

Tutors' Capacity Building Influence On Implementation Of Competency-Based Education And Training In Technical, Vocational Education And Training Institutions In Nairobi County

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Abstract

Aim of this investigation was to establish influence of tutors' capacity building on implementation of Competency-Based Education and Training in Technical, Vocational Education and Training Institutions in Nairobi County. This study adopted a mixed-method approach. A descriptive correlational design with concurrent triangulation was used. The study target sample population of 373 included 53 principals, 53 Board of Management chairs, 1 CDACC chair, 265 Heads of Departments and 1 TVET County Director. Questionnaires were administered to BOM chairs, HODs, while interview schedules were used to gather insights from TVET County Director and CDACC chair. Qualitative data was analysed through thematic analysis, where patterns and themes were identified in respondents' narratives and interpreted in relation to the study's objectives. Quantitative data was analysed using descriptive statistics. For inferential data Linear regression analysis was used to determine extent to which institutional management practices influence implementation of CBET. The Likert scale subjected to Cronbach's analysis to determine internal items consistency was used. The data was analysed using SPSS Version 30 and findings presented in form of tables and charts for clarity and ease of interpretation. Research findings demonstrated that Tutors' capacity building is a crucial determinant of successful curriculum delivery among TVET institutions. Research however recommended that, a national policy should be developed by Ministry of Education to guide Continuous professional Development upgrading of TVET tutors with clear and adequate benchmarks for professional growth.

Key Words: *Tutors, Capacity Building, Implementation, Competency-Based Education, Training, Vocational Education*

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I. Introduction

Investigation of management practices Concerning adoption of Competence-Based Education and Training within TVET institutions reveals critical factors influencing success. Effective leadership, strategic planning and resource allocation emerge as key elements (Muthomi & Kinyua, 2020). Institutions that invest in staff development and engage stakeholders show better CBET implementation outcomes (Ooko, 2019). However, challenges persist, including resistance to change and funding constraints (Wanyonyi et al., 2022). Quality assurance mechanisms and industry partnerships also play vital roles in aligning CBET programs with market needs (TVETA, 2020). However, overall adaptive management practices are crucial for managing intricate challenges of CBET implementation and ensuring its effectiveness in TVET institutions.

Are crucial for managing intricate challenges Consequently, US approach emphasizes aligning educational outcomes with workforce needs, facilitated by government-developed competency frameworks that guide curriculum development across various sectors (Everhart & Bushway 2014). 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, driven significantly by Made in China 2025 initiative (State Council of China, 2015).

As a result, 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 resources quality and the need to continuously update curricula to keep pace with rapid technological changes. Aligned with trends in the Sub-Saharan Africa region, the implementation of Competence-Based Education and Training (CBET) in TVET institutions.

Across African countries is progressing with 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 employment. Key features of Egypt's CBET implementation include government initiatives like EU-supported TVET II program and strong industry involvement through sector skills councils and Enterprise TVET Partnership initiative (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 local studies, Kenya has been at the forefront of CBET implementation in 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 (Muthomi & Ngari, 2020). However, challenges such as inadequate infrastructure, limited industry involvement and need for more trained instructors persist. Nairobi County, as Kenya's economic and educational center, 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 and Kinyua 2020).

However, 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 (Muthoni & Kinyua, 2020). 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).

Quality assurance mechanisms aligned with CBET principles have been identified as a critical management practice with TVET providing guidelines that several Nairobi institutions have successfully adopted. Despite progress, challenges persist in some TVET institutions, including staff resistance to change, inadequate funding and difficulties in assessment processes, highlighting the need for adaptive management practices. Moreover, landscape of CBET implementation in Nairobi's TVET institutions shows both progress and challenges, with successful implementation characterized by strategic planning, effective resource management, staff development, stakeholder engagement and robust quality assurance mechanisms (Wanyonyi et al., 2022).

II. Statement Of The Problem

One of the most important goals of Kenya's educational reform is establishment of competency-Based Education and Training (CBET) in country's technical and vocational training institutions (TVET) (Wambugu, 2020). However, despite significant efforts to adopt this approach, numerous challenges persist, hindering its effective implementation and impact. This study focuses on influence of institutional management practices in TVET institutions on CBET implementation. One of the primary challenges with CBET curricula is their misalignment with industry needs, resulting in graduates lacking the necessary competencies to meet Labor market demands. A recent industry survey found that 60% of employers believe TVET graduates lack essential skills, primarily due to outdated curricula and inadequate industry linkages (Kenya National Qualifications Authority, 2023). Instructors also 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 cite inadequate funding as a major barrier to acquiring essential equipment and facilities for hands-on training (Kenya TVET Authority, 2023). Additionally, ineffective assessment methods pose another challenge, with 55% of institutions lacking structured evaluation frameworks to measure students' competency acquisition effectively (Muthomi and Mbugua, 2019). The slow adoption of CBET is evident in Nairobi County, where a comprehensive survey of 50

