

Modular Skill acquisition Training: A Strategy for Improving Trainee Completion Rates in National Polytechnics [TVETs] in Kenya.

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ABSTRACT

Technical and Vocational Education and Training (TVET) plays a critical role in developing skilled human capital necessary for economic growth and industrialization. In Kenya, the adoption of modular training under the Technical and Vocational Education and Training (TVET) Act of 2013 marked a shift towards a competency-based approach. Within the broader framework of Competency-Based Education and Training (CBET) and Vision 2030, modular training emphasizes skill acquisition as a central pathway through which trainees progressively attain industry-relevant competencies. However, despite these reforms, completion rates in National Polytechnics remain inconsistent. This study examined the influence of skill acquisition through modular training on trainees' completion rates in National Polytechnics in Kenya. Anchored on Production Function Theory, the study adopted a mixed-methods approach incorporating descriptive and correlational research designs. Quantitative data were collected using structured questionnaires and institutional records. Qualitative insights were obtained through key informant interviews. Quantitative data was analyzed using descriptive statistics, Pearson correlation and regression analysis, qualitative data was thematically analyzed. The findings revealed a statistically significant positive relationship between skill acquisition and trainees' completion rates ($r = 0.374$, $p < .001$). Regression analysis further indicated that skill acquisition significantly predicts completion rates, accounting for 13.96% ($R^2 = 0.140$) of the observed variation. The study concluded that skill acquisition through modular training enhances competency development and employability, which positively influences trainees' progression and completion. The study therefore recommends strengthening institutional mechanisms that integrate skill acquisition with clear qualification pathways, for competency acquisition and higher completion rates in national polytechnics.

Keywords: Modular Training, Skill Acquisition, Completion Rates, Vocational Education, National Polytechnics.

INTRODUCTION

Technical and Vocational Education and Training (TVET) has become increasingly imperative determinant for strengthening economic competitiveness and improving employment outcomes for young people. It is a key driver of economic development, industrialization, and sustainable workforce development worldwide. In today's knowledge-based economies, the need for skilled, flexible, and innovation-focused workforce has increased the strategic significance of TVET in preparing individuals with competencies for both formal employment and entrepreneurship. UNESCO (2023) and the International Labour Organization (ILO, 2022)

describe TVET as involving the development of technical knowledge, practical abilities, and work-related attitudes required for meaningful participation in diverse economic and social activities.

Evidence from the OECD (2021) further demonstrate that countries with well-developed TVET systems tend to experience improved youth employability and more effective transitions from education to the labour market. This highlights the importance of emphasizing on skills acquisition through modular training in TVETs to improve completion rates thus strengthen economic productivity and competitiveness. Consequently, TVET is closely connected to global development priorities, particularly Sustainable Development Goal 4 (SDG 4), which promotes inclusive and equitable quality education and lifelong learning opportunities for all.

In Kenya, national polytechnics represent the highest level of public technical training institutions within the vocational education system. These institutions provide training in fields such as engineering, applied sciences, construction, information technology, and business studies (TVET Authority, 2019). The government through the TVET Act 2013 has prioritized the expansion and reform of technical training institutions as part of broader efforts to enhance youth employment and support national development goals. (Phoumilay & Noonan, 2020; & TVET Authority, 2019). These institutions offer programs that are specifically designed to equip individuals with practical skills and competencies needed by industries in various sectors across the globe (Kithungu, R. M., Kasivu, G. M. 2026)

Despite its strategic importance, TVET systems globally continue to grapple with persistently low trainee completion rates, which undermine both system efficiency and labour market outcomes. Completion rate, defined as the proportion of learners who successfully complete a training programme relative to those enrolled, is widely used as a proxy for internal efficiency and institutional effectiveness. Cybersecurity is also vital to ensure that students data and records are safeguarded to enhance completion rates; an institutional cyberattack can have far-reaching and devastating consequences that extend beyond technical disruptions. It can result in unauthorized access, loss of sensitive and confidential information, including students' records, employees' personal data, financial information. Such breaches compromise the privacy of institutions, cause reputational harm and expose the institution to legal and regulatory risks (Kithungu, R. M., Kasivu, G. M. 2026). Empirical studies from the National Center for Education Statistics (2022) indicate that in the United States, nearly one-third of students enrolled in vocational and technical programmes fail to complete within the expected timeframe.

The European Commission (2021) reports that completion rates in some European TVET systems remain below targeted thresholds despite extensive reforms. Low completion rates are associated with significant socio-economic costs, including inefficient utilization of educational resources, reduced workforce productivity, and weakened human capital formation. From a systems perspective, completion rates reflect the extent to which training structures are responsive to learner needs, socio-economic realities, and labour market demands. Similarly, evidence from Germany indicates that modularized content improves retention among disadvantaged learners by offering flexible learning pathways (BIBB, 2022). However, Cedefop (2022) cautions that excessive fragmentation may weaken knowledge integration and reduce mastery of complex competencies, potentially undermining completion.

