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Effectiveness of Entrepreneurial Programme Management Practices on Enhancing Self-Reliance among Vocational School Graduates in Nyaruguru District, Rwanda

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Abstract: **Youth unemployment remains a major challenge in Rwanda, requiring education systems to better equip graduates with entrepreneurial competencies and pathways to self-reliance. This study examined the effect of entrepreneurial program management on the self-reliance of vocational school graduates in Nyaruguru District, Rwanda. Specifically, it assessed the effectiveness of entrepreneurial skills development, post-training support systems, and private sector collaboration in promoting graduate self-reliance. Guided by Human Capital Theory and Empowerment Theory, the study adopted a mixed-methods research design. The target population comprised 1,936 participants, including vocational school head teachers, entrepreneurship trainers, private sector entrepreneurs, and TVET graduates. A sample of 296 respondents (264 graduates, 16 trainers, 12 private sector entrepreneurs, and 4 head teachers) was selected. Data were collected using structured questionnaires and interview guides. Quantitative data were analyzed using SPSS version 28 through descriptive statistics, correlation, and regression analyses, while qualitative data were analyzed thematically. Findings showed that entrepreneurial skills development was moderately effective, with business plan preparation receiving the highest rating (Mean = 4.08). Post-training support systems were generally weak, particularly mentorship (Mean = 2.22) and access to startup financing (Mean = 2.45). Private sector collaboration was also moderately effective, with internships and apprenticeships rated highest (Mean = 3.35). Correlation and regression analyses revealed that all three entrepreneurial program management components significantly influenced graduate self-reliance. Post-training support systems had the strongest effect ($r = .590$, $\beta = .392$), followed by entrepreneurial skills development ($r = .551$, $\beta = .296$) and private sector collaboration ($r = .435$, $\beta = .143$). Collectively, the three variables explained 45.7% of the variation in graduate self-reliance ($R^2 = .457$, $p < .001$). The study concludes that strengthening entrepreneurial program management can significantly enhance the self-reliance of TVET graduates. It recommends improving practical entrepreneurship training, establishing structured post-training support systems, expanding access to startup financing, and strengthening formal partnerships between TVET institutions and the private sector to enhance internships, mentorship, curriculum relevance, workplace learning, and employment opportunities.**

Keywords: **Entrepreneurial Programme, Management Practices, Self-Reliance, Vocational School Graduates, Nyaruguru District.**

1. INTRODUCTION

Self-reliance among vocational school graduates has become a global policy priority due to persistently high youth unemployment and the growing need for sustainable livelihoods. Self-reliance refers to graduates' capacity to generate income, create employment opportunities, and sustain productive livelihoods by applying the entrepreneurial, technical, and vocational competencies acquired during training. The International Labour Organization (ILO, 2024) estimates that young people continue to experience significantly higher unemployment rates than adults worldwide, while many employed youth remain in vulnerable or informal employment. Consequently, governments have increasingly positioned Technical and Vocational Education and Training (TVET) as a strategic mechanism for equipping young people with market-relevant skills that promote entrepreneurship, innovation, and economic independence (UNESCO, 2022; World Bank, 2023).

Globally, entrepreneurship education has evolved beyond classroom instruction to encompass practical business incubation, mentorship, industry partnerships, and post-training support mechanisms that facilitate business creation and sustainability. According to the World Bank (2023), entrepreneurship programmes that integrate experiential learning, business coaching, access to finance, and market linkages are more effective in improving enterprise survival and employment outcomes than programmes focusing solely on theoretical knowledge. Similarly, the Organisation for Economic Co-operation and Development (OECD, 2023) emphasizes that entrepreneurial ecosystems involving educational institutions, governments, financial institutions, and the private sector play a critical role in enhancing graduate self-employment and innovation. However, evidence from developing countries indicates that entrepreneurial knowledge alone rarely translates into successful business creation without adequate institutional support, financing, and continuous mentorship (African Development Bank [AfDB], 2024).

Across Africa, youth unemployment remains one of the continent's most pressing socio-economic challenges despite significant investments in vocational education and entrepreneurship development. The African Development Bank (2024) estimates that approximately 10–12 million young Africans enter the labor market annually, while only about three million formal jobs are created each year. Consequently, entrepreneurship has become a central pillar of employment strategies across many African countries. Nations such as Kenya, Ghana, South Africa, and Ethiopia have strengthened entrepreneurship education within their TVET systems to enhance graduates' employability and self-employment. Although these reforms have improved entrepreneurial awareness, intentions, and business skills, studies consistently report that many graduates struggle to establish sustainable enterprises because of inadequate startup financing, weak business incubation systems, limited mentorship, poor market access, and insufficient institutional coordination (AfDB, 2024; Shehu & Ahmad, 2023). These findings suggest that the effectiveness of entrepreneurial programmes depends not only on curriculum content but also on how such programmes are planned, implemented, supervised, and supported.

In Rwanda, entrepreneurship development forms a central component of the country's long-term socio-economic transformation agenda. Vision 2050, the National Strategy for Transformation (NST2: 2024–2029), and the Education Sector Strategic Plan emphasize the development of a skilled, innovative, and entrepreneurial workforce capable of driving inclusive economic growth and reducing unemployment (Government of Rwanda, 2024; MINEDUC, 2023). The Rwanda TVET Board has integrated entrepreneurship, business management, and innovation modules into vocational education programmes to equip graduates with competencies for self-employment and enterprise development. According to the National Institute of Statistics of Rwanda (NISR, 2024), although labor market participation has improved, youth unemployment and underemployment remain significant concerns, particularly among first-time job seekers and young people in rural areas. This situation underscores the need to strengthen the transition from vocational training to sustainable employment through more effective entrepreneurial programme management.

