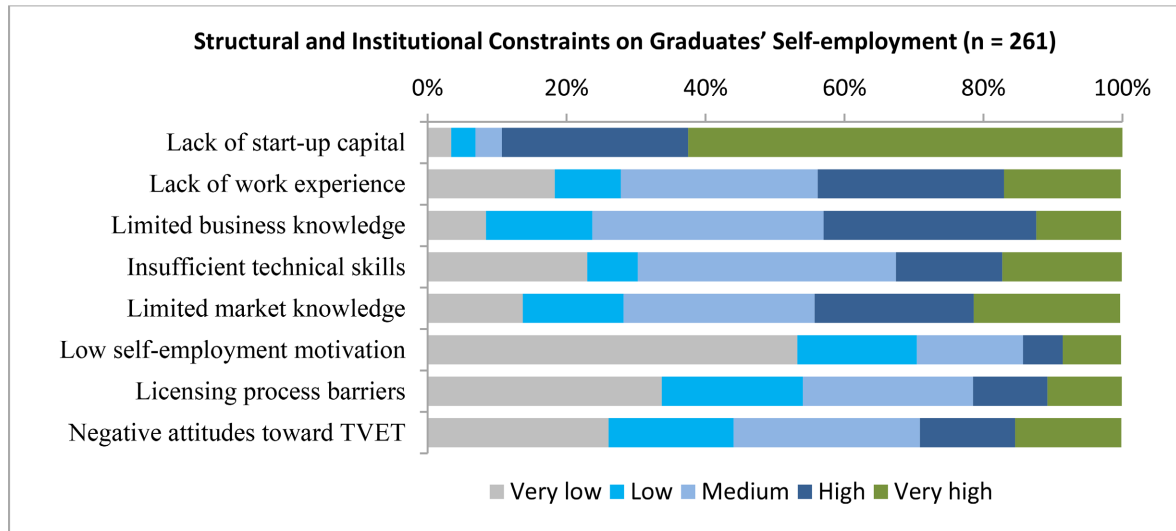


Figure 3. Responses by graduates on structural and institutional constraints.

A second group of constraints has to do with experiential and knowledge gaps. Limited market knowledge (43.97% high/very high), lack of work experience (43.60%), and limited business knowledge (42.80%) were reported to moderate level. These results indicate that while graduates possess basic occupational competencies, their transition towards self-employment is constrained by a lack of access to market environments and experience in applied enterprise management. *As an instructor of entrepreneurship explained, “Trainees are taught how to write business plans, but they often lack experience or motivation.”*

Interestingly, only 32.5% of survey respondents rated insufficient skills high/very high, suggesting that technical capacity was not widely perceived the primary constraint.

Motivational and regulatory barriers seem weak by in comparison. Low motivation to self-employment was rated very low by 53.2%, while the licensing process was a low and/or very low barrier by a total of 54.0%. *Qualitative research gathers insights indicating that graduates' career choices are guided by socio-cultural expectations. In fact, one respondent noted: “Families and communities tend to expect that graduates will seek wage employment rather than self-employment, even discourage entrepreneurial initiatives.”*

Entirely, the evidence shows hierarchical perceived constraints: financial access is the most structural constraint; experiential and market gaps have modest influence; psychological or administrative barriers play a comparatively minor role. The problem of graduate self-employment in Dukem Town is closely associated with limited and financial-market integration mechanisms.

3.2. Institutional Opportunity Facilitating Graduates Transitioning to Self-Employment (n = 261)

This section examines the institutional opportunities that facilitate graduates' transition into self-employment. Responses were collected using a five-point Likert scale, and mean scores (mean \pm standard deviation (SD)) were calculated to summarize the response tendency and variability by 100% stacked horizontal bar (See **Figure 4**).