In response to these challenges, there has been a paradigm shift from traditional linear training models toward modular training approaches. Modular training restructures curricula into smaller, competency-based units that can be independently assessed, accumulated, and certified. Unlike conventional systems that require rigid, sequential progression, modular systems enable learners to progress flexibly, exit and re-enter training, and accumulate credits over time (Farla, K. 2026).

This study is anchored on the proposition that modular training influences trainee completion rates through four interrelated dimensions: flexible learner progression, skill acquisition, academic credit transfer, and content unitization. These constitute the independent variables, while trainee completion rate is the dependent variable. Conceptually, these variables operate synergistically within a modular framework.

Skill acquisition remains central to TVET and a critical determinant of completion. Empirical evidence from the European Training Foundation (2022) indicates a strong positive relationship between competency-based skill acquisition and completion rates, as learners are more likely to persist when training is directly linked to

employment opportunities. UNESCO (2023) further notes that work-based learning and industry-integrated training significantly enhance both skill acquisition and programme completion. However, Cedefop (2022) highlights that skill acquisition is not always linear, with factors such as learning plateaus, inadequate instructional support, and individual differences potentially hindering progression and increasing dropout rates.

In Kenya, TVET plays a central role in national development strategies, particularly under Vision 2030, which identifies skills development as a key driver of industrialization. The Kenya's digital transformation agenda, anchored in Vision 2030, envisages a globally competitive economy powered by a digitally skilled and competent workforce. Technical and Vocational Education and Training (TVET) institutions occupy a pivotal position in ensuring actualization and achievement of this vision, because they are tasked with producing graduates equipped with competencies that meet the demands of an increasing digital economy (Kithungu, R. M., Kasivu, G. M. 2026). The TVET Act (2013) and the adoption of Competency-Based Education and Training (CBET) introduced modular training systems designed to enhance flexibility, access, and completion (Government of Kenya, 2025). These reforms incorporated key components of modular training, including flexible progression, unitized curricula, credit accumulation, and competency-based skill development.

Despite these reforms, completion rates in Kenyan National Polytechnics remain relatively low. Empirical data indicate completion rates ranging between approximately 20% and 40%, with significant variation across institutions. This suggests that a substantial proportion of trainees do not complete their programmes within the expected timeframe. While modular training is intended to enhance flexibility, it may also create multiple exit points that facilitate early labour market entry. Additionally, weak implementation of credit transfer systems limits learner mobility, while financial constraints, infrastructural deficiencies, and limited industry linkages constrain effective skill acquisition. Institutional inefficiencies, including delayed certification and inconsistent administrative processes, further exacerbate the problem (Beatrice & Peter 2023).

This implies that, a significant research gap exists regarding the integrated and context-specific influence of skill acquisition through modular training on trainee completion rates, particularly within National Polytechnics in Kenya. This study addresses this gap by providing empirical evidence on how these variables interact within the Kenyan context.

Statement of the Problem

Completion rates are an important indicator of the success and quality of an educational system. Technical and Vocational Education and Training (TVET) institutions play an important role in providing learners with the practical skills and competencies required for employment and national development. However, many TVET colleges continue to experience low completion rates and delayed program completion among trainees. To address these challenges, modular training approaches have been introduced as part of curriculum reforms aimed at enhancing flexibility, promoting competency-based learning, and improving trainee completion rates.

Despite these reforms, completion rates in National Polytechnics remain low. According to institutional administrative records from National Polytechnics in Kenya for the period 2018-2023 (National Polytechnic Administrative Records, 2023), out of 94,549 trainees enrolled, 31,568 completed their training, representing an overall completion rate of approximately 33.4 % $(31,568 \div 94,549) \times 100$. These figures are based on aggregated institutional data and are used in this study as indicative trends of completion patterns within National Polytechnics rather than nationally generalized statistics.

There is limited empirical evidence on how skill acquisition through modular training approaches influence completion rates in this context. This divergence in findings creates uncertainty regarding the actual effectiveness of skill acquisition through modular training approaches in improving completion outcomes in TVET institutions, particularly in National Polytechnics. Therefore, there is a need to critically examine whether skill acquisition through modular training effectively contributes to improved completion rates in National Polytechnics in Kenya, which formed the basis of this study.

Specific Objective of the Study

To establish the influence of skill acquisition through modular training on trainees' completion rates in National Polytechnics in Kenya.

Research Hypothesis

H₀₁: There is no statistically significant relationship between skill acquisition and trainees' completion rates in National Polytechnics in Kenya.