Nyaruguru District exemplifies many of the challenges affecting rural TVET graduates in Rwanda. The district is characterized by predominantly agricultural livelihoods, limited industrial development, constrained financial markets, and relatively weak entrepreneurial ecosystems. Although vocational schools provide entrepreneurship education and practical skills training, many graduates continue to encounter difficulties in establishing viable enterprises due to limited access to startup capital, inadequate mentorship, weak business networks, and restricted market opportunities. Previous studies in Rwanda have similarly identified insufficient practical exposure, inadequate post-training support, and limited collaboration between TVET institutions and the private sector as major constraints to graduate self-reliance (Nsanzabaganwa & Nkundabanyanga, 2020; MINECOFIN, 2023). These challenges are particularly pronounced in rural districts, where entrepreneurial support services remain relatively underdeveloped despite ongoing government interventions.

Despite Rwanda's substantial investment in entrepreneurship promotion through TVET, empirical evidence on how entrepreneurial programme management influences graduate self-reliance remains limited, particularly in rural contexts. Existing studies have largely focused on entrepreneurship education outcomes, employability, or youth unemployment, while giving limited attention to programme management dimensions such as entrepreneurial skills development, management of post-training support systems, and management of private sector collaboration. Yet, these dimensions are fundamental determinants of programme effectiveness because they influence the quality of implementation, continuity of support, and successful transition of graduates into self-employment. Therefore, this study investigates the effect of entrepreneurial programme management on the self-reliance of vocational school graduates in Nyaruguru District, Rwanda. The findings are expected to contribute empirical evidence that can inform policy, strengthen entrepreneurship programme implementation within TVET institutions, and support national efforts toward sustainable youth employment and inclusive economic development.

2. METHODOLOGY

2.1 Research Design

This study employed a mixed-methods research design, specifically adopting a convergent parallel design, to comprehensively examine how entrepreneurial programmes management influences the self-reliance of vocational school graduates in Nyaruguru District.

2.2 Location of the Study

This study was conducted in Nyaruguru District, located in the Southern Province of Rwanda.

2.3 Target Population

The target population consisted of individuals and institutions involved in the implementation and outcomes of entrepreneurship education in vocational schools within Nyaruguru District.

2.4 Sampling Techniques

This study employed a mixed sampling strategy combining stratified random sampling and purposive sampling to ensure both representativeness and relevance.

2.5 Sample Size

The sample size for this study was determined using Yamane's (1967**)** formula, which is appropriate for finite populations when the desired level of precision is known. The formula is expressed as:

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

Where:

- **n** = required sample size;
- **N** = total population size;
- **e** = margin of error (level of precision).

For this study, the target population (**N**) was 1,936, and a 5% margin of error (e = 0.05) was adopted, corresponding to a 95% confidence level.

Substituting the values into the formula:

$$n = \frac{1936}{1 + 1936(0.05)^2}$$
$$n = \frac{1936}{1 + 1936(0.0025)}$$
$$n = \frac{1936}{5.84}$$
$$n = 331.51$$

Therefore, the required sample size was approximately **332 respondents**.

2.6 Research Instrument

The researcher utilized a blend of methods, qualitative and quantitative, employing a closed-ended questionnaire for numerical data, alongside interviews and observations to gather information.

3. RESULTS AND DISCUSSION

3.1 Presentation of Research Findings

This section presents the findings of the study according to each of the research objectives. The findings are based on quantitative data collected through structured questionnaires administered to TVET graduates and trainers, and qualitative data obtained from semi-structured interviews conducted with TVET school head teachers and private sector representatives. Where Likert-scale items are used, mean scores are interpreted using the five-point scale interpretation key outlined in the introduction to this chapter.

3.1.1 Effectiveness of Entrepreneurial Management Skills Development Practices

The first objective of the study sought to examine the effectiveness of entrepreneurial management skills development practices implemented in vocational schools in Nyaruguru District. Respondents (TVET graduates and trainers) were presented with statements assessed on a five-point Likert scale. The findings are presented in Tables 12 and 13 below.

Table 1 presents the opinions of TVET graduates regarding the effectiveness of entrepreneurial management skills development practices during their vocational education. The findings indicate that the strongest area of training was business plan preparation, where the majority of respondents agreed or strongly agreed that they received such training, as reflected by a high mean score of 4.08 and a relatively low standard deviation of 1.23.

Table 1: Opinions of TVET Graduates on Effectiveness of Entrepreneurial Management Skills Development Practices

	SD		D		N		A		SA		Mean	St. Dev
Statements	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
I received training on how to prepare a business plan during my vocational education.	19	7.2	23	8.7	5	1.9	88	33.3	129	48.9	4.08	1.23
The vocational training program improved my ability to identify business opportunities	44	16.7	79	29.9	3	1.1	96	36.4	42	15.9	3.05	1.40
I gained practical skills in managing small business operations during my training.	69	26.1	48	18.2	12	4.5	83	31.4	52	19.7	3.00	1.53
The program helped me understand financial management, including budgeting and cost control.	38	14.4	54	20.5	6	2.3	98	37.1	68	25.8	3.40	1.43
I was trained on how to market products and services effectively.	53	20.1	49	18.6	3	1.1	68	25.8	91	34.5	3.36	1.58
The entrepreneurial training improved my ability to solve business-related problems	62	23.5	83	31.4	6	2.3	65	24.6	48	18.2	2.82	1.48
The program strengthened my ability to make independent business decisions.	53	20.1	72	27.3	8	3.0	76	28.8	55	20.8	3.03	1.48
I learned how to manage resources such as money, materials, and time in a business.	69	26.1	55	20.8	6	2.3	73	27.7	61	23.1	3.01	1.57
The training improved my confidence in starting and managing a small business.	58	22.0	54	20.5	4	1.5	57	21.6	91	34.5	3.26	1.62
Practical activities in the program helped me apply entrepreneurial management skills.	62	23.5	48	18.2	8	3.0	83	31.4	63	23.9	3.14	1.54

Source: Field Data (2026)

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Similarly, respondents acknowledged that the programme helped them understand financial management practices such as budgeting and cost control (Mean = 3.40) and trained them on product and service marketing strategies (Mean = 3.36). These findings suggest that the vocational programmes placed considerable emphasis on theoretical entrepreneurial knowledge and foundational business management concepts that are important for self-employment and enterprise development.