TVET institutions revealed that only 40% have fully implemented CBET curricula, while 35% remain in partial implementation stages (Kenya TVET Authority, 2023). Institutions with robust leadership and strategic management practices were found to be 2.5 times more likely to achieve full CBET implementation compared to those with weaker management structures (Muthomi & Kinyua, 2020). However, despite 80% of TVET administrators acknowledging the importance of CBET, only 45% have a clear strategic plan for its implementation (Kenya TVET Authority, 2023).

Resistance to change within TVET institutions further complicates CBET implementation. Traditional educational paradigms and rigid institutional cultures slow down the transition, with 58% of TVET staff expressing concerns over shifting from traditional instructional methods to a competency-based model (Njengere, 2021). Additionally, inadequate monitoring and evaluation mechanisms create significant data gaps, making it difficult to assess CBET's actual impact on graduate employability. Oketch (2018) highlights that 70% of TVET institutions lack systematic tracking of graduate outcomes, leading to ineffective policy adjustments. Moreover, the 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.

III. Research Objective

To establish influence of tutors' capacity building on implementation of Competency-Based Education and Training in Technical, Vocational Education and Training Institutions in Nairobi County.

IV. Research Hypothesis

H₀₃ There is no significant relationship between tutors' capacity building and implementation of Competency-Based Education and Training in Technical, Vocational Education and Training Institutions in Nairobi County.

V. Empirical Literature Review

Staff Capacity Building Practices And Implementation of Competency-Based Education And Training in Technical, Vocational Education And Training Institutions

Staff training and development are key to the successful implementation of Integrating CBET into TVET programs. Therefore, shift to CBET which emphasizes acquiring specific competencies rather than merely completing courses, necessitates a profound transformation in teaching practices and educator capabilities. As such, quality and effectiveness of CBET implementation are closely tied to the professional development of instructional staff. One of the primary ways staff training influences CBET is through equipping educators with a deep understanding of competency-based principles.

Unlike traditional education models, CBET focuses on clearly defined competencies that students must demonstrate to progress. Educators need comprehensive training to design and implement curricula that align with these competencies. This includes learning how to develop detailed competency frameworks, creating assessment tools that accurately measure competency attainment, and provide instruction that supports practical, hands-on learning experiences (Nguyen, 2021). Such training ensures that educators can effectively translate CBET principles into practice, fostering a learning environment that prioritizes skill acquisition and application.

The professional development programs should include training on contemporary teaching methods and technologies that support CBET. The integration of digital tools and platforms can enhance the learning experience by providing interactive and adaptive learning opportunities. For example, using simulation software and online resources can facilitate experiential learning and allow for personalized instruction that meets the diverse needs of students. What this means is that training staff to utilize these technologies effectively helps in delivering competency-based instruction that is both engaging and efficient (Smith & Brown, 2022).

This technological proficiency is essential for creating a modern learning environment that aligns with the demands of CBET. Therefore, continuous professional development is also crucial for maintaining the relevance and quality of CBET programs. The educational landscape and industry standards are continually evolving, and ongoing training helps educators stay abreast of these changes. Regular workshops, conferences, and collaborative learning opportunities enable educators to update their knowledge and skills, ensuring that their teaching practices remain current and effective. This ongoing professional engagement supports the iterative

improvement of CBET implementation, allowing institutions to adapt to new developments and refine their approaches based on emerging best practices (Williams, 2023).

Impact of staff training on CBET implementation extends to the broader institutional culture. This is because, effective training programs foster a culture of continuous improvement and collaborative learning among educators. When staff members are well-trained and supported, they are more likely to share their knowledge and best practices with colleagues, contributing to a collective enhancement of institution's educational quality. This collaborative approach helps in building a robust framework for CBET that benefits both educators and students (Nguyen, 2021). Thus, it is clear that in order to successfully implement CBET, Technical and Vocational Education and Training (TVET) institutions in English-speaking countries must place a premium on staff capacity building. Teachers need targeted and ongoing professional development to fully grasp CBET and put its concepts into practice in the classroom.