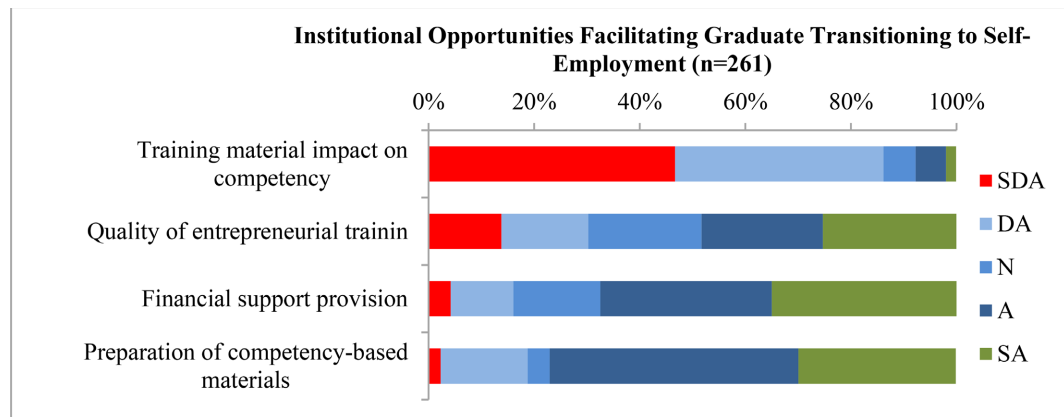


Figure 4. Graduate responses on institutional opportunities facilitating graduates transition to self-employment.

Table 3. Standard deviation of institutional opportunity.

No.	Item statement	SD
1	Training material impact on competency	0.485
2	Quality of entrepreneurial training	0.307
3	Financial support provision	0.241
4	Preparation of competency-based materials	0.241

Results show that the strongest forms of institutional support consist of financial and curriculum-related mechanisms. Provision of financial support received high level of agreement (67.46% agree/strongly agree), with a low mean score ($M = 2.17$, $SD = 0.241$), showing strong perceived effectiveness and high convergence in response across respondents. *Interview evidence also confirms that financial support is vital for TVET graduates. As one MSE agency manager explained: "Graduates can obtain start-up loans from microfinance institutions or join government schemes that encourage youth entrepreneurship"*. However, although institutional financial support mechanisms are exists, many graduates face considerable challenges accessing start-up funding. Suggest that the presence of support program or mechanism does not necessarily guarantee effective access to capital (See **Table 3** and **Figure 5**).

Similarly, the preparation of competency-based materials received the most positive evaluation (76.9%) agree/strongly agree; $M = 2.14$, $SD = 0.241$) showing

high level of agreement among respondents and similarity in response patterns across participants. Interview evidence also highlighted the role of financial support. As one MSE agency director explained: “Graduates may also seek start-up loans from microfinance institutions or participate in government schemes to promote youth entrepreneurship. According to the entrepreneur lecturer *“Classes on the entrepreneurial thinking and helping entrepreneurs thinking increasingly supported by the government and institutions.”*”

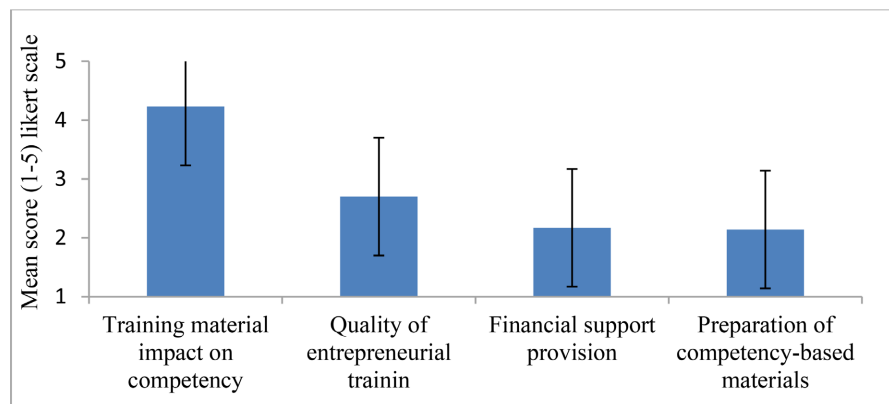


Figure 5. Mean ratings of institutional opportunity with SD error bars.