However, the findings also reveal moderate to low effectiveness in several practical entrepreneurial competencies. The respondents expressed mixed opinions regarding whether the programme improved their ability to identify business opportunities (Mean = 3.05), strengthened independent business decision-making (Mean = 3.03), enhanced resource management skills (Mean = 3.01), and provided practical skills in managing small business operations (Mean = 3.00). The relatively high standard deviations across these statements indicate variations in respondents' experiences and perceptions of the training received.

This may imply inconsistencies in programme delivery, differences in institutional capacity, or limited practical exposure during training. The findings indicate that although entrepreneurial concepts were incorporated into vocational training programmes, their practical application was not sufficiently emphasized. Graduates reported limited improvement in higher-order entrepreneurial competencies such as problem-solving (Mean = 2.82), business management confidence (Mean = 3.26), and application of entrepreneurial skills through practical activities (Mean = 3.14). These results suggest that entrepreneurial programme management practices focused more on theoretical instruction than on experiential learning approaches necessary for developing confidence, innovation, and real-world entrepreneurial competence among TVET graduates.

Table 2: TVET Trainers Feedback on Effectiveness of Entrepreneurial Management Skills Development Practices

	SD		D		N		A		SA		Mean	St. Dev
Statements	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
I teach students how to develop a business plan during entrepreneurship lessons.	0	0.0	3	33.3	0	0.0	0	0.0	6	66.7	4.67	0.50
I provide lessons on financial literacy, including budgeting and cost management.	0	0.0	0	0.0	0	0.0	5	55.6	4	44.4	4.44	0.53
The entrepreneurship curriculum I teach includes activities that encourage innovation.	0	0.0	0	0.0	0	0.0	0	0.0	9	100.0	5.00	0.00
I train students to identify business opportunities in their communities.	0	0.0	0	0.0	0	0.0	2	22.2	7	77.8	4.78	0.44
I guide students in solving practical business-related problems during training.	0	0.0	0	0.0	0	0.0	3	33.3	6	66.7	4.67	0.50
I teach students how to market products or services in a competitive market.	0	0.0	0	0.0	0	0.0	4	44.4	5	55.6	4.55	0.53
I involve students in practical activities related to starting and managing a business.	0	0.0	0	0.0	0	0.0	4	44.4	5	55.6	4.55	0.53
I integrate real-life business examples into my entrepreneurship lessons.	0	0.0	0	0.0	0	0.0	3	33.3	6	66.7	4,78	0.50
I update teaching content to reflect current market and industry needs.	0	0.0	0	0.0	0	0.0	2	22.2	7	77.8	4.78	0.44
I assess students' entrepreneurial skills through practical business projects.	0	0.0	0	0.0	0	0.0	3	33.3	6	66.7	4.67	0.50

Source: Field Data (2026)

Table 2 presents feedback from TVET trainers regarding the effectiveness of entrepreneurial management skills development practices implemented in vocational training programmes. The findings reveal overwhelmingly positive perceptions among trainers across all statements, with mean scores ranging from 4.44 to 5.00, indicating strong agreement that entrepreneurial skills were effectively integrated into teaching and learning processes. The highest-rated statement was that the entrepreneurship curriculum includes activities that encourage innovation, which attained a perfect mean score of 5.00 with a standard deviation of 0.00, showing complete agreement among all trainers. Similarly, trainers strongly agreed that they trained students to identify business opportunities in their communities (Mean = 4.78), integrated real-life business examples into lessons (Mean = 4.78), and updated teaching content to reflect current market and industry needs (Mean = 4.78). These findings suggest that TVET trainers were highly committed to equipping students with entrepreneurial knowledge and skills relevant to the labour market and self-employment.

The findings further indicate that trainers emphasized practical and applied entrepreneurial learning approaches. A large majority strongly agreed that they taught students how to develop business plans (Mean = 4.67), guided them in solving practical business-related problems (Mean = 4.67), and assessed entrepreneurial skills through practical business projects (Mean = 4.67). In addition, trainers agreed that they involved students in practical activities related to starting and managing businesses (Mean = 4.55) and taught marketing skills for products and services in competitive markets (Mean = 4.55). The relatively low standard deviations across the statements indicate consistency in the trainers' responses, implying that entrepreneurial management practices were commonly implemented across the participating TVET institutions. This demonstrates that trainers perceived the programmes as highly practical and oriented toward preparing learners for entrepreneurial activities.

However, despite the highly positive feedback from trainers, these findings may contrast with the more moderate perceptions expressed by TVET graduates in the previous analysis. While trainers believed that entrepreneurial competencies such as innovation, financial literacy, business planning, and practical problem-solving were effectively taught, many graduates reported only moderate improvement in their entrepreneurial confidence, problem-solving abilities, and practical business management skills. This difference in perceptions may suggest gaps between curriculum delivery and actual learner outcomes, possibly due to limited resources, insufficient practical exposure, or challenges in translating classroom learning into real-life entrepreneurial practice. Overall, the findings imply that although TVET trainers are making substantial efforts to implement entrepreneurial management skills development practices, additional support mechanisms may be necessary to ensure that these practices result in stronger entrepreneurial competencies and self-reliance among graduates.