Therefore, educators in England must be equipped with a thorough knowledge of competency-based methodologies, which differ significantly from traditional education models. This involves training in designing curricula that focus on specific competencies, creating assessments that accurately measure these competencies, and delivering instruction that emphasizes practical, hands-on experiences. Such training ensures that educators can effectively implement CBET, facilitating a learning environment where students develop the skills needed for their chosen careers (Harris & Rudd, 2020).

Training programs for staff should also address integration of contemporary teaching tools and technologies that support CBET. For example, digital platforms and simulation software can enhance learning by providing interactive and adaptive experiences that align with competency-based goals. Training educators to use these technologies helps in delivering more engaging and effective instruction, thereby supporting the CBET framework (Brown & Smith, 2021). This aspect of professional development is essential for creating a modern educational environment that meets the needs of today's learners. Ongoing professional development is vital to maintaining the effectiveness and relevance of CBET programs.

As industry standards and educational practices evolve, continuous training helps educators stay current with the latest developments. Regular workshops, seminars, and peer learning opportunities contribute to the continual improvement of CBET implementation, allowing institutions to refine their approaches and address any emerging challenges (Jackson, 2022). This continuous learning process is crucial for ensuring that educators can adapt to new trends and maintain high-quality instruction. The influence of staff training on CBET also extends to fostering a culture of collaboration and shared learning within institutions. Well-trained educators are more likely to engage in collaborative practices, sharing insights and strategies with their colleagues. Harris and Rudd (2020) found that when teachers work together, CBET is better implemented and students benefit from a more positive classroom climate.

Staff capacity building is crucial for the effective implementation of Competency-Based Education and Training (CBET) in Tanzania's Technical and Vocational Education and Training (TVET) institutions, in line with the priorities of the East African Community. The successful transition to CBET demands that educators adapt to new methodologies focused on achieving specific competencies rather than following traditional time-based learning models. To effectively implement CBET, educators require extensive training. This includes developing competency-based curricula that meet industry demands, designing assessments to accurately evaluate competencies, and delivering instruction that integrates practical, hands-on experiences. Such comprehensive professional development ensures that educators can create a learning environment that equips students with the skills and knowledge necessary for their careers (Mosha, 2021; Kivuva & Mungai, 2020).

In addition, Training programs should also address integration of modern teaching technologies that support CBET. Digital tools and simulation software can significantly enhance the learning experience by providing interactive and practical applications aligned with competency-based objectives. Training educators to effectively use these technologies ensures that instruction is both engaging and relevant, facilitating a more effective CBET implementation (Nnko & Mwita, 2022; Chachage, 2021). Ongoing professional development is essential for maintaining the relevance and quality of CBET programs. Regular workshops, seminars, and collaborative learning opportunities enable educators to stay updated on the latest trends and best practices in CBET.

This continuous learning process helps institutions refine their approaches and address emerging challenges, ensuring that CBET remains effective and responsive to changes in industry standards (Lema, 2023). Staff training fosters a culture of collaboration and shared learning within institutions. Educators who are well-trained are more likely to engage in collaborative practices, sharing insights and strategies with their peers. This collaborative environment enhances the overall quality of CBET delivery and contributes to a supportive educational atmosphere (Mosha, 2021; Kivuva & Mungai, 2020).

Technical and Vocational Education and Training (TVET) institutions in Kenya need to effectively integrate Competency-Based Education and Training (CBET) in order for staff training and development play a crucial role. Transitioning to CBET demands that educators adopt new approaches, shifting from traditional

methods to a focus on cultivating specific skills through practical, hands-on learning experiences. Educators need extensive training to design and implement competency-based curricula that meet industry standards. This training involves creating detailed competency frameworks, developing assessments that accurately measure competency, and structuring instruction to support real-world applications (Wanjiru, 2020; Maina, 2021). This is because, effective training ensures that educators can translate CBET principles into practice, providing a learning environment where students acquire relevant skills for their careers.

Educators also need skills to integrate modern technologies that enhance CBET. However, utilizing digital tools and platforms can enrich the learning experience by offering interactive and adaptable learning environments. Training in these technologies helps educators deliver instruction that is both engaging and aligned with competency-based goals (Ochieng & Mburu, 2022; Njoroge, 2023). This includes using software for simulations and online assessment tools to support experiential learning. Ongoing professional development is essential for keeping CBET programs relevant and effective.

Regular workshops, seminars, and collaborative learning opportunities enable educators to stay updated on new trends and best practices. This continuous learning process helps institutions refine their approaches and address emerging challenges, ensuring that CBET remains effective in meeting industry needs (Wambua, 2021; Karanja & Njuguna, 2022). Therefore, a well-structured professional development program also fosters a collaborative culture within TVET institutions. Educators who are well-trained are more inclined to share knowledge and strategies with colleagues, contributing to a supportive and dynamic learning environment. This collaboration enhances the quality of CBET delivery and strengthens the educational community (Wanjiru, 2020; Karanja & Njuguna, 2022).