LITERATURE REVIEW

Skill acquisition is the central objective of TVET and a key determinant of employability and completion. Globally, economies increasingly demand job-ready graduates, making practical competency development essential for both individual and national development (Medeshova et al., 2024). Empirical evidence from comparative labour market studies largely based on cross-country quantitative analyses and labour force surveys indicated that countries with strong competency-based training systems experience higher completion rates due to the perceived immediacy and usefulness of acquired skills in labour market transitions. This suggests that completion in TVET is not merely an academic outcome but is strongly shaped by learners' evaluation of the economic value of skills acquired. Brewer and Comyn (2025), using mixed-method approach and tracer studies, certification of competencies significantly enhances learner motivation and persistence, particularly when training outcomes are clearly linked to labour market entry, implying that completion behaviour is strongly mediated by perceived employability returns rather than training exposure alone.

In Europe, longitudinal studies show a strong positive relationship between skill acquisition and completion rates, where structured competency frameworks and workplace-based learning improve both retention and graduation outcomes (Cedefop, 2024). These findings are largely drawn from administrative datasets and cohort tracking studies, which follow learners across training cycles and allow stronger inference on progression patterns. OECD (2023), based on cross-national statistical modelling and system-level comparative analysis, indicates that learners engaged in dual training systems combining classroom instruction with industry practice are more likely to complete their programmes due to increased relevance and immediate applicability of skills. This body of evidence collectively suggests that completion is higher where learning is embedded in authentic work contexts, reinforcing the argument that skill acquisition enhances persistence when it reduces uncertainty about post-training employment outcomes. However, most of these studies remain macro-level system comparisons, limiting their ability to isolate individual learner-level behavioural determinants.

Despite these consistent positive associations, the literature also revealed important theoretical and empirical tensions that complicate this linear assumption. Mochere, (2025), based on qualitative case studies and learner interviews, argued that skill acquisition is not a smooth or cumulative process; learners often experience learning plateaus, where progression slows or temporarily stagnates despite continued exposure to training. This suggests that motivation derived from skill acquisition fluctuates over time, an aspect often missed in cross-sectional survey designs commonly used in TVET studies. McInnis et al. (2023), using longitudinal student tracking and regression modelling, further demonstrate that non-academic pressures such as financial constraints, family responsibilities, and psychosocial stress can override the motivational effects of skill relevance. This indicates that completion is not solely determined by training effectiveness but is also embedded in broader socio-economic realities, which many studies fail to fully incorporate into their analytical models. In Asia, Ridzwan et al. (2023), based on survey-based econometric analysis of training institutions, provide empirical evidence that demand-driven skill training improves labour market alignment and completion outcomes, particularly in rapidly industrializing economies. However, their study also notes significant variability across institutions, suggesting that outcomes are highly dependent on institutional capacity and governance structures. This indicates a methodological limitation common in many Asian studies: reliance on aggregated institutional data, which obscures learner-level heterogeneity and limits causal inference.

Regionally, African studies consistently highlight the importance of practical, competency-based training in improving both skill mastery and completion rates. Audu et al. (2023), using descriptive survey designs and

tracer studies, in Nigeria, and Mulongo et al. (2024), using mixed-method evaluations in Tanzania, demonstrate that work-based learning and apprenticeship models enhance learner engagement by increasing the visibility of skill application in real work environments. The implication is that learners persist not simply because they are acquiring skills, but because they can observe immediate relevance and utility, which strengthens commitment to programme completion. However, many of these studies rely heavily on self-reported perception data, which limits objectivity in measuring actual skill acquisition outcomes. At the same time, African TVET systems face persistent structural constraints that weaken the translation of skill acquisition into completion outcomes. The African Development Bank (2023), based on sector diagnostic reports and institutional assessments, notes that outdated equipment, weak institutional capacity, and limited instructor industry exposure create a gap between competency-based policy aspirations and classroom realities. This indicates a methodological reliance on system-level descriptive assessments rather than analytical causal models, limiting understanding of how these constraints interact with learner behaviour.

In Kenya, National Polytechnics are central to addressing national skill gaps and supporting industrialization under Vision 2030. Empirical studies indicate mixed outcomes regarding the influence of skill acquisition on completion rates, suggesting that the relationship is neither uniform nor predictable across institutions. Ngure (2023), using a cross-sectional survey design, identifies persistent mismatches between training content and labour market needs as a major contributor to dropout, implying that learners disengage when skill acquisition is perceived as low-value. However, cross-sectional designs limit the ability to establish whether mismatch leads to dropout or whether dropout-prone learners are more likely to perceive mismatch, creating a causality ambiguity. Conversely, Sankale (2022), using institutional comparative analysis, finds that when training is practical, industry-relevant, and competency-based, skill acquisition significantly improves both learner retention and completion rates. TVETA (2023), based on administrative data reviews and institutional performance audits, further supports this position by showing that institutions with stronger industry linkages and better equipped workshops record higher completion rates. However, such studies often lack learner-level analytical modelling, limiting the ability to identify which dimensions of skill acquisition are most influential.

