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Financial resource management practices and the implementation of competency-based education and training in TVET institutions in Nairobi county, Kenya

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Abstract

Successful implementation of Competency-Based Education and Training (CBET) within Technical and Vocational Education and Training (TVET) Institutions highly relies on effectiveness of financial resources management. Therefore, the general aim of this study was to assess influence of financial resources management practices on CBET implementation within TVET institutions in Nairobi County, Kenya. Empirical review of literature was guided by Curriculum implementation theory. The study was conducted using mixed methodology and concurrent triangulation design. A sample target population of 20 principals, 20 Board of Management chairs, 1 Curriculum Development Assessment and Certification Council chair, 159 Heads of Departments and 1 TVET County Director were examined. Questionnaires and interview guides were used to collect data. Quantitative data were descriptively analysed but for qualitative data was thematically analysed. Research findings revealed a total response rate of 94.03% (189). Findings established that timely disbursement of funds, transparency in procurement and adherence to financial controls enhanced CBET implementation within TVET. However, inefficient financial practices and inadequate funding practices hindered effective implementation of CBET. A total of 44.44% (8) Board of Management Chairpersons and 56.00% (84) Heads of Departments strongly agreed that financial management practices influence CBET implementation. This study concluded that strengthening financial governance within TVET institutions is critical for improving CBET implementation. Recommendations were suggested on enhancement of institutions capitation, adoption of digital financial management systems and capacity building of financial managers within TVET institutions to support sustainable CBET implementation.

Keywords: Competency-based education, financial resources, implementation, management practices, vocational education

Introduction

This study on financial resources management practices on implementation of Competence-Based Education and Training within TVET institutions presents a critical issue that warrant need for investigation. This is because effective leadership, strategic planning and resource allocation emerge as key elements for curriculum implementation are known to have a significant influence on effective curriculum delivery but little is known on how financial resources management practices may influence on CBET curriculum implementation within TVET institutions (Muthomi & Kinyua, 2020). According to Wanyonyi et al., (2022) institutions that invest in staff development and engage stakeholders show better CBET implementation outcomes. However, challenges persist, including resistance to change and funding constraints. Quality assurance mechanisms and industry partnerships also play a critical role in aligning CBET programs with market needs (TVETA, 2020). This empirical literature therefore suggest that adaptive financial resources management practices are crucial for managing intricate challenges of CBET implementation and ensuring effectiveness of financial resources in TVET institutions.

Globally, in United States of America, Everhart and Bushway, (2014) conducted research where findings established that curriculum implementation approaches largely emphasized on aligning educational outcomes with workforce needs, facilitated by government-developed competency frameworks that guide curriculum development across various sectors. However, American TVET institutions are distinguished by their flexible learning models, which prioritize competency mastery over fixed timeframes, allowing for individualized student progression. As a result, several universities have implemented innovative Competency-Based programs that have gained recognition for effectively preparing work-ready graduates while providing personalized educational experiences (Kelchen, 2015; Daugherty et al., 2017). On the other hand, China's approach to CBET in TVET institutions is marked by strong government support and systematic implementation, significantly driven by Made in China 2025 initiative (State Council of China, 2015).

Chinese TVET institutions have developed extensive industry partnerships, exemplified by factory in school model, which provides students with hands-on experience in real production environments (Wang & Guo, 2019). Moreover, government has heavily invested in upgrading TVET facilities and equipment, as evidenced by Double Hundred Plan aimed at developing high-quality institutions and training bases (Ministry of Education, China, 2021). Therefore, a unique aspect of China's CBET implementation is integration of ideological and political education alongside technical skills training. Despite these advancements, China faces challenges including regional disparities in quality of resources and the need to continuously update curricula to keep pace with rapid technological changes.

African countries are progressing with CBET curriculum implementation despite of varying approaches and challenges among nations. For instance, in Egypt, CBET adoption is part of broader educational reforms aimed at modernizing TVET system to meet economic needs and address youth unemployment. Key features of Egypt's CBET implementation include government initiatives like EU-supported TVET program and strong industry involvement through sector skills councils and partnership initiatives (European Commission, 2020). However, Egypt faces challenges in implementing CBET, including need for comprehensive teacher training, updating infrastructure and overcoming cultural biases favouring academic education over vocational training (El-Ashmawi, 2022).

According to a local study carried out by Muthomi and Ngari (2020), Kenya has been at the forefront of CBET implementation within East Africa. The country introduced CBET in TVET institutions as part of its Vision 2030 development plan. As a result, The Authority for Technical and Vocational Education and Training (TVETA) has been instrumental in developing occupational standards and Competency-Based curricula. However, challenges such as inadequate infrastructure, limited industry involvement and need for more trained instructors persist. Nairobi County, as Kenya's economic and educational centre, hosts numerous TVET institutions facing challenges and opportunities of CBET implementation. This is because, research indicates that effective management practices, including leadership styles, resource allocation as well as staff development programs, are crucial for successful CBET adoption in these institutions. Furthermore, strategic planning aligned with CBET principles has been identified as a key management practice in successful implementation, with the Kenya Technical Trainers College in Nairobi cited as an exemplar in this regard (Muthomi & Kinyua 2020).

Resource management is a critical factor in CBET implementation with successful TVET institutions in Nairobi demonstrating innovative approaches such as industry partnerships to overcome equipment and facility challenges (Ooko, 2019). In addition, staff development and capacity building are integral to effective CBET implementation with institutions investing in continuous professional development showing higher success rates. Active stakeholder engagement particularly involving industry partners in curriculum development and assessment, has proven crucial for better aligning

CBET programs with market needs (Ministry of Education, 2022).