Interviews with TVET school head teachers supported the quantitative findings with additional nuance. All three head teachers acknowledged that entrepreneurial skills development was included in the curriculum but noted a predominant emphasis on theoretical knowledge over practical application. One head teacher observed that students spend significant time in class but have limited opportunity to run real business enterprises during training. Trainers collaborated with this, indicating that resources such as business simulation tools and start-up kits were often insufficient. These qualitative insights reinforce the quantitative finding that while skills development practices are moderately effective, there is a critical need to enhance the practical, experiential dimensions of entrepreneurship training.

Majority of headteacher mentioned that entrepreneurship education is integrated into different vocational programmes through lessons on business planning, financial management, marketing, innovation, customer relations, and small business operations. Teachers are encouraged to use learner-centered approaches such as group projects, business simulations, practical assignments, and community-based activities to help students apply entrepreneurial concepts in real-life situations. The assessment of these skills is conducted through continuous assessment methods, including practical business projects, presentations, case studies, portfolio development, and school-based enterprise activities, in addition to written examinations. We also assess students' creativity, problem-solving abilities, teamwork, and decision-making skills to ensure that learners not only acquire theoretical knowledge but also develop the practical competencies needed for entrepreneurship and self-reliance after graduation.

3.1.2 Effect of Post- Training Support Systems on Enhancing the Self -Reliance of TVET Graduates

The second objective aims to determine the effectiveness of the management of post-training support systems in enhancing the self-reliance of TVET graduates in Nyaruguru District. Respondents assessed different items on a five-point Likert scale. The findings about graduates and TVET Trainers' feedback are summarized in Table 14 and 15 respectively. Qualitative data from interviews are analyzed and presented thematically.

Table 14 presents the feedback of TVET graduates regarding the effectiveness of post-training support systems management in enhancing their self-reliance after completing vocational education. The findings generally indicate low levels of satisfaction with the support received after graduation, as reflected by the low mean scores ranging from 2.22 to 2.93.

Table 3: TVET Graduates Feedback on Effectiveness of Post-training Support Systems Management in Enhancing the Self-reliance of TVET Graduates

	SD		D		N		A		SA		Mean	St. Dev
Statements	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
I received mentorship from trainers or professionals after completing my vocational training.	112	42.4	87	33.0	0	0.0	24	9.1	41	15.5	2.22	1.46
The vocational school-maintained communication with me after graduation to provide guidance.	98	37.1	75	28.4	0	0.0	45	17.0	46	17.4	2.49	1.54
I was connected to a business incubation or enterprise development program after graduation.	74	28.0	81	30.7	0	0.0	53	20.1	56	21.2	2.76	1.56
I received information about business opportunities after completing my training.	66	25.0	89	33.7	0	0.0	63	23.9	43	16.3	2.73	1.47
I had access to financial support such as grants, loans, or startup funds to start a business.	91	34.5	83	31.4	0	0.0	61	23.1	29	11.0	2.45	1.44
I received support in developing my business idea after graduation.	116	43.9	57	21.6	0	0.0	57	21.6	34	12.9	2.38	1.52
The vocational school linked me with potential employers or business partners after graduation.	93	35.2	82	31.1	0	0.0	43	16.3	46	17.4	2.50	1.53
I was provided with follow-up training or workshops to strengthen my entrepreneurial skills.	74	28.0	66	25.0	0	0.0	53	20.1	71	26.9	2.93	1.63
The post-training support helped me apply the skills I learned during my vocational training.	76	28.8	78	29.5	0	0.0	57	21.6	53	20.1	2.75	1.55
The support I received after graduation increased my ability to become economically self-reliant.	97	36.7	89	33.7	0	0.0	49	18.6	29	11.0	2.33	1.41

Source: Field Data (2026)

The majority of respondents disagreed that they received mentorship from trainers or professionals after graduation, resulting in the lowest mean score of 2.22. Similarly, many graduates reported that vocational schools did not maintain communication with them to provide guidance after graduation (Mean = 2.49) and did not adequately support them in developing business ideas (Mean = 2.38). These findings suggest that post-training mentorship and follow-up mechanisms were weak or inconsistently implemented, limiting graduates' access to continuous professional and entrepreneurial guidance after completing their studies.

The findings revealed limited institutional support in connecting TVET graduates to entrepreneurial and employment opportunities. Most graduates reported inadequate access to startup financing (Mean = 2.45), weak linkage to employers and business partners (Mean = 2.50), and limited support through business incubation programmes (Mean = 2.76). These results suggest that existing post-training support systems were insufficient to facilitate graduates' transition into employment or self-employment.

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The study further found that weak post-training support negatively affected graduates' ability to apply entrepreneurial skills and achieve economic self-reliance. Although some graduates received follow-up training and workshops (Mean = 2.93), many felt that the support provided did not significantly enhance their application of acquired skills (Mean = 2.75) or improve their self-reliance (Mean = 2.33). This highlights the need for stronger mentorship programmes, effective alumni follow-up systems, improved access to startup financing, and closer collaboration between TVET institutions and entrepreneurship support agencies.