A critical synthesis of the literature reveals several consistencies. First, across methodologies (surveys, longitudinal studies, and evaluations), there is agreement that skill acquisition enhances completion when it is perceived as relevant and directly linked to employability. Second, experiential and competency-based training consistently emerges as more effective than purely theoretical instruction in sustaining learner engagement. Third, industry participation is repeatedly identified as a key structural enabler of both skill acquisition and completion outcomes. These consistencies suggest a convergence in the literature that TVET effectiveness is fundamentally grounded in labour market alignment (Ridzwam et. al., 2023). However, important inconsistencies also emerge. While quantitative studies often report strong positive relationships, qualitative and longitudinal studies show that socio-economic pressures and learning dynamics can disrupt this relationship. This suggests that the effect of skill acquisition on completion is not stable across methods or contexts, raising concerns about overgeneralization in existing literature. Additionally, there is no consensus on whether skill acquisition independently drives completion or whether both are outcomes of broader institutional quality (Kibet, F. 2025).

From a methodological perspective, most studies rely on cross-sectional survey designs, institutional reports, and perception-based instruments, limiting causal inference. Few studies employ longitudinal tracking of learners across modules, which is critical for understanding progression and dropout dynamics in modular TVET systems unlike this study that uses descriptive correlational approaches to determine the connection between skill acquisition and trainees' completion rates in National Polytechnics in Kenya (Manoah Jahonga, et. al., 2025). Furthermore, skill acquisition is often measured using broad aggregated indices, without disaggregation into technical, cognitive, and soft skills, limiting analytical precision. Conceptually, the literature largely assumes a linear progression from skill acquisition to improved completion rates. However, evidence from longitudinal and qualitative studies suggests a more complex, non-linear relationship influenced by institutional quality, socio-economic conditions, and labour market dynamics. This indicates that skill acquisition should not be conceptualized as an isolated variable but as part of an interconnected modular training system (Mochere, C. M. 2025).

A key conceptual and methodological gap therefore lies in the absence of integrated, multi-variable empirical models that examine how skill acquisition interacts with flexible progression, content unitization, and credit transfer to influence completion outcomes in real institutional settings. Therefore, the literature reveals a significant empirical, methodological, and conceptual gap regarding how skill acquisition operates within modular TVET systems in developing contexts such as Kenya. Specifically, there is limited evidence from learner-level, multi-variable analytical models on whether competency-based training in National Polytechnics translates into improved completion outcomes under real institutional and labour market constraints. This study addresses these gaps by situating skill acquisition within a broader modular training framework and empirically examining its influence on trainee completion rates in Kenyan National Polytechnics, thereby contributing to a more system-oriented, evidence-based understanding of TVET effectiveness.

RESEARCH METHODOLOGY

Research Design

This study employed a mixed-methods research design, integrating descriptive and correlational approaches to examine the influence of skill acquisition through modular training on trainees' completion rates in National Polytechnics in Kenya. The concurrent triangulation design was used, allowing for simultaneous collection of quantitative and qualitative data to validate and enrich the findings. This approach enabled cross-verification of results, strengthening the reliability and robustness of the study conclusions (Cohen, Manion & Morrison, 2007).

Target Population

The study population comprised Module III trainees, Heads of Departments (HoDs), and Academic Registrars from ten National Polytechnics. Module III trainees were specifically targeted as they had progressed through most of their training programs and were approaching completion, making them well-positioned to provide informed perspectives on skill acquisition and its effect on completion. The total population included 17,378 trainees, 129 HoDs, and 10 registrars, yielding a combined population of 17,517 individuals.

Sample Size and Sampling Techniques

Using Slovin's formula (1960) with a 5% margin of error and a 95% confidence level, a sample of 391 trainees and 98 HoDs was determined. Simple random sampling technique was used to arrive at 98 Heads of Departments where each HOD was assigned random numbers, and a table of random numbers was used. The Heads of Department were preferred due to their oversight role in implementing the module training program in the departments. To ensure equal representation of each National Polytechnic in the study, stratified random sampling technique was adopted to arrive at 391 Module III Trainees where each Institution was treated as a sub-group. Census sampling technique sampled the 10 Academic registrars.

Research Instruments

Data were collected through a combination of structured questionnaires, key informant interviews, and documentary analysis. Questionnaires were administered to trainees and HoDs to capture demographic information, experiences with modular training, and perceptions of how skill acquisition influenced program completion. In-depth interviews with Academic Registrars provided insights into institutional policies, skill acquisition practices, and trends in trainee progression and completion. To triangulate the findings, document analysis in institutional records was done; including admission registers, attendance logs, and graduation statistics were analyzed, providing an objective measure of completion trends and reinforcing the validity of the survey and interview data.

Validity and Reliability of Research Instruments

To ensure validity, the instruments were reviewed by an expert in research methodology and piloted on 10% of trainees from non-sampled institutions. Adjustments were made to enhance clarity, relevance, and comprehensiveness (Mugenda & Mugenda, 2003).