Statement of the problem

While financial resources are known to have a significant influence on CBET curriculum implementation within TVET institutions empirical literature on how financial resources impact on CBET curriculum implementation in Nairobi County remains limited. A recent industry survey carried out by Kenya National Qualifications Authority (2023) found that 60% of employers believe TVET graduates lack essential skills, primarily due to outdated curricula and inadequate industry linkages. Instructors face difficulties in implementing CBET due to insufficient training, with 72% of TVET trainers reporting that they have not received adequate capacity-building programs for competency-based instruction (Nairobi County Education Board, 2022). Resource constraints further exacerbate these issues, as 65% of TVET institutions in Nairobi County cite inadequate funding as a major barrier to acquiring essential equipment and facilities for hands-on training (Kenya TVET Authority, 2023). Regarding adoption of CBET is empirical evidence suggest that in Nairobi County is slow, as a comprehensive survey of 50 TVET institutions revealed that only 40% of TVET Institutions have fully implemented CBET curricula, while 35% remain in partial implementation stages (Kenya TVET Authority, 2023). However, if the challenge of equitable access to CBET remains unresolved, CBET curriculum implementation within TVET institutions will remain ineffective. Given these challenges, this study aims to investigate how financial management practices in TVET institutions influence CBET implementation. By examining the relationship between financial resources management practices and CBET outcomes, this study seeks to identify effective approaches for ensuring successful implementation of CBET in Nairobi County's TVET institutions.

Research objective

To determine influence of financial resource management practices on implementation of Competency-Based Education and Training in TVET institutions in Nairobi County, Kenya.

Research question

What is the influence of financial resource management practices on implementation of Competency-Based Education and Training in TVET institutions in Nairobi County, Kenya?

Literature review

Financial resource management practices and implementation of CBET in TVET institutions

Competency-Based Education and Training programs in TVET institutions globally depends heavily on adequate resource provision such as funding, infrastructure, teaching materials and skilled instructors. For instance, countries with well-established TVET systems such as Germany, Canada and Australia have invested significantly in modern training equipment, digital learning platforms and industry linkages to ensure students acquire relevant competencies aligned with labour market needs (Schröder & Deissinger, 2023). However, in many developing nations, TVET institutions struggle with resource inadequacies leading to skill gaps among graduates and poor employment outcomes (Oketch et al., 2023). Financial constraints often limit access to advanced machinery, up-to-date curricula and well-equipped training centres, particularly in low-income regions where TVET funding competes with other national priorities. Availability of qualified trainers is a significant challenge experienced by many countries due to lack of sufficient instructors with both industry experience and pedagogical training, necessitating a need for Continuous Professional Development programs (Maclean & Wilson, 2023). International agencies such as UNESCO, World Bank and International Labor Organization (ILO) have emphasized importance of investing in TVET resource provision to strengthen workforce competencies and boost economic growth (UNESCO, 2023).

Private sector partnerships with industries have played a crucial role in bridging resource gaps by offering financial support, equipment donations and provision of workplace learning opportunities that enhance the practical training of students (Kuczera & Field, 2023). Growing

integration of digital learning tools and simulation technologies has also provided an innovative solution to resource constraints, allowing TVET institutions to offer flexible and cost-effective training models. However, disparities in digital infrastructure, particularly in developing regions, pose challenges to equal access to quality Competency-Based Training (Afeti, 2023). To ensure successful implementation of CBET, governments and policymakers must prioritize increased investment in TVET infrastructure, strengthen industry collaborations and leverage technological advancements to improve training efficiency and labour market alignment.

Globally, Germany's dual education system integrates apprenticeships with formal classroom instruction, emphasizing practical skills aligned with industry requirements. This approach is supported by collaborations between government, industries and educational institutions ensuring that TVET programs are well-resourced and responsive to labour market demands (Rauner & Maclean, 2022). In Germany, Federal Institute for Vocational Education and Training (FIVET) plays a critical role in developing standards and supporting research to enhance vocational training, ensuring curriculum remains relevant and students acquire competencies directly applicable to their professions (Euler, 2023). Investment in state-of-the-art facilities, digital learning tools, and skilled trainers has further strengthened Germany's CBET framework, making it a global benchmark for vocational education.

In Sweden, approach to CBET in TVET institutions emphasizes flexibility and adaptability, allowing students to tailor their education to specific competencies required by employers. The Swedish National Agency for Education collaborates with industries to update curricula, ensuring that training programs meet current and future skill demands (Andersson & Wärvik, 2023). Resource provision includes modern facilities and continuous professional development for educators to maintain high-quality training standards. This dynamic system enables swift adjustments to curricula in response to technological advancements and evolving industry needs thereby enhancing employability of graduates (Lundahl & Olofsson, 2022). Sweden's investment in technology-driven learning environments, industry partnerships and outcome-based evaluation methods has further strengthened role of CBET in TVET learning institutions.

Under Technical Education and Skills Development Authority (TESDA), the management of implementation of Competency-Based Education and Training (CBET) in Philippines falls on TVET institutions. A nationwide qualifications framework has been set up by TESDA to guarantee that various industries have uniform capabilities (De Guzman & Choy, 2022). However, challenges such a lack of resources, outdated machinery and cooperation with business associates limit CBET ability to reach its maximum potential. Therefore, efforts are ongoing to address these issues through policy reforms and increased investment in vocational education (Mendoza & Bandalaria, 2023). The government has also prioritized the expansion of digital learning resources and industry-aligned certification programs to improve the quality of vocational education.

In Sub-Sahara African region, Shalaby and Attia (2023) carried out a study in Egypt where it was established that Egypt has been reforming its TVET sector to incorporate CBET principles, aiming to reduce youth unemployment and align skills with market needs. The government collaborates with international organizations to modernize curricula and improve training facilities. Despite these efforts, challenges remain in ensuring consistent quality across institutions and securing sustainable funding for continuous improvement. The country has invested in modernizing TVET institutions by equipping them with updated laboratories, workshops and digital learning tools (El-Ashmawy & Soliman, 2022). These reforms aim to enhance technical skills training and improve employment outcomes for graduates.