Table 4: Trainers' Feedback on Effectiveness of Post-training Support Systems Management in Enhancing the Self-reliance of TVET Graduates

	SD		D		N		A		SA		Mean	St. Dev
Statements	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
My school has a structured system to follow up with graduates after completing their training.	0	0.0	4	44.4	3	33.3	2	22.2	0	0.0	2.78	0.83
My school provides mentorship to graduates after they complete their studies.	4	44.4	3	33.3	2	22.2	0	0.0	0	0.0	1.78	0.83
Teachers or trainers offer coaching to graduates on starting or managing a business.	5	55.6	0	0.0	4	44.4	0	0.0	0	0.0	1.89	1.05
My school collaborates with business incubation centers to support graduates.	3	33.3	2	22.2	2	22.2	2	22.2	0	0.0	2.33	1.22
Graduates are guided on how to access start-up capital such as grants or microloans	0	0.0	2	22.2	0	0.0	4	44.4	3	3.33	3.89	1.17
My school organizes follow-up training or workshops for graduates.	2	22.2	1	11.1	2	22.2	1	11.1	3	33.3	3.22	1.64
My school provides information to graduates about employment or business opportunities.	1	11.1	3	33.3	2	22.2	2	22.2	1	11.1	2.89	1.27
Alumni of the school participate in mentoring recent graduates.	0	0.0	2	22.2	3	33.3	4	44.4	0	0.0	3.22	0.83
My school connects graduates with organizations that support entrepreneurship.	4	44.4	5	55.6	0	0.0	0	0.0	0	0.0	1.55	0.53
The post-training support provided by my school helps graduates become self-reliant.	0	0.0	3	33.3	3	33.3	3	33.3	0	0.0	3.00	0.87

Source: Field Data (2026)

Table 4 presents trainers' feedback on the effectiveness of post-training support systems management in enhancing the self-reliance of TVET graduates. The findings reveal that several support mechanisms were either weak or inadequately implemented in the participating institutions. A majority of trainers disagreed that their schools provided mentorship to graduates after completing studies, resulting in a very low mean score of 1.78. Similarly, trainers indicated that teachers rarely offered coaching to graduates on starting or managing businesses (Mean = 1.89), and most strongly disagreed that schools connected graduates with organizations supporting entrepreneurship, which recorded the lowest mean score of 1.55. These findings suggest that post-graduation mentorship, coaching, and institutional networking support were limited, thereby reducing graduates' opportunities to receive continued entrepreneurial guidance and external support after leaving school.

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The findings revealed that some post-training support practices existed within TVET institutions, although their implementation was inconsistent across schools. Trainers indicated that graduates received some guidance on accessing startup capital (Mean = 3.89), while follow-up training workshops (Mean = 3.22) and alumni mentorship initiatives (Mean = 3.22) were moderately available. However, structured graduate follow-up systems (Mean = 2.78), collaboration with business incubation centres (Mean = 2.33), and provision of employment and business opportunity information (Mean = 2.89) were reported to be weak, suggesting gaps in the continuity of support provided to graduates.

The findings further showed mixed perceptions regarding the effectiveness of post-training support in promoting graduates' self-reliance. Trainers only moderately agreed that the support provided helped graduates become self-reliant (Mean = 3.00), indicating uncertainty about its actual impact. These results suggest that existing initiatives such as mentorship, workshops, and financial guidance are not sufficiently coordinated or sustainable to produce substantial self-reliance outcomes. The findings therefore highlight the need to strengthen graduate follow-up systems, expand mentorship and coaching programmes, improve access to business incubation services, and establish stronger partnerships with entrepreneurship support organizations.

Interview findings from head teachers and private sector entrepreneurs strongly corroborated the quantitative data on post-training support weaknesses. All three head teachers highlighted the absence of a structured graduate tracking mechanism, noting that once students complete their programmes, there is no formal system to monitor their progress or provide ongoing support. Majority of private sector entrepreneurs, 6 out of 7, confirmed that TVET graduates who had not received post-training mentorship or capital support were more likely to seek employment rather than pursue entrepreneurship. Two entrepreneurs noted that they had informally mentored some graduates, but that this was done voluntarily without institutional support. These qualitative observations underscore the quantitative finding that post-training support systems, particularly access to finance and mentorship, are underdeveloped in Nyaruguru District's TVET ecosystem.

3.1.3 Private Sector Collaboration Management Strategies and Vocational School Graduates Self- reliance

The third objective examined the effectiveness of private sector collaboration management strategies in promoting self-reliance among vocational school graduates in Nyaruguru District. Respondents were asked to rate set statements on a five-point Likert scale. The results are presented in Tables 16 and 17 with respect to TVET graduate and trainers' feedback.

Table 5: TVET Graduates Feedback on Private Sector Collaboration Management Strategies in Promoting Self-reliance

	SD		D		N		A		SA		Mean	St. Dev
Statements	Fr	%	Fr	%	Fr	%	Fr	%	Fr	%		
I participated in an internship or apprenticeship arranged through my vocational school	44	16.7	58	22.0	0	0.0	84	31.8	78	29.5	3.35	1.50
Private companies provided practical training opportunities during my vocational program	47	17.8	59	22.3	0	0.0	91	34.5	67	25.4	3.27	1.49
Professionals from private companies participated in training activities at my vocational school.	64	24.2	70	26.5	0	0.0	73	27.7	57	21.6	2.95	1.54
I was linked to job opportunities through vocational school partnerships with companies.	73	27.7	67	25.4	0	0.0	60	22.7	64	24.2	2.90	1.60
I received mentorship from entrepreneurs or industry professionals during my training.	65	24.6	81	30.7	0	0.0	58	22.0	60	22.7	2.87	1.55