Reliability was computed using the Guttman Split-Half Coefficient formula:

$$r_{gh} = \frac{2r_{xy}}{1+r_{xy}}$$

Where:

- r_{gh} = Guttman split-half reliability coefficient
- r_{xy} = correlation between the two halves of the instrument

Reliability was established using the split-half method which yielded a Guttman coefficient of 0.71 for skill acquisition through modular training items, demonstrating acceptable internal consistency (Cresswell, 2022; Mahajan & Haradhan, 2017).

Data Collecting Procedures

Ethical clearance was obtained from the South Eastern Kenya University Board of Postgraduate Studies, the National Commission for Science, Technology, and Innovation (NACOSTI), and institutional authorities. Participants were informed of the voluntary nature of participation, assured of confidentiality, and provided consent prior to participation. Questionnaires were administered in person, interviews conducted face-to-face, and documentary data accessed with formal permission.

Data Analysis Techniques

Quantitative data were analyzed using SPSS, with descriptive statistics summarizing demographic characteristics and skill acquisition outcomes. Pearson correlation was used to assess the strength and direction of the relationship between skill acquisition and completion rates, while simple linear regression quantified the contribution of skill acquisition to variations in completion (R^2). Qualitative data from interviews were thematically analyzed, with emergent patterns used to corroborate and enrich the quantitative findings. The Statistical Package for Social Science (SPSS) version 31.0.0 was used to analyze descriptive and inferential statistics. Frequency tables presented descriptive data, while qualitative data was presented through direct verbatim quotations. Pearson coefficient (r) a basic probability value between 0.00 and 0.05 was used to dismiss or adopt the study hypothesis while the Pearson correlation coefficient (r) was used to assess the magnitude and effect of the association between skill acquisition through modular training and trainees' completion rates. Pearson chi squared test (2) was used to determine the level of influence of skill acquisition through modular training on trainees' completion rates. Regression analysis was used to establish the contribution of the variable to completion rates in National Polytechnics.

Research Results

Skill Acquisition and Trainees' Completion Rates

HODs Opinions on Influence of Skill Acquisition on Trainees' Completion Rate in National Polytechnics in Kenya

Table 4.1: HoDs' Skill Acquisition and Its Influence on Completion Rates

Statements	SD		D		UD		A		SA		M
	N	N%	N	N%	N	N%	N	N%	N	N%	
Skill acquisition promotes acquisition of professional competencies, increasing completion rates in National Polytechnics	0	0.0	0	0.0	0	0.0	57	61.3	36	38.7	4.39

Fast skill acquisition motivates trainees to complete training promoting completion rates in National Polytechnics	0	0.0	0	0.0	22	23.7	35	37.6	36	38.7	4.15
Skill training promotes trainee satisfaction, increasing completion rates in National Polytechnics	0	0.0	0	0.0	0	0.0	57	61.3	36	38.7	4.39
Low skill acquisition increases dropout rates affecting completion rates in National Polytechnics	0	0.0	18	19.4	41	44.1	6	6.5	28	30.1	3.47
Skill acquisition makes trainees employable resulting to increased completion rates in National Polytechnics	5	5.4	0	0.0	3	3.2	37	39.8	48	51.6	4.32

Key: F-Frequency, M-mean

The results presented in Table 4.1 indicated that responses from Heads of Department (HoDs) overwhelmingly agreed that skill acquisition plays a significant role in enhancing trainees' completion rates in National Polytechnics in Kenya. Specifically, all respondents (100.0%) agreed that skill acquisition promotes acquisition of professional competencies, which in turn enhances completion rates, with 61.3% agreeing and 38.7% strongly agreeing. Similarly, a large majority (76.3%) agreed that fast skill acquisition motivates trainees to complete training, thereby improving completion rates. On this aspect, 37.6% agreed while 38.7% strongly agreed, although 23.7% remained undecided. Further, all HoDs agreed that skill training promotes trainee satisfaction, with 61.3% agreeing and 38.7% strongly agreeing that this contributes to improved completion rates. In addition, a majority (91.4%) of respondents agreed that skill acquisition makes trainees employable, with 39.8% agreeing and 51.6% strongly agreeing, indicating strong consensus on the employability benefit of skills training as a driver of completion.

However, views were mixed on whether low skill acquisition increases dropout rates, with 19.4% disagreeing, 44.1% undecided, and 36.6% in agreement. This suggests uncertainty among HoDs regarding the negative impact of low skill acquisition on completion rates. Overall, the results indicate a strong consensus among HoDs that skill acquisition enhances competencies, employability, motivation, and satisfaction among trainees, all of which contribute positively to improved completion rates in National Polytechnics.