The institutional influence of entrepreneurial training quality is moderate. Despite the fact that 48.26% of respondents said they agreed, a substantial percentage chose neutral or disagreement categories, resulting in a significantly higher mean ($M = 2.70$, $SD = 0.307$). Although entrepreneurship training helps develop skills, its practical translation into entrepreneurial preparedness is not consistently realized, according to the broader variability, which suggests inconsistent experiential outcomes. *In interviews, one respondent expressed this idea in the context of entrepreneurship courses as well, stating that “They prepare business plans but not for actualizing.”*

In contrast, the perception of training material effect showed an inverted distribution pattern. Overall, 86.16% of the respondents disagreed with the statement that material shortages greatly disrupt competency development, which can be measured by a high mean value ($M = 4.23$) and the largest dispersion ($SD = 0.485$). The wide SD error bar for this is a sign of lower consensus among respondent and indicates that the variation in how the adequacy of materials affects perceived competence training material across training fields.

Overall, the evidence indicates differentiated institutional support structure, where financial support and competency-based competence preparation serve as foundational institutional opportunities, and the quality of entrepreneurial trainings shows moderate influence, while training material availability tends to play a relatively limited role in shaping graduates to self-employment.

3.3. Effectiveness of Support Services Implemented at Dukem TVET College

In this sub-section, distributional intensity was used to assess the effectiveness of

support services implemented within five performance criteria at Dukem TVET College. The stacked-response patterns indicate a variation structure of institutional performance. Qualitative interviews of responses also supported a clear ordering of effectiveness.

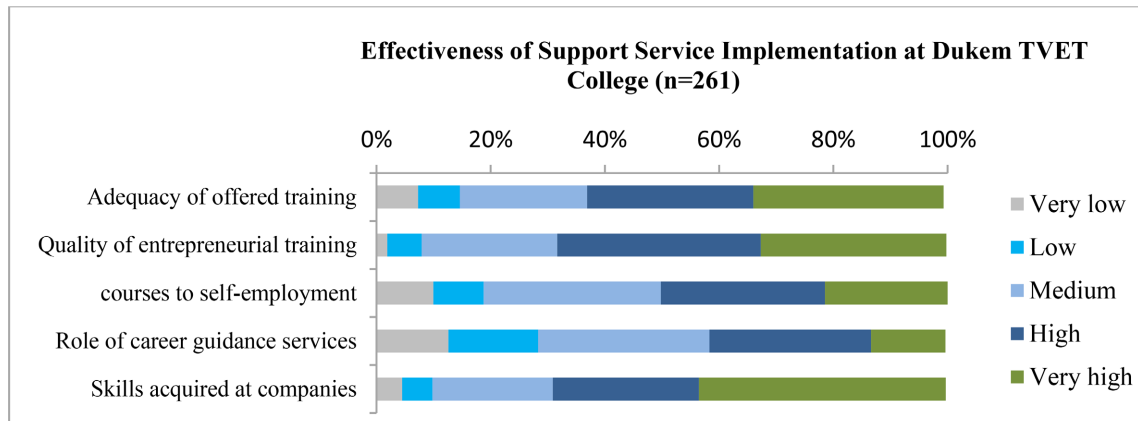


Figure 6. Graduate response on the effectiveness of support service implementation.

Relative strength: Delivery of Technical training. The high proportion of respondents choosing “high/very high” (62.42% for adequacy of offered training, 68.13% for quality of entrepreneurial training) indicates strong level of agreement, about the relevance and adequacy of training provision. The result suggests that the college core instructional function is widely perceived as supporting skill development among graduates (See **Figure 6**).

Industry-based attachment also furthermore highlights this asset. Skills developed at companies showed the greatest positive concentration (68.80% high/very high), highlighting the perceived of experiential learning to practical competence and preparing for Self-employment. Interview evidence also reinforced this interpretation one TVET instructor explained “*Internships in actual work environments allow trainees to engage in practice and develop competencies useful for entrepreneurial activities.*”

Instead, actual self-employment outcomes by course contribution showed a more moderate distribution, with the largest proportion of the responses around mid-level (31.03%). This pattern indicates a gap between the curriculum delivery and its direct application to entrepreneurial creation, implying that course content may not consistently translate to entrepreneurial readiness.

