OPEN ACCESS

Journal of Advances in Education and Philosophy

Abbreviated Key Title: J Adv Educ Philos
ISSN 2523-2665 (Print) |ISSN 2523-2223 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Original Research Article

The Influence of Institutional Factors on Implementation of Competency-Based Education and Training in Meru County, Kenya

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DOI: https://doi.org/10.36348/jaep.2025.v09i08.003 | **Received:** 02.06.2025 | **Accepted:** 23.07.2025 | **Published:** 22.08.2025

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Abstract

Despite the government's effort to implement a Competency-Based Curriculum in technical and vocational training institutions, institutional factors remain a significant obstacle in this process. These challenges collectively impede the successful execution of CBET programs in the region and warrant a closer examination of the influence of institutional factors on its implementation. This study adopted a descriptive survey design employing a mixed methods approach. The sample included 363 respondents, comprising 335 trainees, 23 trainers, 3 technicians, and 2 principals. The findings indicated that while a majority of respondents acknowledged the availability of sufficient teaching and learning resources for CBET (56.4%), there was a widespread perception of a lack of clear implementation guidelines (74.6%). Moreover, institutions were found to have insufficient policies for CBET (71.9%), and insufficient learning infrastructure (57.8%). Notably, most institutions were not actively engaged in monitoring and evaluating the implementation of CBET (70.4%). In this case, the study established that there was positive correlation between institutional factors and implementation of CBET in Meru County ($r = .286$; $p = .000$). Consequently, the study recommended that institutions should prioritize the allocation of adequate resources, including teaching and learning materials, workshops, and infrastructure, to support effective CBET implementation. Also, institutions should emphasize the development and communication of clear guidelines and policies to all stakeholders. Additionally, the study recommended the establishment of regular monitoring and evaluation mechanisms—conducted at least biannually—to track CBET implementation progress and identify specific areas for improvement. It further advised fostering structured partnerships with government agencies and industry stakeholders through formal agreements and joint initiatives, reviewed annually, to strengthen institutional support for CBET.

Keywords: Implementation, Competency-Based Education and Training, institutional factors.

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INTRODUCTION

Technical and Vocational Education and Training (TVET) is an education program which is mainly designed for students to acquire practical skills, know-how, and understanding necessary for employment in a particular occupation, trade or a group of occupations (Abdulai, Mohammed, & Ibrahim, 2019). The most important feature of TVET is its orientation towards the world of work, with the curriculum emphasizing the acquisition of employable skills. This means that TVET will promote skill acquisition through competency-based training for the world of work. Thus, competency-based education and training is derived from employment opportunities that exist for the graduates. Graduates from CBET curriculum will either be employed in different public and private business sectors or they will be self-employed. Competency-Based Education and Training (CBET) has gained recognition and importance on a global scale as an innovative approach to education and skills development. CBET emphasizes the development of specific skills and competencies that are relevant to the needs of industries and the job market, moving away from traditional rote learning. This shift is motivated by the recognition that a workforce equipped with the right competencies is crucial for economic growth, competitiveness, and meeting the challenges of the 21st century. Various countries worldwide have adopted CBET as a means to bridge the gap between education

and employment, making it an integral part of their education and training systems.

In a longitudinal study conducted in California, Bryde, Unterhitzenberger, and Joby (2019) revealed that discussions of the preparedness of most schools in California have focused on the percentages of teachers without credentials or, at the middle and high school levels, teachers without the appropriate single-subject credential for the subject areas to which they are assigned. Bryde et al. (2019) established that little attention has been paid to the preparation of schools in California to provide dynamics such as teachers, instructional resources, physical facilities and stakeholders' attitudes towards implementation of school curriculum. In Sub-Saharan Africa, most studies evaluating teachers' subject proficiency have primarily relied on interviews that assess teachers' self-perceived preparedness. However, these studies often lack a comparative analysis linking school-related factors to pupils' educational outcomes (Cheptoo & Ramadas, 2019).

However, research on school related factors and teacher efficacy has indicated that there is a relationship between self-assessments of preparedness and behaviors that affect pupil learning, including a willingness to try new instructional techniques, persistence in problem-solving, and levels of planning and organization. In a longitudinal study conducted in Ghana about what certification does tell about teacher effectiveness on academic achievement, Darling-Hammond, Flook, Cook-Harvey, Barron, and Osher (2020) indicated that teachers who are prepared with instruments of teaching such as schemes of work, lesson plans, and records of work are competent in their delivery and have the greatest impact on students' achievement. The study further indicated that any form of preparedness such as provision of teachers, instructional resources, school facilities and manifestation of positive attitude are among the principal components of any pedagogical program aimed at improving Implementation of school curriculum.