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My vocational school organized industry visits to private companies.	73	27.7	83	31.4	0	0.0	61	23.1	47	17.8	2.72	1.51
Private companies contributed equipment, tools, or training materials used during my training	70	26.5	53	20.1	0	0.0	39	14.8	102	38.6	3.19	1.71
I received information about employment opportunities through school partnerships with private companies.	71	26.9	76	28.8	6	2.3	50	18.9	61	23.1	2.82	1.57
The collaboration between my vocational school and private companies improved my job-related skills.	68	25.8	70	26.5	6	2.3	58	22.0	62	23.5	2.91	1.57

Source: Field Data (2026)

Table 5 presents the feedback of TVET graduates on the effectiveness of private sector collaboration management strategies in promoting self-reliance. The findings indicate that some collaboration initiatives between vocational schools and private companies were moderately implemented. A considerable number of graduates agreed that they participated in internships or apprenticeships arranged through their vocational schools, resulting in a relatively moderate mean score of 3.35. Similarly, respondents acknowledged that private companies provided practical training opportunities during the vocational programme (Mean = 3.27) and that schools collaborated with companies to provide workplace-based learning experiences (Mean = 3.19).

These findings suggest that vocational institutions made efforts to expose learners to practical industrial environments, which is important for developing employability skills, work experience, and entrepreneurial competencies among graduates. However, the findings also reveal weaknesses in the depth and consistency of private sector involvement in training activities. Many respondents disagreed that professionals from private companies actively participated in school training activities (Mean = 2.95), provided mentorship during training (Mean = 2.87), or that schools regularly organized industry visits to private companies (Mean = 2.72). In addition, graduates reported limited access to information about employment opportunities through school-company partnerships (Mean = 2.82) and weak linkage to direct job opportunities after training (Mean = 2.90). These low to moderate mean scores indicates that although partnerships with private companies existed, they may not have been sufficiently strong, structured, or comprehensive to provide continuous career guidance, mentorship, and employment pathways for graduates. The relatively high standard deviations across the statements further suggest differences in graduates' experiences depending on the institutions attended or the nature of partnerships established.

Furthermore, the findings show mixed perceptions regarding the contribution of private sector collaboration to improving graduates' practical and job-related skills. While a notable proportion of respondents agreed that private companies contributed equipment, tools, or training materials used during training (Mean = 3.19), many still disagreed that collaboration with private companies significantly improved their job-related skills (Mean = 2.91). This implies that the available collaboration strategies may have focused more on occasional support and practical exposure rather than sustained and integrated workplace learning experiences. Overall, the findings suggest that although TVET institutions have initiated partnerships with private sector organizations, there is still a need to strengthen industry-school collaboration through enhanced internships, mentorship programmes, workplace-based learning, industry visits, and direct employment linkage systems to better prepare graduates for self-reliance and labour market integration.

Table 6 presents TVET trainers' feedback on private sector collaboration management strategies in promoting graduates' self-reliance. The findings indicate that trainers generally held positive perceptions regarding the existence of partnerships between TVET schools and private companies. A majority of respondents agreed or strongly agreed that their schools had established partnerships with private companies for internships or apprenticeships, resulting in a high mean score of 4.44. Trainers also strongly agreed that students participated in workplace learning activities organized with private companies (Mean = 4.67), while private sector partners provided material or financial support to entrepreneurial programmes (Mean = 4.78).

Table 6: TVET Trainers' Feedback on Private Sector Collaboration Management Strategies in Promoting Self-reliance

	SD		D		N		A		SA		Mean	St. Dev
Statements	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
My school has established partnerships with private companies for internships or apprenticeships.	0	0.0	0	0.0	0	0.0	5	55.6	4	44.4	4.44	0.53
Students in my school participate in workplace learning activities organized with private companies.	0	0.0	0	0.0	0	0.0	3	33.3	6	66.7	4.67	0.50
Private sector partners provide material or financial support to our entrepreneurial programs	0	0.0	0	0.0	0	0.0	2	22.2	7	77.8	4.78	0.44
Private companies provide equipment, tools, or materials used in our training programs.	0	0.0	0	0.0	0	0.0	0	0.0	9	100.0	5.00	0.0
Private sector partners support entrepreneurial training activities in our school.	2	22.2	0	0.0	3	33.3	2	22.2	2	22.2	3.22	1.48
I collaborated with industry professionals to improve the relevance of entrepreneurial training.	2	22.2	2	22.2	3	33.3	2	22.2	0	0.0	2.55	1.13
Professionals from private companies are invited to share practical experiences with students.	2	22.2	2	22.2	0	0.0	2	22.2	3	33.3	3.22	1.71
Students are linked to employment opportunities through school partnerships with private companies.	0	0.0	2	22.2	1	11.1	3	33.3	3	33.3	3.78	1.20
Partnerships with private companies contribute to graduates' ability to become self-reliant.	0	0.0	0	0.0	0	0.0	3	33.3	6	66.7	4.67	0.50
My school has established partnerships with private companies for internships or apprenticeships.	0	0.0	0	0.0	0	0.0	4	44.4	5	55.6	3.22	1.72

Source: Field Data (2026)

The highest-rated statement was that private companies provided equipment, tools, or materials used in training programmes, which achieved a perfect mean score of 5.00 with a standard deviation of 0.00, indicating complete agreement among trainers. These findings suggest that private sector collaboration played an important role in strengthening practical vocational training and supporting entrepreneurial learning within TVET institutions.

The findings further reveal that private sector partnerships contributed positively to students' exposure to workplace environments and employment opportunities. Trainers agreed that partnerships with private companies contributed to graduates' ability to become self-reliant (Mean = 4.67) and that students were linked to employment opportunities through school-company partnerships (Mean = 3.78). In addition, some respondents acknowledged that professionals from private companies were invited to share practical experiences with students (Mean = 3.22). These findings imply that collaboration with industry provided students with practical exposure, technical experience, and opportunities to develop workplace-related competencies that could improve employability and entrepreneurial capacity. The relatively low standard deviations for several statements also indicate consistency in trainers' perceptions regarding the positive contribution of private sector partnerships.