Career guidance and counseling services showed relatively lower performance. Advisory support seems poorly integrated into the institutional training ecosystem, 58.30% of respondents rated these services as medium or lower. The implication is that although much of the forward-facing technical capacity is being delivered, structured transition guidance into entrepreneurial pathways is weak. *The MSE agency representative noted: “Career counselors in TVET institutions could address poor motivation, risk aversion, and limited knowledge of entrepreneurship among graduates.”*

Over all, the evidence suggests that Dukem TVET College is performing well with regard to technical training delivery and industrial attachment mechanisms, while relatively less strong with regard to entrepreneurship-centered course integration and career advisory systems. This pattern showed that although technical skill development is widely supported structured transition mechanism in to sustainable self-employment required further strengthening.

3.4. Effectiveness of Practical Training and Internship Program Delivered at Dukem TVET College

This subsection aims to assess how effectiveness of the practical training and internship programs of Dukem TVET College has been preparing their graduates for self-employment. Responses were collected using a five-point Likert scale, and mean scores (mean \pm standard deviation (SD)) were calculated to summarize response pattern and variability supported by 100% stacked horizontal bar (See **Figure 7** and **Table 4**).

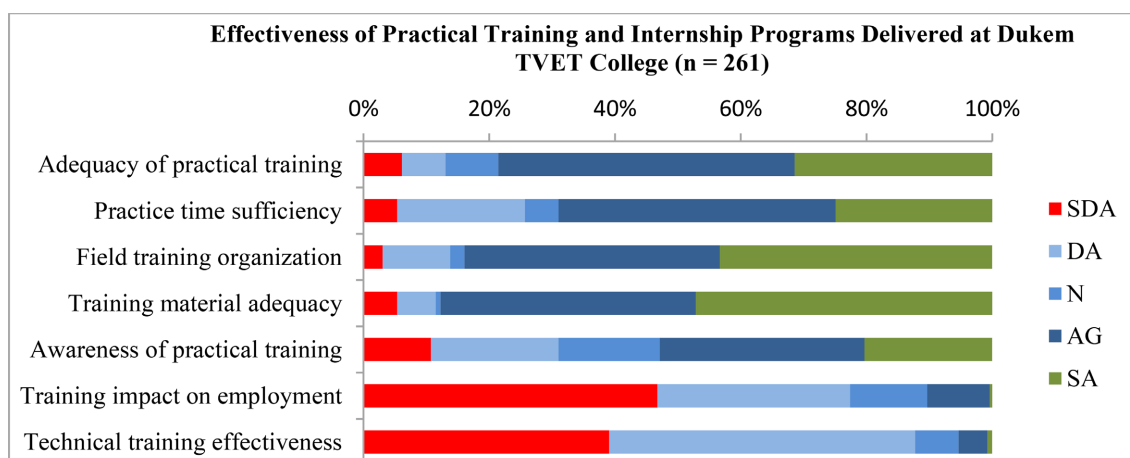


Figure 7. Graduates response on effectiveness of practical training and internship program.

Table 4. Standard deviation of effectiveness of practical training and internship.

No.	Items statements	SD
1	Adequacy of practical training	0.29
2	Practice time sufficiency	0.266
3	Field training organization	0.212
4	Training material adequacy	0.232
5	Awareness of practical training	0.298
6	Training impact on employment	0.473
7	Technical training effectiveness	0.482

The analysis showed that supportive (generally positive) perceptions of the delivery of practical training. For practical training (Item 1), 47.12% and 31.41% of respondents agreed or strongly agreed that sufficient skills training was provided,

respectively, leading to a moderate mean score ($M = 2.56$, $SD = 0.29$) and relatively low variability, suggestive of uniform response of institutional support (See **Figure 8**).