In Ghana, according to Baffour-Awuah (2022) has prioritized TVET as a means to drive economic development, implementing policies to enhance CBET in training institutions. The government's "Free TVET" program eliminates costs for tuition, food, textbooks and

accommodation which has significantly improved access to vocational training. This initiative has led to increased enrolment, reflecting the country's commitment to strengthening its workforce. However, challenges such as need for better marketing and provision of incentives persist, highlighting the need for making TVET institutions more attractive among youths (Boahin & Hofman, 2023). Ghana is also partnering with international donors and private sector organizations to fund infrastructure improvements and industry-linked training programs.

In Uganda, Namubiru & Oonyu, (2023) carried out a study regarding implementation of CBET within TVET institutions in Uganda. Findings revealed that Uganda is working on integrating CBET into its TVET system to better equip its labour force with relevant skills. The government of Uganda emphasizes on importance of aligning training programs with industry requirements and enhancing attractiveness of vocational education. However, challenges such as limited infrastructure, inadequate funding and need for better marketing strategies persist. Efforts are underway to address these issues and improve quality and accessibility of TVET programs (Mugisha & Kasozi, 2022). These findings therefore imply that government and private sector investments in modern training facilities, teacher training, and competency-based assessments are crucial steps towards strengthening Uganda's CBET implementation.

In Kenya, challenge of equitable access to CBET remains unresolved, particularly in rural areas where resource constraints are more pronounced. Atchoarena and Delluc, (2022) observe that only 30% of TVET institutions in rural Kenya have the infrastructure required for effective CBET implementation, compared to 75% of institutions in urban settings. This disparity underscores the need for more inclusive management strategies that address regional inequalities in vocational education access. Given these challenges, this study aims to investigate how institutional management practices in TVET institutions influence CBET implementation. By examining the relationship between management strategies and CBET outcomes, this research seeks to identify effective approaches for overcoming these barriers and ensuring the successful adoption of CBET in Nairobi County's TVET institutions.

Theoretical framework

Meyer and Rowan (1977) Institutional Management Theory established the ways in which businesses fit into their environment and contribute to their local, regional, national and international environments. The theory delves into the fundamentals of social structures, illuminating the ways in which institutions form and adhere to preexisting schemas, regulations, conventions and practices. This theory is instrumental in understanding how TVET institutions in Nairobi County conform to established norms and practices when implementing CBET. One of the key concepts in Institutional Theory is isomorphism. According to this idea, companies in the same industry are likely to become more similar due to normative, mimetic, and coercive influences. Within the framework of CBET, TVET institutions may mimic the management styles of more successful institutions or follow regulations set out by organizations like Technical and Vocational Education and Training Authority (TVETA). Another important aspect is legitimacy. Institutions seek legitimacy to enhance their survival and success.

Effective management practices in TVET institutions can bolster their legitimacy by demonstrating adherence to high standards in CBET implementation. This legitimacy can attract more students, secure funding and garner support from stakeholders. Regulatory, normative, and cultural-cognitive influences shape the behaviour of organizations within Institutional Theory. For TVET institutions, the regulatory frameworks established by TVETA, the expectations of the industry and societal perceptions of quality education all influence how CBET is implemented. By aligning with these influences, institutions can ensure their programs remain relevant and respected. By applying Institutional Theory, researchers can explore how established norms and regulations influence financial management practices and implementation strategies of CBET in TVET institutions. For example, the adherence to Technical and Vocational Education and Training Authority

(TVETA) regulatory frameworks ensures that institutions maintain high standards, which can be observed in curriculum development and assessment practices that align with industry needs.

Methods

This study utilized a mixed-method approach, combining quantitative and qualitative approaches. Choice of this approach was necessitated by need for utilization of strengths of quantitative approaches as well as qualitative approaches and also minimizing on errors that would occur when only using one methodology (Creswell, 2014). This exploration used questionnaires to collect measurable data from a large sample using quantitative technique, which entailed asking specified questions. Views of participants were also explored in order to gather qualitative data. This was achieved through interviews and data recorded in detail descriptions of individuals' experiences expressed in their own words. This study employed a concurrent triangulation design to gather information. Inclusion of concurrent triangulation design further facilitated strengthening this study methodology by enabling collection of qualitative and quantitative insights simultaneously allowing corroboration of narrative findings with numerical findings that consequently enhanced depth of interpretations as well as validity of research findings (Creswell & Plano 2018).

Target population was 373 participants drawn from 53 institutions in 5 Sub-Counties in Nairobi County. The participants targeted were 53 principals, 53 BOM chairs, 265 HODs and 1 TVET County Director and 1 CDACC chairperson. Sample size of 201 participants was selected that included 20 principals, 20 BOM chairs, 159 HODs, 1 CDACC chairperson and 1 TVET Director. Yamane's Sampling Formula was applied to realize sample size. Given that it is a technique that utilizes what target group is with a high degree of confidence, it was appropriate as it provided sample that was representative. This formula was applied as:

$$n_0 = \frac{N}{1 + N(e^2)}$$

Where N0 was intended sample size at 95% confidence interval, N as target numbers of individuals targeted, and e, at 5% as confidence level (or 0.05 in decimal notation).

Therefore, the ideal sample was established as

$$n_0 = \frac{265}{1 + 265(0.05)^2}$$

$$n_0 = \frac{265}{1.6625}$$

N0 = 159 HOD respondents

A basic random sample of principals and BOM chairs was determined in accordance with the Central Limit Theorem. Central Limit Theorem enabled simple random selection of 20 principals and 20 BOM chairs. The Yamane Sampling Formula was used to get stratified random sample for HODs population which was known as 265 individuals which was not very large hence 159 HODs as indicated in table 1 below were sampled. Simple random sampling was used to ensure that There was a level playing field for all members of subgroup. TVET County Director was purposively sampled from this County where selected TVET institutions were drawn from and also, CDACC chair was purposively sampled. Principals, BOM chairs as well as HODs were equally stratified proportionately selected as per the 5 strata of five Sub-Counties to meet threshold of the study as presented in table 1.