However, despite the generally positive perceptions, some aspects of collaboration appeared to be less effectively implemented. Trainers expressed moderate to low agreement regarding their direct collaboration with industry professionals to improve the relevance of entrepreneurial training, as reflected by a lower mean score of 2.55. Similarly, support from private sector partners toward entrepreneurial training activities received only a moderate mean score of 3.22, suggesting that such collaboration may not always be comprehensive or consistently integrated into the curriculum. These findings may indicate that while private companies provide internships, equipment, and workplace learning opportunities, there is still limited involvement of industry experts in curriculum design, training delivery, and continuous mentorship. Overall, the findings suggest the need for stronger and more structured partnerships between TVET institutions and private sector organizations to ensure that entrepreneurial training remains relevant to labour market demands and effectively promotes graduates' self-reliance.

Interview findings from private sector representatives offered important contextual insights. Five out of seven entrepreneurs expressed general willingness to engage with TVET institutions but cited the absence of structured collaboration frameworks as the primary barrier. Several noted that while informal attachment arrangements existed, they were not supported by formal agreements or clearly defined expectations. One entrepreneur indicated that the private sector was often invited to participate in career fairs but not in curriculum design, limiting the alignment of training content with industry needs. Head teachers acknowledged that private sector engagement had improved in recent years but remained largely ad hoc and dependent on individual relationships rather than institutional policies. These qualitative findings complement the quantitative data in highlighting that, despite moderate levels of collaboration, the management of private sector partnerships lacks the structure and consistency needed to significantly enhance graduate self-reliance.

4. DISCUSSION OF RESEARCH FINDINGS

4.1 Discussion of Research Findings

This section discusses the findings of the study in relation to previous empirical studies and theoretical perspectives on entrepreneurial programme management practices and graduate self-reliance. The discussion is organized according to the study objectives: entrepreneurial management skills development practices, post-training support systems management, and private sector collaboration management strategies. The findings are compared with existing literature to establish areas of agreement, divergence, and contribution to knowledge regarding the promotion of self-reliance among TVET graduates in Nyaruguru District.

4.1.1 Effectiveness of Entrepreneurial Management Skills Development Practices

The findings of the study revealed that entrepreneurial management skills development practices were moderately effective in vocational schools in Nyaruguru District. TVET graduates highly rated training in business plan preparation (Mean = 4.08), financial management (Mean = 3.40), and marketing skills (Mean = 3.36), suggesting that vocational institutions provide learners with fundamental entrepreneurial knowledge. Existing studies have similarly shown that entrepreneurship education enhances learners' understanding of business planning, opportunity recognition, business management, and enterprise development. These findings support the view that vocational training institutions play an important role in equipping learners with the foundational entrepreneurial knowledge required for economic independence.

However, the study also revealed moderate to low effectiveness in developing practical entrepreneurial competencies such as problem-solving (Mean = 2.82), business decision-making (Mean = 3.03), resource management (Mean = 3.01), and practical business operations (Mean = 3.00). Previous studies have reported that entrepreneurship programmes in many developing countries emphasize theoretical instruction while providing limited opportunities for experiential learning. Likewise, earlier research has indicated that although entrepreneurship education improves learners' business knowledge, inadequate practical exposure limits graduates' ability to translate knowledge into entrepreneurial action. The findings further corroborate qualitative evidence from headteachers who acknowledged that entrepreneurial training is often constrained by inadequate business simulation tools and startup resources, thereby reducing opportunities for hands-on learning.

The findings additionally revealed a discrepancy between trainers' highly positive perceptions and graduates' more moderate assessments of entrepreneurial competencies acquired through training. While trainers strongly believed that innovation, business planning, and practical entrepreneurial skills were effectively taught, graduates expressed lower confidence in applying these competencies in real-life situations. Previous studies have similarly found that

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entrepreneurship curricula may demonstrate strong classroom implementation while achieving mixed outcomes in terms of graduate entrepreneurial confidence and enterprise creation. Other studies have also reported that although TVET institutions provide entrepreneurship training, graduates frequently face challenges in applying acquired knowledge because of limited practical exposure and inadequate business support mechanisms. The present study therefore suggests that strengthening experiential learning approaches, school-based enterprises, and practical business projects would enhance the effectiveness of entrepreneurial management skills development practices in promoting graduate self-reliance.

4.1.2 Effectiveness of Post-Training Support Systems Management Practices

The findings showed that post-training support systems management was generally weak and ineffective in enhancing the self-reliance of TVET graduates. Graduates reported low levels of mentorship (Mean = 2.22), follow-up communication (Mean = 2.49), business idea support (Mean = 2.38), and access to startup finance (Mean = 2.45). Previous research has demonstrated that entrepreneurship education alone is insufficient to promote sustainable self-employment unless it is complemented by structured post-graduation support mechanisms. Similarly, studies have found that mentorship, business incubation, and continuous follow-up support significantly influence the success of entrepreneurial graduates, particularly during the transition from training to enterprise creation. The current findings therefore indicate that the absence of structured support systems may undermine the effectiveness of entrepreneurial training programmes in Nyaruguru District.

The findings further revealed limited access to business incubation programmes, employment opportunities, and financial support services. Previous studies have consistently identified access to startup capital and enterprise support services as major challenges facing vocational graduates. Similarly, evidence has shown that graduates who receive post-training mentorship and financial support are more likely to establish sustainable businesses than those who do not receive such assistance. Other studies have emphasized that effective entrepreneurial ecosystems require continuous institutional support beyond graduation to enable learners to transform acquired skills into viable enterprises. The low ratings recorded for support in accessing finance and business opportunities suggest that TVET institutions in Nyaruguru District have not yet established comprehensive support systems necessary for graduate self-reliance.