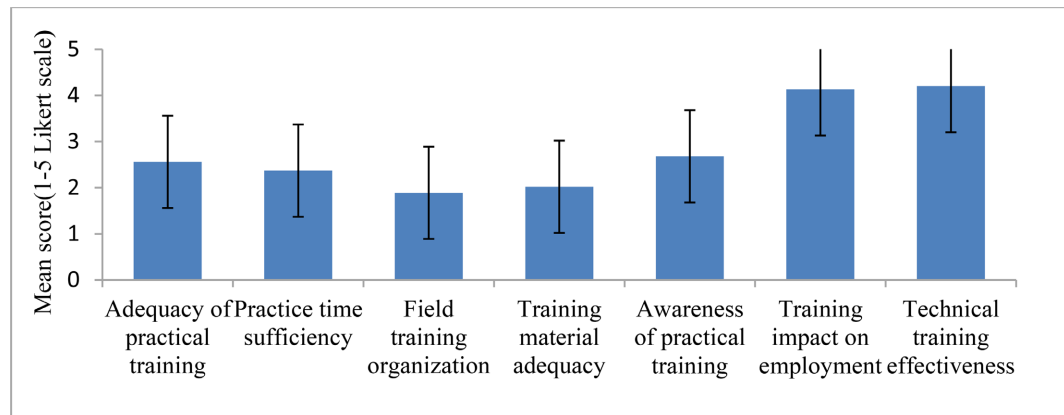


Figure 8. Mean ratings effectiveness of practical training & internship with SD error bar.

Likewise, the sufficiency of practice time (Item 2) was also received with moderate agreement (44.06% agree; 24.90% strongly agree; $M = 2.37$, $SD = 0.27$), indicating that trainees generally perceive that they have adequate time to focus on skills development. Field training organization (Item 3; $M = 1.89$, $SD = 0.21$) was also positively rated with agreement and strong agreement rates of 40.60% and 43.29%, respectively, reflecting structured exposure and sharing experiences programs. Training material adequacy (Item 4) was likewise positively evaluated (40.61% agree; 47.12% strongly agree; $M = 2.02$, $SD = 0.23$), *suggesting that material availability was not widely perceived as a major constraint*. However, *Qualitative interview evidence indicated variability in the quality of practical training across programs. One instructor reported that “When a lecture-driven approach is employed, it allows little opportunity for trainees to develop practical skills that contribute to creating the entrepreneurial mindset.”* In contrast, perceptions related to training outcome were not favorable. For training impact on employment (Item 6), a substantial proportion of respondents expressed disagreement: a total of 46.74% strongly disagree, and 30.65% ($M = 4.13$, $SD = 0.47$) indicate disagree practical training was not widely perceived as effectively reducing unemployment. Similarly, the perceived effectiveness of technical training’s in developing in real-world entrepreneurial skill was rated (Item 7) negatively (39.08% strongly disagree; 48.65% disagree; $M = 4.20$, $SD = 0.48$).

These findings highlight that although the implementation of practical training in an institution (Items 1-5) is overall perceived positively, outcome-related aspects (Items 6-7) are relatively weak. Interview evidence supports this interpretation. Dukem TVET college vice dean noted: *“One of the most significant area that hinders training is technological or equipment shortages or delays in availability.”* The findings overall demonstrate a notable distinction between the perceived sufficiency of training delivery and the perceived substantive effectiveness (out-

comes) of training, in terms of supporting of employment and entrepreneurship readiness among graduates.

3.5. Perceived Influence of Government Policies and Actions Related to Self-Employment of TVET Graduates (n = 261)

This section examines the perceived influence of government policies and administrative mechanisms on the self-employment transition among TVET graduates, integrating stacked distribution data and descriptive interpretation of variability. Responses were recorded on a five-point Likert scale (Very Low to Very High) and analyzed based on response pattern and relative level.

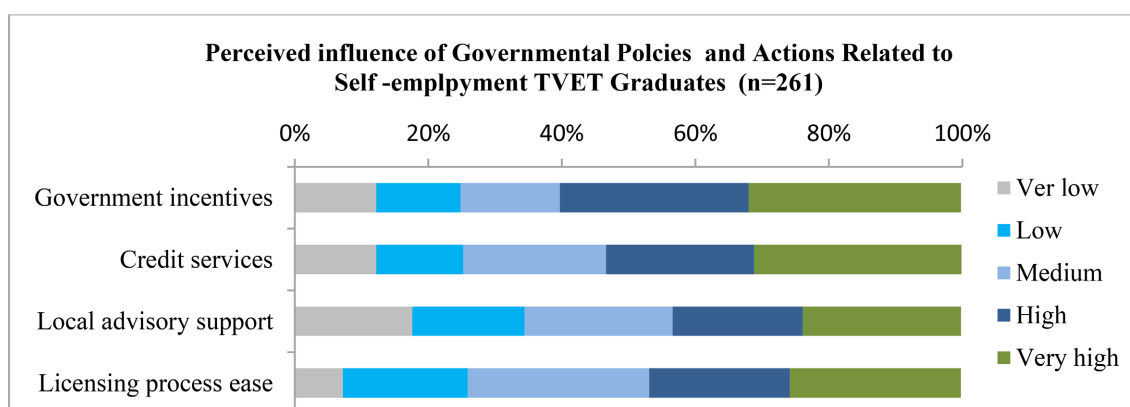


Figure 9. Graduate responses on the perceived influence of government policies and action.