Research instruments included interview guide and questionnaires. Principals, BOM chairs, and HODs were asked questions in questionnaires designed to collect quantitative data while Interview guide was used to collect qualitative data. Tools were pre-tested and evaluated by experts to guarantee their validity. Experts from

Mount Kenya University department of Educational Management and Curriculum Studies classified each item based on how relevant it was to the study's aims. The researcher also made a pilot test to see how well the subject was covered. In order to find and fix problems with research instruments, pre-testing was crucial. To determine how trustworthy survey questions are split-half method was used. Using this strategy, a subset of respondents filled out questionnaire once and then results were split into two. Using Cronbach's Alpha, inter-half reliability index was tested. A Cronbach's Alpha value of r = 0.76 obtained revealed internal reliability was appropriate.

Data analysis commenced by identifying common themes from respondents' accounts of their experiences. Relevant information was segmented into phrases or sentences, each representing a distinct idea. Quantitative data was analysed descriptively using statistical tools such as frequency counts, percentages, means and standard deviations with Statistical Package for Social Sciences (SPSS) Version 30. Presentation for quantitative data was achieved by use of frequency tables and column graphs. Qualitative data was thematically analysed then presented in narration. Ethical issues considered during this study included participants informed consent, voluntary participation, privacy and confidentiality of participants and information provided, participants anonymity, data protection and research integrity.

Table 1. Sampling Grid

Respondent Categories	Target population	Sample Size	Sampling techniques
Principals	53	53x30%=20	Stratified Random sampling
BOM chairs	53	53x30%=20	Stratified Random sampling
HODs	53x5= 265	159	Stratified Random sampling
TVET County Director	1	1	Censor sampling
CDACC Chairperson	1	1	Censor sampling
Total	**373**	**201**	

Source: Researcher (2025)

Results

Responses on influence of financial resource management practices on implementation of CBET in TVET institutions

Tools applied for research generated a total response rate of 189 respondents out of a target population of 201 respondents which as 94.03% response rate. Principals who participated during this research had a response rate of 95.00% (19), Board of Management Chairs gave a response rate of 90.00% (18), TVET County Director and CDACC Chairperson who was also targeted by this investigation responded hence a response of 100% among these two categories of research participants as presented in table 2.

Instruments employed during research generating a response rate of 94.03% (189) recorded a high response rate that was justified to draw conclusions on data collected. A cording to Babbie (2020) a response rate of 50% in social sciences is adequate for drawing conclusions on a data, a response rate of 60% is considered as fair but a response rate of 70% or higher is considered as most suitable for drawing conclusions on a research data. Therefore, a response rate of 94.03% that was generated by this investigation was therefore considered as appropriate for drawing conclusions on influence of Institutional management practices on implementation of Competency Based Education and Training in TVET institutions in Nairobi County, Kenya. Board of Management Chairpersons participated on a questionnaire where they gave their responses. Members gave their views on level of agreement of examined financial resource management practices influence on CBET

curriculum implementation and findings recorded in table 3.

Table 2. Participants response rate.

Category	Sampled Respondents	Response	Response Rate
Principals	20	19	95.00%
BOM Chairs	20	18	90.00%
HODs	159	150	94.34%
TVET County Director	1	1	100%
CDACC Chairperson	1	1	100%
Total	**201**	**189**	**94.03%**

Source: Researcher, 2025

Table 3. Board of management chairpersons questionnaire responses on financial resources management practices influence on implementation of CBET in TVETs institutions.

Financial resources management practices		**SA 5**	**A 4**	**U 3**	**D 2**	**SD 1**	**M**	**STD**
Resource mobilization influences clear competency framework	F %	10 55.56	4 22.22	0 0.00	3 16.67	15.56	2.00	1.83
Resource Allocation Efficiency influence practical experience/industrial attachment	F %	9 50.00	5 27.78	0 0.00	2 11.11	2 11.11	2.25	2.06
Resource Utilization influence individualized learning paths	F %	1 5.56	0 0.00	1 5.56	5 27.78	11 61.11	4.25	4.99
Resource Monitoring & Evaluation influence assessment of competencies	F %	9 50.00	5 27.78	0 0.00	1 5.56	3 16.67	2.25	2.22
Budget planning influences CBET Curriculum adoption and delivery	F %	12 66.67	5 27.78	0 0.00	1 5.56	0 0.00	1.50	2.38
Financial reports and auditing influence trainer competence and CBET teaching methodology	F %	10 55.56	7 38.89	0 0.00	0 0.00	1 5.56	2.00	3.37
Expenditure monitoring and control influence Competence based assessment and certification	F %	6 33.33	8 44.44	1 5.56	1 5.56	2 11.11	3.00	3.37
Financial resources management practices influence implementation of CBET in TVET	F %	8 44.44	5 27.78	2 11.11	2 11.11	1 5.56	2.5	1.73

Source: Researcher, 2025. Key: **SA**-Strongly Agree **A**-Agree **U**-Undecided **D**-Disagree **SD**-Strongly Disagree, F-Frequency, %-Percentage, M-Mean, STD- Standard Deviation

Resource mobilization influences clear competency framework attracted 55.56% (10) of Board of Management (BOM) chairpersons to strongly agree with this observation, number of BOM chairpersons who agreed were 22.22% (4), there were no participants among BOM chairperson who was undecided for this particular question, 16.67% (3) disagreed while only 5.56% (1) strongly agreed. On the question that resource allocation efficiency influences practical experience or industrial attachment half of Board of Management chairpersons who participated in this investigation strongly agreed at 50.00% (9), number of respondents who agreed were 27.78% (5), there were no participants who remained undecided for this observation, 11.11% (2)

disagreed and 11.11% (2) also strongly disagreed with this observation.