4.1.2 Trainees Opinions on skill acquisition on Completion Rate in National Polytechnics in Kenya

Table 4.2: Trainees Opinion on Skill Acquisition and its Influence on Completion Rates

Statements	SD		D		UD		A		SA		M
	N	N%	N	N%	N	N%	N	N%	N	N%	
Skill acquisition promotes acquisition of professional competencies increasing completion rates	43	11.0	18	4.6	4	1.0	99	25.3	227	58.1	4.15
Fast skill acquisition motivates trainees to complete training promoting completion rates	106	27.1	0	0.0	83	21.2	58	14.8	144	36.8	3.34
Skill training promotes trainee	6	1.5	4	1.0	93	23.8	125	32.0	163	41.7	4.11

satisfaction increasing completion rates											
Skill training promotes trainee satisfaction increasing completion rates	69	17.6	44	11.3	65	16.6	10	2.6	203	51.9	3.60
Skill acquisition makes trainees employable resulting to increased completion rates	30	7.7	0	0.0	36	9.2	117	29.9	208	53.2	4.21

Key: F-Frequency, M-mean

The results presented in Table 4.2 indicated that trainees generally held positive views regarding the influence of skill acquisition on completion rates in National Polytechnics in Kenya. A majority of the respondents (83.4%) agreed that skill acquisition promotes acquisition of professional competencies, which in turn enhances completion rates. Specifically, 25.3% agreed while 58.1% strongly agreed with this statement. Similarly, 83.0% of the trainees agreed that skill acquisition makes trainees employable, thereby increasing completion rates, with 29.9% agreeing and 53.2% strongly agreeing. This highlights employability as a key motivational factor influencing trainees' persistence and completion.

In relation to motivation, 51.7% of the respondents agreed that fast skill acquisition motivates trainees to complete training and therefore enhances completion rates. However, responses on this aspect were more mixed, with 27.1% strongly disagreeing and 21.2% remaining undecided, suggesting that not all trainees perceive speed of skill acquisition as a strong motivating factor.

Further, 54.5% of the trainees agreed that skill training promotes trainee satisfaction, which contributes to improved completion rates. On this item, 32.0% agreed while 41.7% strongly agreed, although a notable proportion (23.8%) remained undecided, indicating some uncertainty about the direct link between satisfaction and completion outcomes. An additional item measuring satisfaction and training experience showed that 54.5% of trainees agreed that skill training enhances satisfaction and completion rates, although 17.6% strongly disagreed and 11.3% disagreed, suggesting variation in learner experiences across programmes.

Overall, the results indicate that trainees largely agree that skill acquisition improves professional competence, employability, motivation, and satisfaction, all of which contribute positively to completion rates in National Polytechnics. These findings are consistent with those of Heads of Department, confirming a shared perception across both groups regarding the importance of skill acquisition in improving completion outcomes.

When the respondents were asked how influential skill acquisition is on trainee completion of a course, most of the them indicated that skill acquisition indeed was very influential. See Table 4.3

Table 4.3 Trainees opinion on influence of Skill Acquisition on completion Rates

	Frequency	Percent
Very influential	303	77.5
Influential	66	16.9
Not influential	4	1.0
Neutral	18	4.6
Total	391	100

Similar sentiments were shared by key informant who observed that;

“The industries can only give attachment opportunity to students who are skill competent and can only sign linkages with institutions that produce skill competent students and trainees shy from the job market if they lack skill competence (R, 002)”

When asked about the influence of skill acquisition on completion rates in National polytechnics, most of the key informant was of the opinion that the emerging technologies in the field of work had a negative impact on completion rates. The Academic Registrars pointed that there was need to align skill training to new technology and review the curriculum to address the emerging trends in technologies. One key informant observed;

“The trainees desire to complete the training becomes a dream as soon as a job becomes available. The situation is complicated by an industrial attachment that falls by the end of module II when the trainees have covered theory in module I and skill training in module II. Survey findings in my institution shows that most of the trainees drop out after being absorbed by the industries after the industrial attachment” (R, 007)

Influence of Skill Acquisition on Completion Rate in National Polytechnics in Kenya

Correlation Analysis

The researcher did a correlation analysis using responses from HODs, comparing skills acquisition and completion rate in the National polytechnics in Kenya. The model hypothesizes (H02) that there is no correlation between students' skill development and their likelihood of completing the program. The investigation of correlations between skill acquisition and completion rates at Kenya's National Polytechnics revealed a favorable relationship between the two variables. In particular, the correlation between flexible learner progression and completion rates was ($p=0.374$). Pearson correlation shows that skill acquisition had statistically significant correlation with completion rate ($r=0.374$, p -value 0.000).

Table 4.4: Skill Acquisition Correlation and completion rate Matrix

		Skill acquisition	Completion rate
Skill acquisition	Pearson Correlation	1	.374**
	Sig. (2-tailed)		.000
	N	93	93
Completion rate	Pearson Correlation	.374**	1
	Sig. (2-tailed)	.000	
	N	93	93
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

From the correlation matrix presented on table 4.4, it was established that skill acquisition had a statistically significant positive correlation with completion rate ($r= 0.374$, $p=0.000$). The positive correlation is shown by the value of r which lies between 0 and +1 (positive). The results indicate there is efficient evidence to reject the null hypothesis and conclude that a positive relationship between skill acquisition and completion rates exists in the NPs in Kenya.