The strongest support mechanisms emerge through financial instruments. Nevertheless, there are, clear differences in policy effectiveness evident from the analysis. Credit services also obtained similarly high support from direct beneficiaries, with 53.2 % of respondents rating them as high or very high, while government incentives such as tax relief, workspace access, and credit facilities scored the same from 60.1 % of respondents at least (See **Figure 9**). A high number of responses in higher-tier categories reflects a positive perception of the financial facilitation process as one of the most important form of institutional support for entrepreneurial engagement. *Interview evidence also supports this observation. An MSE agency manager noted: “TVET graduates are not precluded from government programs that allow them access to microfinance loans or projects supported by the government aimed at fostering youth entrepreneurship.”*

Administrative and Advisory Mechanism showed moderate influence. About 43.2% respondent rated the local advisory support high or very high, and 46.7% rated the licensing process as easy or supportive. Responses were also spread across the remaining categories, suggesting some uncertainty in perceptions of bureaucratic efficiency and advisory effectiveness. Qualitative findings also indicate that while recognition of entrepreneurs within institutions is increasing, financial constraints remains widely perceived as the main barrier to self-employment.

Similarly, an entrepreneurship instructor stated that “Government measures, such as communicating through public media and rewarding high-performing

small entrepreneurs, are slowly but surely fostering entrepreneurial mindsets amongst graduates.”

The evidence showed a clear hierarchy of perceived policy support, in which financial support is considered the primary enabling factor, while advisory and regulatory processes play a supporting but secondary role. This hierarchy highlights the gap between the alignment of policy design and practical access, emphasizing that even well-designed regulations and guidance mechanism may have limited value without accessible financial resources.

Overall, this analysis confirms that financial incentives and credit services count as the most important areas of government support, while advisory support and regulatory facilitation play a useful but relatively less influence. The application of stacked distribution patterns and a qualitative interpretation serves the purpose of providing us with an analytically sound assessment of the policy environment affecting TVET graduates' enterprising outcomes.

4. Discussion

This study aimed to assess the structural constraints, institutional opportunities, and policy environments that influence the transition into self-employment TVET graduates in Dukem Town. The finding suggested that the transition to entrepreneurship is more closely associated with ecosystem-level constraints rather than individual skill deficiency, and thus indicates that graduate self-employment is a largely systemic issue.

The most important result of this study is that financial constraints were widely perceived as primarily barrier for graduates when starting self-employment. Most respondents identified lack of start-up capital as the biggest barrier to business initiation. Such a result is in line with the wider literature on entrepreneurship ecosystems, indicating that financial resources are strongly associated with entry to entrepreneurship activities. In developing economies, the lack of credit and weak financial intermediation are common reported as barriers that prevent technically competent graduates from translating competencies into viable enterprises. The findings thus support the view that entrepreneurship outcomes are not simply functions of individual motivation or training, but are highly conditioned by the availability of institutional mechanisms for financial support.

Another major finding, perceived knowledge and experience gaps: mostly related to limited exposure to suitable markets, as well as in business management experience. While graduates had reported fairly adequate technical skills, their self-employment opportunities were constrained by limited familiarity with market dynamics and enterprise management practices. This is consistent with the view that occupational competence is more strongly emphasized in TVET systems compared to the experience of entrepreneurial practice. Consequently, graduates are equipped with technical skills; however, they may lack sufficient experience knowledge of competitive market environments.

Another contribution of the study is the finding of misalignment between train-

ing delivery and entrepreneurial outcomes. While respondents provided positive evaluations of institutional factors, including training quality, practical training organization, and industry attachments, the perceived contribution of these training activities to employment creation and entrepreneurial competence was comparatively lower. This divergence suggests that the institutional system training inputs works reasonably well, but does not consistently translate into sustainable employment or enterprise creation. Therefore, better alignment is needed between training programs and opportunities in markets, finance systems, and enterprise development activities.