Resource utilization influences individualized learning paths made 5.56% (1) of Board of Management chairpersons to strongly agree, none of respondents who agreed, 5.56% (1) became undecided, 27.78% (5) disagreed whereas number of BOM chairpersons who strongly disagreed were 61.11% (11). Resource monitoring ad evaluation influencing assessment of competencies 50.00% (9) of Board of Management chairpersons strongly agreed, 27.78% (5) agreed, none of respondents who remained undecided, 5.56% (1) disagreed whereas 16.67% (3) strongly disagreed.

Budget planning influencing Competency-Based Education and Training curriculum adoption and delivery attracted 66.67% (12) of Board of Management members to strongly agree,27.78% (5) agreed, none of respondents who remained undecided, 5.56% 91) disagreed while none of participants among BOM members who strongly disagreed. Regarding the statement that financial reports and auditing influence trainer competence and Curriculum Based Education and Training teaching methodology, 55.56% (10) of Board of Management chairperson strongly agreed, 38.89% (7) agreed whereas none of targeted respondents who remained neutral as well as disagreed but 5.56% (1) strongly disagreed.

Expenditure monitoring and control influencing Competence Based Assessment and certification made 33.33% (6) of chairpersons in Board of Management among TVET institutions, 44.44% (8) agreed, 5.56% (1) remained neutral, 5.56% (1) disagreed while 11.11% (2) strongly disagreed. regarding a general view of influence oof financial resources management practices influence on implementation of Competency Based Education and Training among Technical and Vocational Educational and Training whereby Board of Management (BOM) chairpersons views demonstrated that, 44.44% (8) strongly agreed with this nature of observation, 27.78% (95) agreed, number of chairpersons who remained undecided were 11.111% (2), those who disagreed with this observation were also 11.11% (2) but number of chairpersons in Board of Management for TVET institutions who strongly disagreed only made a contribution of 5.56% (1). Heads of various departments within Technical and Vocational Educational and Training Institutions also participated in a questionnaire where their views were also gathered by instruments. Regarding responses on frequencies of carrying out various financial resources management practices views of Heads of Departments were recorded in table 4.

Heads of Departments responses on resource mobilization influence clear competency framework 50.67% (76) strongly agreed with this observation, 37.33% (56) agreed, 3.33% (5) were undecided, 4.00% (6) disagreed while number of HODs who strongly disagreed with this observation contributed for 4.67% (7). Resource allocation efficiency influences practical experience of industrial attachment 54.00% (81) of Heads of Departments strongly agreed with this observation, 32.00% (48) agreed, 2.00% (3) were undecided, 6.67% (10) disagreed while number of HODs who strongly disagreed with this observation contributed for 5.33% (8).

Resource utilization influences individualized learning paths attracted 6.67% (10) of Heads of Departments to Strongly agree with this observation, number of Heads of Departments who agreed were 4.67% (7), HODs who remained undecided contributed for 2.67% (4), those who disagreed were 51.33% (77) whereas those who strongly disagreed were 34.67% (52). Another question that was examined among Heads of Department was on resource monitoring and evaluation influence on assessment of competencies whereby 33.33% (50) strongly agreed with this observation, 56.00% (84) agreed, number of HODs who remained undecided for this question were 1.33% (2), those who disagreed were 4.00% (6) whereas those who strongly disagreed with this observation were 5.33% (8).

Budget planning influences Competency-Based Education and Training (CBET) Curriculum adoption and delivery 49.33% (74) strongly agreed, 40.00% (60) agreed, 1.33% (2) of Heads of Departments remained neutral, 6.00% (9) disagreed while 3.33% (5) strongly disagreed. financial reports and auditing influencing trainer

competence and CBET teaching methodology 40.00% (61) strongly agreed, 46.67% (70) agreed, 2.00% (3) were undecided, 4.00% (6) disagreed while 6.67% (10) strongly disagreed with this observation.

Table 4. Heads of departments responses on influence of financial resource management practices on implementation of CBET in TVET institutions

Financial resources management practices		**SA 5**	**A 4**	**U 3**	**D 2**	**SD 1**	**M**	**STD**
Resource mobilization influences clear competency framework	F %	76 50.67	56 37.33	5 3.33	6 4.00	7 4.67	18.50	25.01
Resource Allocation Efficiency influence practical experience/industrial attachment	F %	81 54.00	48 32.00	3 2.00	10 6.67	8 5.33	17.25	20.71
Resource Utilization influence individualized learning paths	F %	10 6.67	7 4.67	4 2.67	77 51.33	52 34.67	35.00	35.58
Resource Monitoring & Evaluation influence assessment of competencies	F %	50 33.33	84 56.00	2 1.33	6 4.00	8 5.33	25.00	39.41
Budget planning influences CBET Curriculum adoption and delivery	F %	74 49.33	60 40.00	2 1.33	9 6.00	5 3.33	19.00	27.48
Financial reports and auditing influence trainer competence and CBET teaching methodology	F %	61 40.00	70 46.67	3 2.00	6 4.00	10 6.67	22.25	31.96
Expenditure monitoring and control influence Competence based assessment and certification	F %	54 36.00	81 54.00	4 2.67	6 4.00	5 3.33	24.00	38.01
Financial resources management practices influence implementation of CBET in TVET Institutions	F %	84 56.00	52 34.67	2 1.33	7 4.67	5 3.33	16.50	23.76

Source: Researcher, 2025. Key: SA-Strongly Agree A-Agree U-Undecided D-Disagree SD-Strongly Disagree, F-Frequency, %-Percentage, M-Mean, STD- Standard Deviation

Expenditure monitoring and control influence competence-based assessment and certification 36.00% (54) strongly agreed, 54.00% (81) agreed, 2.67% (4) were undecided, 4.00% (6) disagreed while number of Heads of Departments who strongly disagreed were 3.33% (5). To determine existence of any kind of relationship that would exist between financial resources management practices influence on implementation of Competency Based Education and Training in Technical and Vocational Education and Training Institutions Heads of Department were subjected on a general observation whereby 56.00% (84) strongly agreed that there exists an influence between financial resources and implementation of CBET within TVET institutions. However, number of HODs who agreed were 34.67% (52), those who remained undecided were 1.33% (2), number of HODs who disagreed were 4.67% (7) whereas 3.33% (5) strongly disagreed.