In Australia, the Competency-Based Education was delivered as a government directive (Egbert & Shahrokni, 2019). It resulted from shortcomings found inside the abilities level of the Australia team of workers following the endless modifications inside the economy and the staggering pace of technology improvement. Weakness in skill delivery was greatly attributed to deficiencies recognized inside the existing schooling systems. It was cited that access stage served by present apprenticeships and traineeships changed into insufficient. There became also little portability of qualification between the states and territories or from foreign places to Australia. Industry representatives often expressed dissatisfaction with the training accessed from Vocational Education and Training (VET) carriers. More commonly, it was felt that there was an overemphasis on fixed-duration courses preferred by providers, rather than on the development of practical skills aligned with the needs of students and trainers (Evan et al., 2020).

Economic and Technological changes necessitated a series of tendencies in administrative center reform award restructuring and challenge. Australia's education method has been re-examined for improved ability degrees and international competitiveness. In other nations, the Zambia curriculum turned into reforming in a bid to put together Students for future challenges in the rapid changing global (MoGE, 2013). The pursuits of the 2013 revised Zambian curriculum is to provide self-inspired, existence-long students, confident and effective individuals, holistic, independent rookies with the values, abilities and know-how to permit them to reach school and in lifestyles (Jones & Eynon, 2018). It would be reasonable to conclude that the Ministries of General and Higher Education in Zambia had accurately studied the country's economy, given that organizations such as the World Bank have found that, despite youths making up two-thirds of Zambia's working-age population, youth unemployment remains a significant challenge, with a large portion of young people being unemployed.

In Africa, the importance of CBET has also been recognized as a means to address the continent's developmental challenges, including youth unemployment and underemployment. Several African countries have embarked on reforms to introduce CBET into their educational systems to better prepare their youth for the job market. However, the successful implementation of CBET in the African context is contingent upon various institutional factors, including government policies, infrastructure, funding, and stakeholder collaboration. The diversity of African nations and their unique challenges necessitates a localized approach to CBET implementation.

In Tanzania, Kabombwe and Mulenga (2019) indicated that the ultimate curriculum overview in Tanzania came about in 2005. It turned into guiding by way of a new catchword specifically Competency-Based Curriculum (CBC) that means that it aimed at strengthening student's talents acquisition. The ideals are stated to have been largely drawn from Tanzania Development imaginative and prescient 2025 and the Education Development Sector program (Kahl & Wild, 2020). The competency-based curriculum became operational in each primary and secondary faculty. Serious economic and human commitments were made to restrain and guide instructors, head instructors and other education specialists to expand the essential competence and self-belief to efficiently take care of the competency primarily based training (Kanyonga, Mtana, & Wendt, 2019). The creation of the competency-based curriculum became the second major pedagogical shift in

the USA, following the first significant change in 1967 when education for self-reliance was introduced.

Kenya, as one of the leading economies in East Africa, has recognized the potential of CBET to enhance its workforce's skill set and employability. The Kenyan government has shown a commitment to implementing CBET within its education and training systems, evident in policy reforms, curriculum development, and partnerships with industries and stakeholders. Nonetheless, the implementation of CBET in Kenya faces challenges, particularly at the institutional level. These challenges include resource constraints, infrastructure development, faculty development, and the alignment of CBET programs with industry needs. However, the implementation of competency-based education and training in Kenya has been very slow. The Ministry of Education has been providing data on the level and stage of implementation of competency-based curriculum (CBC), but no data has been published on the level of implementation of competency-based education and training (CBET) in technical training institutions yet there exists a problem. It is therefore against this backdrop that this study sought to fill this gap by examining the influence of institutional factors on implementation of Competency-Based Education and Training in Technical and Vocational Training institutions in Meru County.