Therefore, the null hypothesis which stated that there is no statistically significant relationship between skill acquisition and completion rates in National Polytechnics in Kenya was rejected at 0.05 level of significance. The alternative hypothesis which implies that there is statistically significant relationship between skill acquisition and completion rates in National Polytechnics in Kenya was therefore upheld. Based on the findings, a conclusion was made that skill acquisition influences and trainees' completion rates in National Polytechnics in Kenya.

Chi-Square test of Association

To establish the significance level of the association between the two variables, a Chi-square test of analysis was done (Table 4.5). Based on the results, the Pearson chi-square value was 61.073, and the p-value was 0.00. The probability value was 0.05 and at 12 degrees of freedom falling below the significance value of (0.05), meaning two categorical values have statistically significant correlation.

Table 4.5: Skill acquisition and Completion rate correlation

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	61.073 ^a	12	0.000
Likelihood Ratio	33.087	12	0.001
Linear-by-Linear Association	15.225	1	0.000
N of Valid Cases	85		
a. 17 cells (81.0%) have expected count less than 5. The minimum expected count is .12.			

Therefore, the null hypothesis that there is no significant association between skill acquisition and completion rates is rejected and concluded that there exists significant correlation between skills acquisition and completion rates. The results demonstrates that there is a significant correlation between skill acquisition and course completion levels that is statistically relevant ($X^2=61,073$, $df=12$, sig 0.000). The findings suggest there is a statistically significant correlation between skill acquisition and completion rate, rejecting the null hypothesis that there is no such association.

Regression Analysis

Simple linear regression analysis was done to establish the degree of influence between skill acquisition and completion rates among learners in national polytechnics.

Table 4.6: Skill Acquisition and Completion Rate Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.374 ^a	.140	.130	7.08284

The findings show that skill acquisition contributed about 14.0% variation/change in completion rate in the Kenyan national polytechnics. This means that skill acquisition alone as an independent variable in this study was responsible for 14.0% change in students' completion rate in Kenya Nation Polytechnics.

Regression Coefficients

Skill acquisition independent variable was regressed against completion rate, where the results are presented in table 4.7.

Table 4.7: Skill Acquisition and completion rate Regression Coefficients

Variable	Constant	B	p-value
Skill Acquisition (SA)	48.951	1.916	0.0000

From the regression analysis, it was established that skill acquisition was statistically significantly correlated with completion rate (sig. 0.000) and was associated with 1.9 times increase in completion rates. To establish the significance of the correlation between the variables, simple regression model expressed by a regression equation model was established;

Y (Completion rate) = $48.951 + 1.916 \cdot SA$ (ii)

The model shows that for a unit increase in skill acquisition; completion rates increase by about 1.9 times. The results indicate that there is statistically significant correlation between fast skill acquisition and completion rates. A similar opinion was shared by the key informants who viewed skills acquisition as one of the motivations for the students to complete their schooling to fill the skills' gap in the industry as pointed by one of the respondents;

"Rapid developments in the economy and manufacturing sectors demands middled skilled professionals with appropriate employable skills. There is need to restructure TVET education in a way to fill the skill gaps required in the workforce in the 21st century highly influenced by global, dynamic and technical workplace. Increased unemployment rate is catalyzed by training which is not skill oriented marked by high rate of unemployment in business courses than in technical courses." (R, 05).

DISCUSSION AND INTERPRETATION OF RESEARCH FINDINGS

Skill Acquisition and Completion Rates in National Polytechnics in Kenya

This study sought to determine the influence of skill acquisition on completion rates in TVET. The statistical analysis for both the Trainees and HODs as shown in tables 4.1 and 4.2 agreed with highest proportion on the aspect that skill acquisition promoted acquisition of professional competencies increasing completion rates. The study further established that fast skill acquisition motivated trainees to complete training while skill acquisition equip the trainees with employable competencies resulting to increased completion rates in National Polytechnics. This finding agreed with findings of a Survey done by Brewer and Comyn (2022) on integrating core work skills in TVET education in Europe which established that skill acquisition and completion rates were strongly correlated since the trainees were required to acquire certification on core skill competencies needed by the employer to secure their first job in the labor market. The study further observed that the trainees not only needed to acquire technical skills that equip them with necessary skill but also complete the training to earn the credentials required in the job market increasing completion rates. The findings reflect the global economy where the labor market is demanding skills for a specific occupation, making it necessary for trainees to equip themselves with practical skills and qualifications that match the needs of the job market (Sankale, 2019).