Thematic Analysis of Qualitative Findings on Influence of Financial Management Practices on Implementation of CBET and Training in TVET Institutions

Principals within TVET Institutions, TVET County Director as well as CDACC participated on interviews to bring insights of qualitative data on how financial resources management practices influence on implementation of CBET curriculum among TVET institutions within Nairobi County. During an interview Respondent X observed that:

"In our institution there are deliberate efforts that have been made to mobilize financial resources through income generating project so as to support implementation of CBET curriculum.

This is because the government capitation alone is not enough to cater for all institutional needs such as tools and equipment necessary for Competency Based Training. As a result, this has led practice of financial mobilization to become very critical for promoting availability of training resources for students" (Respondent X)

This observation from above respondent is indicative that provision of government capitation for TVET Institutions is not adequate for promoting adequacy in successful implementation of CBET curriculum escalating a need for having institutional approaches for mobilizing finances to promote adequacy of provision of financial resources. Also, emphasis being placed on tools and equipment is also in line with CBET requirements that places emphasis on acquisition of practical competencies rather than only theoretical instructions. A similar observation was also made by Respondent V who noted that:

"CBET curriculum implementation within TVET institutions of tertiary education implementation has been slowed in some institutions in Nairobi County which has been highly associated with poor financial planning as well as mechanisms of accountability being weak. As a result, some principals within TVETs fails to prioritize expenditure on critical curriculum needs for instance tools, instructional resources as well as workshops that to a great extent compromises delivery of various competencies intended by CBET curriculum at TVET Institutions" (Respondent V)

According to this observation made by this participant it suggests that financial management practices is not all about mobilization of finances but it is also necessary to plan for expense of such finances to promote alignment of expenses with CBET objectives. TVET institutions that therefore lack proper planning are likely to suffer from misappropriations of funds which are a scarce resource that can consequently undermine quality of training. During an interview with Respondent D, several challenges were noted to be affecting financial management within TVET institutions. For instance, it was noted that:

"Our monitoring and evaluation of institutional finances have revealed that TVET Institutions are struggling with procurement as well as utilization of CBET funds. inadequate financial accountability as well as delayed procurement are among financial challenges that are hindering timely acquisition of tools or materials. This has greatly affected accessibility of opportunities in Competency Based Training" (Respondent D)

According to this respondent it is evident that TVET Institutions are facing significant barriers on procurements and delays on provision of funds that significantly affect implementation of CBET within Institutions. This observation is supported by findings by Cheruiyot & Bett, (2022) who during an investigation on TVET who established that financial governance within TVET Institutions has a positive strong influence on implementation of CBET in TVETs Institutions. Where transparency is a key contributor in fostering efficiency as well as confidence in utilization of resources.

Similarly, a study conducted by Wanjohi (2020) revealed that financial planning inadequacy within TVET institutions hinders curriculum reforms. Although there were positive efforts that were notable having been made by principals in TVET institutions there exists persistent challenges on management of finances for instance inadequate capitation by government, delays in disbursement of government capitation, limited institutional leaders' capacities in resource mobilization as well as poor financial accountability whereby these barriers were highly cited by respondents.

These findings therefore correlate with findings of Ngugi & Githinji, (2021) who noted that financial inadequacies as well as poor financial accountability mechanisms were among common barriers to effective implementation of CBET among TVET Institutions in Kenya. Therefore, these research findings are suggestive that despite financial management practices on resource mobilization, accountability as well as planning are highly linked with implementation of CBET there exists weaknesses that act as a stumbling barrier to effective curriculum implementation. Such weakness that undermines successful application of financial resources includes procurement inefficiencies, weak

collaboration between regulatory bodies and institutions as well as limited financial mobilization capacities that all hinder successful implementation of CBET within TVET Institutions.

Discussion

This discussion integrates quantitative findings from HODs and BOMs chairpersons with qualitative insights from principals, TVET County Director as well as CDACC chairperson. Quantitative findings from HODs and BOM chairpersons from TVET Institutions established that resource mobilization is very often carried out within TVET Institutions (55.56% BOM; 53.33% HODs). This therefore suggest that mobilization of financial resources is highly considered as central initiative during implementation of CBET.

Qualitative results reinforced these observations made during gathering of quantitative data where various respondents observed that government capitation was inadequate to facilitate successful implementation of CBET that necessitate institutions to initiate income-generating initiatives to supplement government capitation. For instance, respondent X during an interview observed that there is need for TVET institutions to come up with income generating projects so that institutions can raise finances that can be used to supplement capitation of TVET institutions as it was established that government capitation alone was not adequate.

Quantitative Findings demonstrated that efficiency in resource allocation is normally perceived to be frequently practiced (BOM: 50.00% Very often; 52.00%; HODs: very often). Additionally, 54.00% of HODs strongly agreed while 50.00% of BOM Chairs also strongly agreed that efficiency in allocation of finances facilitates industrial attachment and practical experiences among students in TVET institutions. This research findings suggest a need for aligning hands on training requirements with financial allocations. Qualitative evidences from research identified a gap in planning finances. Respondent V places emphasis on poor financial accountability and weak financial planning practices that hinder curriculum delivery where principals fail to adequately plan for financial expenditure on critical CBET requirements.