VI. Materials And Methods

This study utilized a mixed-method approach, combining quantitative and qualitative methodologies, to fully comprehend research challenge. The ability to gather and analyse both numerical and narrative data in a single study made this method suitable. The researcher strengthened results by utilizing qualities of each method by combining them (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 done mostly through interviews that recorded detailed descriptions of individuals' experiences expressed in their own words.

To gather all necessary data about present state of affairs, investigation employed a concurrent triangulation design. According to Creswell (2009); Best and Kahn (2006), this design takes into account both past and its relationship to present. It enables researcher to efficiently describe, analyse and evaluate data from many sources. Cohen, Manion and Morrison (2000) both praised design's simplicity and ease of implementation, as well as its capacity to enable triangulation. It collected quantitative and qualitative data all at once to look at how different educational criteria are distributed and what links there are between them. The goal is to lay out current state of affairs, provide some standards for future comparisons and find some connections between certain occurrences (Orodho, 2005). Furthermore, this design was selected due to its ability to reduce bias within this research population, leading to comprehensive, insightful and important research results.

Target population constituted 1,967 participants drawn from 53 institutions situated in 5 Sub-Counties in Nairobi County. The participants included 53 principals, 53 BOM chairs, 265 HODs and 1 TVET County Director and 1 CDACC chairperson as indicated in Table 2 below. The target population is as per Asiamah, Mensah and Oteng-Abayie (2017), when a researcher draws findings from a specific group, they are referring to that group as target population. This study's participants have been hand-picked for their ability to contribute data that is directly related to research questions and aims. Researchers hoped that this sample answered questions and provide information that helped them fully grasp research challenge and achieve their goals (Creswell, 2014).

Sample size of 201 participants was selected from five Sub-Counties in Nairobi where TVET institutions are located. Participants included 20 principals, 20 BOM chairs, 159 HODs, 1 CDACC chairperson and 1 TVET Director. Researcher applied Yamane's Sampling Formula to guarantee that trainers sample dimension was adequate for purpose of investigation. Given that it is a technique that utilizes what target group is with a high degree of confidence, it was appropriate as it provided an exact and finite number of samples that were exceptionally representative. This is how it was used:

$$N_0 = \frac{N}{1 + N(e^2)}$$

Where N_0 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 will be:

$$N_0 = \frac{265}{1 + 265(0.05)^2}$$

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. No matter design of population distribution, sampling distribution of the mean was approximate a normal distribution when sample size N was 30 or more, according to theory (Kothari, 2005). 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 3 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 were 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 as per the 5 strata of five Sub-Counties to meet threshold of the study as stipulated in table 1 below:

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	

Note. Researcher (2025)

VII. Research Findings And Discussions

Quantitative Findings on Influence of Tutors' Capacity Building on Implementation of Competency-Based Education And Training In Technical, Vocational Education And Training Institutions

Heads of Departments together with Board of Management Chairpersons in TVET institutions participated in a questionnaire so as to gain insights on how tutor's capacity building influences on successful implementation of CBET curriculum. BOM Chairpersons responses of members were recorded in table 2.

Table 2 Board of Management Views on Influence of Tutors' Capacity Building Practices on Implementation of CBET in TVETs Institutions

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

Tutors Capacity Building Programs		SA 5	A 4	U 3	D 2	SD 1	M	STD
Professional Development Opportunities influence individualized learning paths	F %	9 50.00	5 27.78	1 5.56	1 5.56	2 11.11	2.25	1.89
Training Needs Assessment influence outcome-based assessments	F %	6 33.33	7 38.89	2 11.11	2 11.11	1 5.56	3.00	2.71
Training on Effectiveness influence outcome-based assessments	F %	5 27.78	8 44.44	2 11.11	3 16.67	0 0.00	3.00	3.46
Mentoring programs influence clear competency framework	F %	11 61.11	6 33.33	0 0.00	1 5.56	0 0.00	1.75	2.87
Tutors' attendance of workshops and seminars influence CBET curriculum adoption and delivery	F %	11 61.11	5 27.78	0 0.00	1 5.56	1 5.56	1.75	2.22
Tutors' mentoring programs influence Trainer competence and CBET teaching methodologies	F %	6 33.33	10 55.55	0 0.00	1 5.56	0 0.00	2.75	4.86
Provision of professional development opportunities influence competency-based assessment and certification	F %	7 38.89	8 44.44	1 5.56	1 5.56	1 5.56	2.75	3.50
Tutors' capacity building practices influence implementation of CBET	F %	8 44.44	5 27.78	1 5.56	3 16.67	1 5.56	2.50	1.91