The findings also highlight the importance of government policies and institutional support mechanisms as perceived enabled factors in entrepreneurial performance. Financial tools, credit services, and entrepreneurship programs were widely viewed as the most important form of policy support for self-employment among TVET graduates. In contrast, advisory services and regulatory facilitation mechanisms were viewed as having a moderate role. This hierarchy implies that although it is useful to have administrative support structures, they cannot fill the void created by policies that do not allow access to financial resources. Thus, in order to promote entrepreneurship, policy interventions must be coordinated and reinforce one another by focusing on financing as well as on training and market integration.

Overall, the study reinforces an ecosystem-based understanding of graduate self-employment in which education systems; financial markets, government policies, and market environments collaborate to structure entrepreneurial engagement.

However, several limitations should be noted. First, the study was conducted among self-employed graduates from a single TVET institution (Dukem Town), and therefore the generalizability of results may be limited to other regions or institutions. Second, the analysis is based on self-reported perceptions of graduates which may reflect individual experiences and subjective interpretation.

Future studies may focus on a wider geographical coverage and longitudinal research designs to better understand the long-term dynamics of entrepreneurial outcomes.

Despite these limitations, the study contributes to the literature on TVET and entrepreneurship showing that structural and ecosystem conditions are closely associated with graduate self-employment outcomes. The results underscore the importance of integrated policy and institutional approaches to vocational training systems that connect them with financial institutions, enterprise support programs, and local economic development initiatives.

5. Conclusions

Challenges and Opportunities of Technical and Vocational Education and Training (TVET) Graduates Transition to Self-Employment: Insights from Dukem Town. Several key conclusions can be made based on the empirical findings.

First, graduates' participation in self-employment was widely perceived to be constrained by structural financial barriers. Limited access to start-up funds and other financing mechanisms was reported to restrict graduates' ability to initiate and sustain entrepreneurial activities.

Second, TVET institutions were generally perceived as relatively strong in offering technical education and hands-on training. The findings show that graduates report positive perceptions of work attachment, practical training, and competence-based education, which generate a positive effect on their skills growth.

Third, there is a clear gap between training provision and entrepreneurial outcomes. While institutional training processes were positively evaluated, their perceived contribution to the creation of jobs and enterprise establishment remains limited because they have still not managed to become part of the market, and financial intermediation systems are inadequate.

Finally, the role of government interventions in supporting graduate entrepreneurship was important but insufficient. Financial assistance programs and credit services were perceived as the most influential form of support, while advisory services and regulatory facilitation were a medium influence.

In conclusion, the capability of TVET graduates to be engaged in self-employment seems to be influenced by the quality of vocational education and training systems, and further can be influenced by the enabling financial system and entrepreneurship-oriented policies. Therefore, stronger collaboration between graduate human resource development, financial institutions, and policies is needed to facilitate sustainable graduate self-employment.

6. Recommendation

Based on the findings of this study, upon which this article is based, several recommendations will be put forward to enhance self-employment outcomes among TVET graduates.

Firstly, facilitating financial access is crucial, in which the following targeted interventions could be considered: microfinance schemes for TVET graduates, start-up capital funds, and credit guarantees programs. These mechanisms should be more pragmatic, rather than at the policy level.

Second, as within this strategy, TVET institutions should establish functional post-training support structures (e.g., business incubation on institutional campuses), mentorship programs in self-employment skills, and enterprise development services that can support graduates during the transition to viable self-employment.

Third, curriculum and training delivery should be more responsive to stronger market integration through cooperative training models, industry partnerships, and practical enterprise-based learning approaches to enhance graduates' competencies in business and the market.

Fourth, career guidance and transition support services should include planning pathways towards entrepreneurial activity, financial literacy training, and

formal linkages with financial institutions and enterprise support agencies.

In addition, further collaboration among key stakeholders including TVET institutions, local government bodies, and financial service providers is needed in order to create a more unified mechanism for supporting entrepreneurship.

Conflicts of Interest

The authors declare no conflicts of interest.

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