The qualitative findings from headteachers and private sector entrepreneurs further confirmed the absence of structured graduate tracking systems and formal mentorship programmes. Previous research has found that weak alumni follow-up mechanisms significantly reduce the long-term effectiveness of vocational education programmes. Other studies conducted in Rwanda have similarly reported that inadequate post-training support, limited access to startup financing, and weak institutional linkages constrain the entrepreneurial success of TVET graduates. The current study therefore reinforces previous research by demonstrating that strengthening graduate mentorship, business incubation, alumni networks, and access to entrepreneurial financing could substantially improve self-reliance among vocational school graduates in Nyaruguru District.

4.1.3 Private Sector Collaboration Management Strategies and Self-Reliance of TVET Graduates

The findings of this study revealed that private sector collaboration management strategies were moderately effective in promoting self-reliance among vocational school graduates. Graduates acknowledged participation in internships and apprenticeships (Mean = 3.35), practical training opportunities (Mean = 3.27), and workplace-based learning experiences (Mean = 3.19). Previous studies have similarly shown that industry engagement provides learners with practical experiences that strengthen entrepreneurial competencies, employability skills, and business confidence. The findings therefore suggest that vocational institutions in Nyaruguru District have made important efforts to expose learners to workplace environments that support self-reliance.

However, the study also revealed weaknesses in the depth and consistency of collaboration between vocational schools and private companies. Graduates reported limited mentorship from industry professionals (Mean = 2.87), inadequate industry visits (Mean = 2.72), and weak linkage to employment opportunities (Mean = 2.90). Earlier studies have observed that entrepreneurship education is most effective when industry partners actively participate in mentoring, curriculum implementation, and business networking activities. Similarly, previous research has found that weak institutional partnerships between training institutions and employers often limit graduates' access to labour market opportunities and entrepreneurial networks. The present findings therefore suggest that existing partnerships are largely operational rather than strategic, focusing mainly on internships while neglecting broader mentorship and employment linkage functions.

The trainers generally perceived private sector collaboration more positively than graduates, particularly regarding internships, workplace learning, and the provision of training equipment. Nevertheless, trainers also acknowledged limited industry participation in curriculum development and entrepreneurial training activities. Previous studies have reported that effective TVET-industry collaboration requires sustained engagement in curriculum design, training delivery, and graduate placement. Other studies conducted in Rwanda have similarly found that while partnerships between TVET institutions and private companies exist, many remain informal and lack structured frameworks for long-term collaboration. The present study therefore concludes that strengthening formal school-industry partnerships, increasing industry involvement in curriculum development, and expanding mentorship and employment linkage programmes would significantly enhance graduate self-reliance in Nyaruguru District.

5. CONCLUSION

Based on the findings, the study concludes that entrepreneurial programme management significantly influences the self-reliance of vocational school graduates in Nyaruguru District. The three dimensions examined,entrepreneurial skills development, post-training support systems, and private sector collaboration,were all found to have statistically significant positive effects on graduate self-reliance. Together, these variables explained 45.7% of the variation in self-reliance **(**$R^2 = 0.457$, $p < 0.001$**),** confirming that effective management of entrepreneurship programmes is critical in enabling TVET graduates to establish sustainable livelihoods.

The study further concludes that entrepreneurial skills development practices in TVET institutions are moderately effective. While entrepreneurship programmes adequately equip learners with theoretical competencies such as business plan preparation, financial management, and marketing skills, they fall short in developing practical entrepreneurial competencies necessary for successful business creation and management. Graduates reported moderate confidence in opportunity identification, resource mobilization, business decision-making, and problem-solving, indicating that current instructional approaches remain overly theoretical. The noticeable disparity between trainers' highly positive assessments and graduates' moderate experiences suggests that intended learning outcomes are not fully translated into practical entrepreneurial capabilities. Therefore, entrepreneurship training requires greater emphasis on experiential learning, enterprise-based education, and practical business exposure to improve graduate self-reliance.

The findings also demonstrate that post-training support systems constitute the weakest component of entrepreneurial programme management despite being the strongest predictor of graduate self-reliance ($\beta = 0.392$; $r = 0.590$**).** Support services such as mentorship, coaching, graduate follow-up, business advisory services, and access to startup financing were largely inadequate or inconsistently implemented. This deficiency was reflected in the low overall mean score **(**Mean = 2.60**)** and the high proportion of unemployed graduates (61.4%**)** at the time of the study. The absence of structured alumni engagement, graduate tracking systems, and institutional linkages with enterprise development agencies significantly limits graduates' ability to transition successfully from training into sustainable self-employment. The study therefore concludes that strengthening post-training support mechanisms offers the greatest opportunity for improving graduate self-reliance.

Finally, the study concludes that private sector collaboration is moderately implemented and contributes positively to graduate self-reliance **(**$\beta = 0.143$; $r = 0.435$, $p < 0.001$), although its influence is comparatively weaker than the other programme management dimensions. Existing partnerships are largely confined to internships, apprenticeships, and occasional resource support, with limited involvement in curriculum development, business incubation, graduate mentorship, employment placement, and enterprise development. Furthermore, the gap between trainers' perceptions and graduates' experiences indicates that existing collaborations are not sufficiently institutionalized to benefit all graduates. Consequently, stronger, formalized, and sustainable partnerships between TVET institutions and the private sector are essential for enhancing workplace learning, entrepreneurial ecosystems, and long-term graduate self-reliance.

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