Note. Researcher, 2025

Regarding professional development opportunities 50.00% (9) of BOM chairpersons indicated that they strongly agreed that it has influence on CBET implementation, 27.78% (5) agreed, 5.56% (1) remained neutral, 5.56% (1) disagreed whereas 11.11% (2) strongly disagreed. On statement that training needs assessment influence outcome-based assessments 33.33% (6) strongly agreed with this observation, 38.89% (7) agreed, number of BOM chairperson who remained neutral were 11.11% (2), those who disagreed were 11.11% (2) but those who strongly disagreed were 5.56% (1). Training on effectiveness influence outcome-based assessments 27.78% (5) strongly agreed, 44.44% (8) agreed, 11.11% (2) were neutral, 16.67% (3) disagreed whereas there were no participants who strongly disagreed with this observation. Regarding the question that mentoring

programs influence clear competency framework 61.11% (11) strongly agreed, 33.33% (6) agreed, there were no respondents who remained neutral but 5.56% (1) disagreed and also 5.56% (1) strongly disagreed with this observation.

Tutors' mentoring programs influencing trainer competence and CBET teaching methodologies attracted 33.33% (6) of BOM chairpersons to strongly agree, number of BOM chairpersons who agreed were 55.55% (10) there were no respondents who remained neutral but 5.56% (1) disagreed and there were no respondents who strongly disagreed on this particular observation. Regarding question that provision of professional development opportunities influences competency-based assessment and certification 38.89% (7) strongly agreed with this observation, 44.44% (8) agreed with this observation, 5.56% (1) were undecided, 5.56% (1) disagreed with this observation whereas those who strongly disagreed also contributed for 5.56% (1). Consequently, chairpersons of BOM were also subjected into a general overview on influence of tutors' capacity building practices on implementation of CBET Curriculum within TVET institutions whereby among views that were gathered from participants results indicated that 44.44% (8) of BOM chairpersons strongly agreed with this observation, 27.78% (5) agreed, 5.56% (1) were undecided, 16.67% (3) disagreed while 5.56% (1) strongly disagreed with this observation. Also, concerning tutors' capacity building practices information was also gathered among various HODs within TVET institutions and results of findings were presented on table 3.

Table 3 Heads of Departments Views on Influence of Tutors' Capacity Building Practices on Implementation of CBET curriculum in TVETs Institutions

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

Tutors Capacity Building Programs		SA 5	A 4	U 3	D 2	SD 1	M	STD
Professional Development Opportunities influence individualized learning paths	F %	65 43.33	78 52.00	2 1.33	3 2.00	2 1.33	21.25	37.84
Training Needs Assessment influence outcome-based assessments	F %	43 28.67	58 38.67	4 2.67	20 13.33	25 16.67	26.75	22.68
Training on Effectiveness influence outcome-based assessments	F %	60 40.00	54 36.00	6 4.00	17 11.33	13 8.67	22.50	22.49
Mentoring programs influence clear competency framework	F %	80 53.33	51 34.00	5 3.33	5 3.33	9 6.00	17.50	22.41
Tutors' attendance of workshops and seminars influence CBET curriculum adoption and delivery	F %	86 57.33	39 26.00	3 2.00	11 7.33	11 7.33	16.00	15.79
Tutors' mentoring programs influence Trainer competence and CBET teaching methodologies	F %	75 50.00	53 35.33	7 4.67	10 6.67	5 3.33	18.75	22.93
Provision of professional development opportunities influence competency-based assessment and certification	F %	83 55.33	40 26.67	3 2.00	14 9.33	10 6.67	16.73	16.15
Tutors' capacity building practices influence implementation of CBET	F %	88 58.67	50 33.33	3 2.00	5 3.33	4 2.67	15.5	23.01

Note. Researcher, 2025

Regarding question that professional development opportunities influence individualized learning paths 43.33% (65) of Heads of Departments strongly agreed with this observation, 52.00% (78) agreed, 1.33% (2) remained undecided, 2.00% (3) disagreed while those who strongly disagreed were 1.33% (2). Training need assessments influence on outcome-based assessments attracted 28.67% (43) of HODs to strongly agree, 38.67% (58) agreed, number of HODs who remained neutral were 2.67% (4), those HODs who disagreed contributed for 13.33% (20) while HODs who strongly disagreed were 16.67% (25). Heads of Departments were also asked on training of effectiveness influence outcome-based assessments where 40.00% (60) strongly agreed, 36.00% (54) agreed, 4.00% (6) were undecided, 11.33% (17) disagreed whereas number of HODs who strongly disagreed contributed for 8.67% (13). Regarding question on mentoring programs influence clear competency framework half of HODs who participated at 53.33% (80) their views was that they strongly agreed with this observation, 34.00% (51) agreed, 3.33% (5) were undecided, 5.33% (5) disagreed while 6.00% (9) strongly disagreed.