The overall statistics revealed there was positive correlation between skill acquisition and completion rates in National Polytechnics. As demonstrated in table 4.4 the correlation and regression analysis, it was established that skill acquisition had a statistically significant positive correlation with completion rate ($r = 0.374$, $p = 0.000$). Similarly, the results demonstrates that there is a significant correlation between skill acquisition and course completion levels that is statistically relevant ($X^2 = 61,073$, $df = 12$, $sig = 0.000$). Regression analyses show that skill acquisition contributed about 14.0% variation/change in completion rate in the Kenyan National Polytechnics. Further, the findings showed that a unit increase in skill acquisition was associated with 1.9 times increase in completion rates. Available literatures by World Bank (2021) agree with the current that skill acquisition correlates with lifetime earnings where the more skilled earned higher salaries motivating the youth to complete their training and acquire market driven skills. Skill acquisition determines the rate of returns in the job markets and equips the youth with skills to compete for better paying jobs. Across the world, investment in education and skills development has high returns, the wage bill is highly correlated to skill levels, occupation and the level of education among other factors while investing in skill acquisition is the impetus to increased completion rates in the TVET sector.

These findings are in agreement with what has been established elsewhere in peer-reviewed scholarly works. For instance, Brewer and Comyn (2022) on integrating core work skills in TVET education in Europe found skill acquisition and completion rates strongly correlated. The TVET graduates need to acquire certification on core skill competencies needed by the employer to secure their first job and find their way around the labor market. Findings by World Bank (2021) also note that TVET education equipped the youth with skills to compete for better paying jobs since skill development is an investment with high returns to the individual, the Government and the community. The findings also relate to scholarly evidence elsewhere. For instance, Ridzwan

et al. (2017) through an empirical literature study in India which concluded that making investments in TVET education plays an important part in providing trainees with technical abilities to meet the demands of the current job market and increase employee mobility.

The study by Ridzwan et al. (2017) noted that the technical education was structured in way to provide learners with an opportunity to learn new skills needed in the job market. Skills and value put on TVET education made most of the students to pursue their training to complete their schooling in prospects of upgrading their competencies. In another aspect, McLnnis et al., (2020) in Australia noted that stress of additional obligations outside of school has become a significant factor in students' failure to complete their vocational education. The findings relate to the current study findings, where the need to gain skills and have the opportunity cost for other obligations outside school has influenced completion rates for learners in TVETs. Further, Audu et al. (2021) notes that work-based learning, field trips, project-based learning and seminars facilitates employable skills which are likely to increase completion rate in the TVET sector. A clear indication as to how ability competence is created can be found in the stages of skill acquisition. The current study findings also relate to what Mulongo, Kitururu and Iriru (2016) found in Tanzania, that to promote retention and completion of Vocational education among youths, there was need to adequately equip trainees with the right skills sets. Also, the current findings relate to what Ngure (2013) established that the training process in Kenyan TVETs is usually rigid and training was academic oriented since its objective was to advance to the next level, a situation likely to hinder access and completion rates agreeing to a study by Sankale (2019) who found that skills aided in course accomplishment by assisting graduates in creating and maintaining skill sets that increase the likelihood to be employed.

The analysis also revealed the independent variable (skill acquisition) had relatively small impact on completion rates in National Polytechnics as evidenced by low positive correlation. This outcome agrees with earlier research by Fieger (2015) who identified skill acquisition among the factors contributing to low completion rates (27.1%) in Australian vocational education and training. The study on determinants of completion in vocational education and training found that students discontinued their studies when they attained necessary skills for a job or when they gained necessary skills for employment indicating that students were prompted to end a particular course after achieving a specific training goal. The negative impact may be explained by the nature of vocational education where students enroll to acquire skills needed in the job market without the intention of gaining credit towards the qualification complicated by the mismatch of the curriculum with the skills needed by the industries.

CONCLUSION AND RECOMMENDATIONS

The findings provide clear empirical evidence that skill acquisition through modular training is a comprehensive instructional framework, plays a significant role in shaping completion outcomes in the TVET sector.

The study concludes that skill acquisition strongly influences completion rates in National Polytechnics. Skill acquisition equips the trainees with employable competencies needed in the job market compelling trainees to complete their training to acquire the highly demanded competencies. According to the data, it was established that skill acquisition makes trainees competitive in the job market influencing completion Rates in TVET in Kenya. It was noted that there was statistically significant relationship between learners' skill acquisition and completion rates in TVET in Kenya. Based on the findings, it was concluded that learners' skill acquisition influenced trainees 'completion rates in National Polytechnics in Kenya and by extension in Technical Vocational Education Training institutions in Kenya.

The study makes the following policy recommendations;

1. The need to align skill competencies with the economy through constant consultation with the stakeholders to equip the trainees with relevant skills for the job market.
2. The need to design and arrange skill competencies in a way that meets occupational standards to improve customer satisfaction as well increased trainee employability.
3. The stakeholders for technical education should structures modules to enhance skill development.

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