Quantitative results present mixed views on resource utilization and individualized learning. For instance, Although HODs (56.00%) and BOM chairpersons (61.11%) reported is very often carried out a high number also strongly disagreed that utilization of financial resources has an influence on individualized learning paths within TVET institutions (BOM: 61.11%; HODs: 34.67%). This result suggests that although resources are utilized it may not directly translate to learning experiences that are tailored which is an essential CBET principle.

During thematic analysis of qualitative results this weakness is also identified. For Instance, Respondent D during an interview observed that delays in procurement as well as inadequate mechanisms for accountability hinders productive use of CBET financial resources that leads to inadequacies in obtaining tools as well as materials for training in TVET Institutions. This research findings are a demonstration that existence of systemic challenges leads to inconsistencies in financial utilizations limiting alignment of financial resources with CBET individualized learning experiences.

Regarding resources monitoring and evaluation on competence assessment, quantitative research results reported divided views among BOM chairperson as 44.44% their views were that monitoring is very often practiced and another 44.44% demonstrated their views as it is rarely practiced but for HODs (50.67%) findings reported that monitoring is frequently conducted. Therefore, in terms of nature of influence a higher number of respondents generally agreed that use of monitoring supports facilitates competence assessments (BOM; 50.00% strongly agree; HODs: 56.00% agree).

Qualitative findings on the other hand established existence of inefficiencies in monitoring systems. For instance, Respondent D during an oral interview reported that delayed procurement as well as inadequate accountability limits acquisition of resources for training. This observation is suggestive that although monitoring practices are normally put in place their

productivity is occasionally undermined by weak CBET implementation that compromises assessments standards of CBET.

Budget planning during research emerged as one of the strongest enablers of implementation of CBET curriculum within TVET Institutions. A majority of BOM chairpersons (66.67%) as well as HODs (49.33%) strongly agreed budget planning to have greatly promoted CBET curriculum delivery and adoption. On the other hand, financial reports and auditing were also noted to have a perceived enhancement on trainer competencies as well as teaching pedagogies in CBET (BOM:55.56% Strongly agreed; HODs 40.00% strongly agree). Control and monitoring of expenditure was noted to have a significant support to competency-based assessment although variations in levels of agreement existed.

On the other hand, evidence from research findings demonstrated weaknesses in accountability mechanisms. For instance, Respondent V during an interview emphasized that poor prioritization as well as inefficiencies in financial accountability significantly undermine implementation of curriculum. What this means is that, despite of budgeting and auditing being significant during curriculum implementation effectively, existence of challenges such as delays on disbursement of capitation reduce effectiveness of budgeting as well as auditing.

Integrated findings of this investigation highlights practices in financial management such as mobilization of financial resources, financial auditing, financial monitoring, financial budgeting as well as financial planning are critical enablers of successful implementation of CBET curriculum among TVET Institutions where training and learning for students take place. Findings are also suggestive that adequate administration of financial management practices is necessary for successful implementation of CBET curriculum but not a sufficient CBET implementation. Effectiveness of such financial practices are highly influenced by timely disbursement of capitation, transparency, alignment of priorities on expenditure as well as financial accountability.

Conclusion

Research findings of this investigation suggested that effective financial mobilization has a high positive impact on adoption of CBET curriculum, delivery of CBET curriculum as well as CBET curriculum assessment. Inferential findings on regression analysis of research findings demonstrated availability of a positive association between management of financial resources on successful implementation of curriculum, demonstrating centrality of need of prudent financial governance during curriculum reforms. However, although there is existence of positive impact on various financial practices, several challenges limit effective financial resources application for effective curriculum implementation. Such barriers include delays in disbursement of funds, poor planning, inefficiencies in procurement, weak systems for financial accountability as well as lack of transparency weakening successful curriculum delivery. Such shortcomings suggest that while financial resources management practices are significant enablers of CBET curriculum implementation unless it is also accompanied by timely disbursement of financial resources, strengthened frameworks for accountability as well as improvement of financial governance through enhanced institutional capacities its impacts might not be realized.

Recommendations

Recommendations for Practice

i. TIVET institutions ought to diversify their sources of finances to avoid overreliance on government capitation through building partnerships with industry as well as promotion of alumni networks.

ii. Ministry of Education together with educational stakeholders in TVET Institutions can offer capacity building for TVET principals and Board of Management Chairpersons in TVET Institutions as well as Heads of Departments on financial governance, financial accountability and strategic planning practices that can be helpful in building their leadership capacities to not

only mobilize for finances but also manage financial resources effectively.

Recommendations for Policy

i. TVET Institutions should enhance policy frameworks for financial accountability that are robust to facilitate tracking of application of financial resources. Audits ought to be regular and transparent as well as institutionalized so as to limit misallocation of funds while promoting alignment of finances with objectives of CBET.

ii. Ministry of Education can constitute policy frameworks that can facilitate Principals in TVET Institutions to adopt participatory budgeting that is also evidence based, promote mechanisms for expenditure control so as to align institutional budgets with CBET curriculum priorities.

iii. The government through Ministry of Education can review funding of TVET Institutions policy to ensure there is timely disbursement of capitation, strengthen accountability and governance as well as support capacity building of leaders in TVET Institutions.

Research Ethics

This article adhered to research ethics on honesty and integrity in data collection and presentation, voluntary participation of respondents, informed consent, privacy and confidentiality, anonymity, and originality

Disclosure of Interest

The authors declare that there are no personal relationship or financial interests that might have inappropriately influenced writing of this article in any way.

Authors Contribution

The corresponding Author carried out field research under guidance and supervision of co-authors who made contribution in improvement of structure and data analysis.

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Data Availability

The authors confirm that data supporting findings of this research are within the article and its references.

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References

Afeti, G. (2023). Digital transformation and equity in TVET delivery in Africa. *African Journal of Technical Education and Training, 12*(2), 45–59.

Atchoarena, D., & Delluc, A. (2022). Equitable access to quality CBET programs in rural areas. *Journal of Educational Equity and Development, 29*(3), 215-230.