Tutors' attendance of workshops and seminars influence CBET curriculum adoption and delivery attracted 57.33% (86) of HODs to strongly agree with this observation, 26.00% (39) agreed, number of HODs who remained neutral were 2.00% (3), those who disagreed were 7.33% (11) whereas those who strongly disagreed were 7.33% (11). Regarding Ing tutors mentoring programs influence trainer competence and CBET teaching methodologies half of HODs who participated at 50.00% (95) strongly agreed with this observation, 35.33% (53) agreed, those who remained neutral were 4.67% (7), number of HODs who disagreed were 6.67% (10) whereas those who strongly disagreed were 3.33% (5). Regarding general observation of influence of Tutors' capacity building practices influence on implementation of CBET curriculum in TVETs institutions 58.67% (88)

strongly agreed, 33.33% (50) agreed, 2.00% (3) were undecided, 3.33% (5) disagreed whereas number of HODs who strongly disagreed contributed for 2.67% (4).

Across various categories of participants who took part during this investigation had a general overview that building trainers' capacities significantly impacts on level of success in implementation of CBET curriculum within public TVET Institutions. These observations confirm findings of research by Nanjala, Egessa and Mumaraki (2025); Manase and Nyamu (2024) who reported that implementation of CBET in TVETs institutions studies revealed that tutors' capacity building practices are highly linked to success of implementation. This is because where trainers are equipped with various competencies on curriculum design, digital pedagogy as well as competency assessments, students are likely to obtain stronger employability competencies that are aligned with industry relevant skills.

VIII. Inferential Findings On Influence Of Tutors' Capacity Building On Implementation Of Competency-Based Education And Training In Technical, Vocational Education And Training Institutions

Regarding inferential finding is of this exploration, an analysis of Board of Management responses together with Heads of Departments responses were analysed as in table 4 to allow regression analysis.

Table 4 Analysis of Board of Management Chairpersons and Heads of Department responses on Influence of Tutors' Capacity Building Practices and Implementation of CBET in TVETs Institutions

Category	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
BOM Chairs	8	5	1	3	1
HODs	88	50	3	5	4

Note. Researcher, 2025

These results were then subjected for analysis through regression analysis where findings were presented in table 5.

Table 5 Regression Analysis on Influence of Tutors Capacity Building on Implementation of CBET curriculum in TVET institutions

	df	SS	MS	F	Significance F
Regression	1	32.80911	32.80911	41.16771	0.007671921
Residual	3	2.390887	0.796962		
Total	4	35.2			

Note. Researcher, 2025

Statement of hypothesis

H₀₃ There is no significant relationship between tutors' capacity building and implementation of CBET in TVET in Nairobi County.

Significance value was set at $\alpha = 0.05$ while level of confidence was set at 95% and $P = 0.05$. Decision rule was set at if value of P is less than 0.05 ($P < 0.05$) results obtained are statistically significant therefore null hypothesis was rejected reason being if these results were true, observed data was unlikely to have occurred. However, if P value obtained was greater than 0.05 ($P > 0.05$) this was an indication that results obtained was not statistically significant therefore null hypothesis was accepted. From regression analysis value of p calculated was realized as $P = 0.007671921$ which is lesser than 0.05 therefore null hypothesis was rejected and alternative hypothesis accepted that;

H_{A3} There is a significant relationship between tutors' capacity building and implementation of CBET in TVET in Nairobi County.

IX. Thematic Analysis Of Tutors' Capacity Building On Implementation Of Competency-Based Education And Training In Technical, Vocational Education And Training Institutions

During this investigation interviews were conducted among principals in TVET Institutions, Curriculum Development, Assessment and Certification Council Chairperson as well as TVET County Director to gather qualitative insights on influence of tutors' capacity building practices on implementation of CBET curriculum within TVET institutions. During interviews a dominant theme that emerged was a necessity for Continuous Professional Development for Tutors to equip them with necessary competencies significant for effective curriculum delivery. For instance, Respondent H observed that:

"In this institution our CDACC organizes for seminars or workshops for our tutors. Through such training our tutors are equipped with modern competencies on different pedagogies as well as receive orientation to demands in the industry. This practice of having Continuous Professional Development has greatly enabled our tutors to effectively handle CBET modules promoting implementation of curriculum" (Respondent H)

Similarly, during an interview with Respondent K noted that lack of professional upgrading is barrier to effective curriculum implementation. This is because Respondent K observed that:

"Some of our tutors in TVET institutions are still relying on outdated methods of teaching therefore cannot be able to effectively promote implementation of curriculum successfully. In TVET institutions where capacity building has been taken with a lot of seriousness, such institutions have registered improved students' engagement, higher completion rate and better alignment of CBET curriculum with industry needs" (Respondent K).

During interviews another theme that emerged to a great extent was on exposure of tutors as well as industry linked capacity buildings of tutors. According to Respondent D:

"This curriculum on CBET is highly competency based which means that tutors in TVET institutions ought to be trained on competencies on hands on skills apart from theoretical equipment with knowledge. As a result, we highly encourage TVET institutions to promote tutors spending time in industries to promote real life occupational standards integration into teaching as well as assessments" (Respondent D).

Interview discussions also revealed that tutors' capacity building promotes accountability, innovation as well as fosters collaboration among tutors in TVET institutions. For example, Respondent R noted:

"Tutors in-service training as well as peer to peer learning sessions, tutors share experiences on CBET delivery as well as exchange of ideas on curriculum delivery. This has encouraged a culture among tutors of teamwork then promote accountability of tutors on students learning outcomes" (Respondent R).

Although there was a highlight of various benefits highlighted by respondents a number of challenges were noted to limit implementation of CBET curriculum within TVET institutions. Key challenges that were revealed include competing institutional priorities as well as limited resources. For instance, Respondent M during an interview reported that:

"Despite tutors' capacity building having a lot of significance in equipping tutors for successful curriculum deliver, there exists challenges that limit its effectiveness. Such challenges include financial constraints. Due to financial constrains only a few numbers of trainers are ably facilitated by TVET institutions for workshops attendance due to limitations in budgeting consequently leading to inconsistency in delivery of curriculum" (Respondent M)

In addition to time resources constrains, Respondent N added that time constrains was a barrier to effective implementation of curriculum. This is because Respondent N indicated that:

"There is a lot of overloading of tutors with teaching schedules within TVET institutions where only minimal time is left for training or capacity building where tutors can visit industries for attachments. Therefore, unless there is support on policies aimed at reduction of workload for tutors within TVET institutions capacity building will remain a challenge that limits effective curriculum implementation" (Respondent N)

These insights from this respondents are therefore suggestive that although capacity building of tutors is a critical factor for effective curriculum implementation through enhancing tutors practices such as pedagogical skills, team work as well as industry relevance, challenges surrounding capacity building such as increased workloads among tutors, limited training, inadequate financial resources as well as limited training opportunities for tutors limits ability of capacity building of tutors on implementation of CBET curriculum.

Qualitative findings of this research align with research findings of Gathara, Otieno & Waweru, (2023) who revealed that effective tutors' professional development coupled with feedback-oriented supervision promotes implementation of CBET curriculum among TVET institutions. However, findings also suggested that workload challenges. Also, Oanda and Sifuna (2020) placed emphasis on continuous upgrading of TVET tutors more so through industry-based learning together with competency-based pedagogy which are critical drivers for achieving successful CBET curriculum delivery.

X. Mixing And Interpretation Of Findings On Tutors' Capacity Building And Implementation Of Competency-Based Education And Training In Technical, Vocational Education And Training Institutions

This exploration concerning tutors' capacity building practices revealed that there exists a strong positive relationship on curriculum delivery within public TVET institutions. Both findings from BOM chairpersons and HODs on quantitative data and findings from qualitative data from principals, TVET County Director as well as CDACC all suggested that opportunities for professional development such as mentoring programs, need assessment, attendance to seminars or workshops as well as in-service training are some of tutors' development opportunities that have a significant influence on effectiveness of implementation of curriculum within TVET institutions.