Andersson, P., & Wärvik, G.-B. (2023). Curriculum responsiveness and competency development in Swedish vocational education. *Journal of Vocational Education & Training, 75*(1), 67–84.

Babbie, E., (2020). *The practice of Social Research (15th ed.).* Cengage Learning.

Baffour-Awuah, D. (2022). Policy developments in Ghana's TVET sector: Progress and challenges. *International Journal of*

Technical Vocational Education, 14(3), 112–128.

Boahin, P., & Hofman, A. (2023). Attractiveness of TVET pathways among youth in Ghana: Policy gaps and opportunities. *International Review of Education, 69*(2), 215–234.

Creswell, J. W., & Plano Clark, V. L. (2018*). Designing and conducting mixed methods research (3rd ed.)*. SAGE.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approach* (4th ed.). Sage Publications.

Daugherty, L., et al. (2017). Innovations in competency-based programs: Case studies and best practices. *Journal of Higher Education, 89*(6), 789-803.

De Guzman, A. B., & Choy, S. C. (2022). TESDA's national qualifications framework and quality assurance in Philippine TVET. *Asia Pacific Education Review, 23*(1), 89–104.

El-Ashmawy, A., & Soliman, M. (2022). Modernization of Egypt's TVET institutions through CBET reforms. *Journal of Education and Work, 35*(4), 356–374.

El-Ashmawy, A. (2022). Challenges and opportunities in implementing competency-based education in Egypt. *Egyptian Journal of Vocational Education, 30*(1), 45-61.

El-Ashmawi, A. (2022). Challenges and opportunities in implementing competency-based education in Egypt. *Egyptian Journal of Vocational Education, 30*(1), 45-61.

European Commission. (2020). TVET II program: Enhancing vocational education and training in Egypt. *European Union Reports, 12*(3), 15-29.

Euler, D. (2023). Vocational education in Germany: Structures, reforms, and future directions. *International Journal for Research in Vocational Education and Training, 10*(1), 1–22.

Everhart, R., & Bushway, L. (2014). Aligning educational outcomes with workforce needs: The role of government-developed competency frameworks. *Educational Policy Analysis, 23*(4), 567-580.

Kelchen, R. (2015). Competency-based education: A review of current practices and future directions. *Journal of Educational Administration, 53*(4), 312-329.

Kenya National Qualifications Authority. (2023). *Developing a National Qualifications Framework for CBET*. Kenya National Qualifications Authority.

Kenya TVET Authority. (2023). Survey of CBET implementation in Nairobi County. *TVET Authority Reports, 30*(2), 45-58.

Kuczera, M., & Field, S. (2023). Strengthening industry–education partnerships in TVET: Global insights. *OECD Education Working Papers, 288, 1–54*.

Lundahl, L., & Olofsson, J. (2022). Flexibility and labour market alignment in Sweden's vocational education system. *Scandinavian Journal of Educational Research, 66*(3), 421–439.

Maclean, R., & Wilson, D. (2023). The global TVET teacher shortage: Implications for CBET implementation. *UNESCO-UNEVOC Reports, 7,* 1–29.

Mendoza, P., & Bandalaria, M. (2023). Challenges in implementing CBET in Philippine TVET institutions. *Philippine Journal of Education and Human Development, 11*(2), 55–72.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340–363.

Ministry of Education, China. (2021). The Double Hundred Plan: Enhancing TVET

facilities and equipment in China. *Government of China Reports, 25*(2), 78-92.

Ministry of Education. (2022). Active stakeholder engagement in CBET programs. *Kenya Ministry of Education Reports, 14*(1), 101-116.

Mugisha, J., & Kasozi, A. (2022). Reforms and challenges of CBET implementation in Uganda's TVET sector. *East African Journal of Education and Social Sciences, 3*(1), 90–104.

Muthomi, J., & Kinyua, A. (2020). Institutional management practices and CBET implementation in Nairobi County. *International Journal of Education Management, 34*(5), 211-227.

Muthomi, J., & Ngari, S. (2020). CBET in Kenya: Progress and challenges. *Kenya Journal of Technical Education, 18*(2), 103-118.

Namubiru, L., & Oonyu, J. (2023). Aligning CBET with industry needs in Uganda: Opportunities and constraints. *African Journal of Vocational Education, 8*(1), 34–50.

Ngugi, J., & Githinji, P., (2021). Challenges of financing Competency-Based Education and Training in Kenyan TVET Institutions. *International Journal of Vocational Education and Training Research, 7*(2), 34-42.

Rauner, F., & Maclean, R. (2022). *The dual system of vocational education: Principles and practices in Germany*. Springer.

Schröder, T., & Deissinger, T. (2023). Resource investment and quality assurance in global TVET systems. *Journal of Comparative Vocational Education and Training, 5*(2), 14–33.

Shalaby, H., & Attia, M. (2023). TVET reforms in Egypt: Towards a competency-based approach. *International Journal of Training Research, 21*(1), 78–95.

State Council of China. (2015). Made in China 2025 initiative: Implications for TVET. *Chinese Government Publications, 20*(1), 22-40.

TVETA. (2020). Quality assurance and alignment with market needs in CBET programs. *Technical and Vocational Education and Training Authority Reports, 16*(3), 45-60.

UNESCO. (2023). *TVET strategy for skills development and economic transformation 2023–2027.* UNESCO Publishing.

Wanjohi, G., (2020). Financial planning and resource allocation in the implementation of Competency-Based Curriculum in TVET Institutions. *African Journal of Education and Practice, 5(3), 101-112*.

Wanyonyi, I., et al. (2022). Management practices and challenges in CBET implementation in Nairobi. *Journal of Education and Development, 28*(4), 335-350.

Wang, Y., & Guo, L. (2019). The factory in school model: Enhancing practical training in Chinese TVET institutions. *International Journal of Training Research, 17*(3), 98-110.

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