Research quantitative findings of tables 16 to 19 demonstrates that BOM chairpersons as well as Heads of Departments to a great extent observed that tutors' opportunities for capacity building mainly impact on individualized learning experiences, competency frameworks as well as outcome-based assessments. For instance, over 80.00% of BOM chairpersons and HODs in TVET institutions had an agreement that tutors' capacity building practices done within TVET institutions impacts on individualized learning paths as well as competency-based assessment. Another, tutors' capacity building practice that was highly agreed upon by respondents was on mentoring programs whereby 61.11% (11) of BOM chairpersons and 53.333% (80) strongly agreed that trainer competence together with competency frameworks are highly influenced by mentoring programs. This however suggest a broad consensus among respondents on how capacity building practices positively impacts on successful curriculum implementation among public TVET institutions.

Inferential analysis of research findings as demonstrated in table 21 further ascertain this positive relationship between capacity building practices and successful implementation of curriculum within TVET institutions. This is because regression analysis of findings of this research yielded a statistically significant result that led to acceptance of alternative hypothesis that there is a significant relationship between tutors' capacity building and implementation of CBET curriculum within TVET institutions. However, implications of these findings imply that quality and extent of tutors' capacity building can directly predict adoption of CBET curriculum.

Qualitative insights from participants offered a deeper view on mechanisms through which practices on capacity building promote adoption of curriculum in TVET institutions. Various themes also emerged highlighting role of capacity building in facilitating successful implementation of curriculum. Such themes included on role of Continuous Professional Development, Peer-to-Peer learning as well as industry-based training that all have a direct influence on effectiveness of tutors in terms of pedagogical skills, assessment skills as well as alignment with industrial needs of the curriculum.

Also, it was note that various categories of respondents during research placed emphasis on potential of Continuous Professional Development opportunities not only develops competence for tutors but also provide a learning platform for peers engagement, team work, accountability, industry attachment as well as accountability which were all realized to be critical in alignment of teaching with technical occupational standards but for seminars attendance as well as workshops attendance improves adoption of modern pedagogical skills.

Despite of various benefits aligning with capacity building of tutors within TVET institutions, several challenges were highlighted to limit effectiveness of capacity building practices on implementation of curriculum effectively. Generally, these findings suggest that capacity building of tutors within TVET institutions is both a predictor as well as a driver towards successful CBET curriculum implementation. For quantitative data, an establishment was made on strength of relationship but for qualitative data obtained from respondents demonstrated how capacity building works in practice. However, available literature validated general importance of conducted tutors' capacity building. Nonetheless, it can be noted that unless certain systemic challenges are addressed effectively, benefits realized as a result of capacity building of tutors within TVET institutions cannot be fully realized.

XI. Conclusion

Tutors' capacity building is a crucial determinant of successful curriculum delivery among TVET institutions. Professional Development Opportunities such as attendance to seminars or workshops, mentoring programs as well as assessment of training needs potentially benefits tutors' pedagogical competencies, foster alignment of curriculum as well as strengthen outcome-based assessments. Findings from qualitative as well as quantitative results suggest that TVET institutions that are able to build capacities for their tutors are better implementers of CBET curriculum. Challenges such as limited time for capacity building, limitations on financial resources, lack of Institutional goodwill as well as increased workloads among tutors in TVET institutions were identified as major challenges limiting effective implementation of capacity building practices that consequently hinder successful implementation of CBET curriculum. Therefore, this is suggestive that, while capacity building practices are a significant contributor to successful CBET curriculum implementation, its success or potential can

only be better realized if only institutional interventions in practice and policy are put in place to provide adequate financing of TVET institutions, reduce workload for tutors and promote support for Continuous Professional Development opportunities for tutors within TVET institutions.

XII. Recommendation

TVET institutions should aim to institutionalize structured and regular Continuous Professional Development programs that aim at focusing on modern digital skills, pedagogy, as well as assessment approaches that align with CBET curriculum. TVET Institutional also enhance peer-to-peer learning sessions where more experienced tutor can be used to mentor younger tutors. Industry linkages also should be enhanced to provide tutors in TVET institutions with practical experiences through attachments to industries to promote industry-based learning. Various institutional Heads of Departments and TVET principals should embed capacity building onto institutional calendars promoting seminars, workshops as well as needs assessments are adequately planned as well as evaluated. TVET institutions ought to review teaching schedules to redistribute workloads among tutors to promote adequate time for professional growth and development among tutors.

A national policy should be developed by Ministry of Education to guide Continuous professional Development to guide professional upgrading of TVET tutors with clear and adequate benchmarks for professional growth. Government through Ministry of Education can review policies on partnership with private sectors to ensure collaboration of public TVET institutions and industries and private sectors as well as development partners to broaden opportunities for capacity building programs. Ministry of Education should come up with policy guidelines that focus on redistribution of workload for tutors in TVET institutions to allow time for professional capacity development programs for tutors.

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