Institutional-related factors provide some useful information with which to evaluate effective preparation practices for teachers (Adre & Sullivan, 2018). However, much of the research is limited in scope, focuses on inputs to the education process rather than outcomes, uses data that are only loosely connected to the concepts being examined, or employs case-study methodologies from which it is difficult to determine causal relationships or generalize to other populations (Morton, Bandara, Robinson, & Carr, 2020). As a result, there is still much to learn about school-related factors influencing the effective implementation of school curriculum. Adelman (2016) posits that school related factors include; adequate staffing, instructional resources, school facilities and school management support.

Further, efficacy and schools' preparedness influence the effort teachers invest in teaching, the goals they set for their classes and their level of aspiration and, in addition, stakeholder, especially teachers with a strong sense of efficacy, often tend to manifest greater levels of planning and organization of lessons. They are also more open to new ideas and tend to experiment with new methods and strategies to better meet the needs of their students. These research studies affirm the fact that dynamics within schools are key in enhancing pupils' implementation of school curriculum which determines their transition to other levels of learning. Despite these assertions, little is known about how such aspects of school-related factors enhance school pupils' academic performance (Sushila, 2014).

In Nguu Division, Makueni County, implementation of school curriculum has experienced numerous challenges. Studies have had difficulties identifying specific mode of preparedness related to schools' effectiveness (Mulongo, 2020). The lack of evidence linking observable aspects of preparedness such as adequate levels of staffing, provision of instructional resources, physical facilities and stakeholders' 3 attitude to the implementation of school curriculum is a common problem which requires to be addressed. Norton and Bower (2019) noted that improvement of the staffing levels in schools improves teacher to pupil ratio (that is to a smaller sized class per teacher), this leads to improvement in curriculum implementation. This will consequently lead to improved performance in examinations because the test scores are expected to be higher in a case whereby pupils are put in more homogeneous classes or assigned to extra teachers. This is because a large number of pupils per teacher, makes it difficult for teachers to give adequate assignments to the pupils, as teaching workload and marking become overwhelming (UNESCO, 2015).

The Kenya Institute of Curriculum Development (KICD) followed a competency-based approach (CBA) based on their findings of a needed assessment research carried out in 2016. Educators in Kenya acquired a sequence of training on this technique from the UNESCO International Bureau of Education (IBE-UNESCO) among other different experts. KICD conceptualized a competency-based mode of the curriculum because the capacity to apply learning resources and outcomes (knowledge, talents, values and attitudes) properly in a described context (education, work, private or expert improvement) (Osore, 2019). The curriculum reform was guided by the vision to nurture every Student's expertise and hidden capacity to produce residents who're equipped with all the relevant and satisfactory information in line with the country wide values and social amenities Kenya charter (2010) and also to equip them with competencies required in the realization of Vision 2030. Kenya undertook a first-rate reform of the countrywide curriculum.

Teachers are the implementers of the curriculum for this reason they play a vast role in improvement and transforming a student. Therefore, the quality of education relies upon largely upon the quality of the trainer (Sánchez-Gómez, García-Sánchez, & García-Peñalvo, 2021). As such, teachers need to be exceedingly professional in the software of teaching strategies essential to make students learn successfully (Sim, Tan, & Subramaniam, 2021). For the competency-based methods to be successful, instructors should be knowledgeable sufficient to let their rookies get concerned within the gaining knowledge of system on account that instructors are fundamental gamers in

curriculum implementation (Botha & Reddy, 2011; Wangeleja, 2010).

The achievement of students is proportional to teacher training and preparedness. Teacher first-rate and student's achievement are related than other sorts of investments like instructor salaries and abridged range of rookies in step with the classroom (Darling-Hammond, 2000). Teachers also need to have knowledge of their unique problem so as for them to yield targeted merchandise (Simiyu, & Kiboss, 2017). Thus, for the technique to achieve success, a teacher must efficiently be geared up with pedagogical content knowledge (PCK) which is the information this is developed through instructors to allow the students analyze (Sturgis & Casey, 2018).

The time allocation and evaluation of student's progress is prime in any academic curriculum. Due to the curriculum change to the Competence-Based Curriculum, there is need to align evaluation to ongoing emphasis on competencies (Szopik-Depczyńska & Lanfranchi, 2016). According to the perspectives of Wong and Partridge (2021), assessment has to alternate from being a remote, on occasion timed, occasion commonly connected at the stop of an educational software to attach to ongoing interrelated events that reveal exchange in students conduct regularly. Teaching and gaining knowledge materials plays key position in child's getting to know. They make sure that scholars acquire a balanced and applicable curriculum which they're entitled to (Wiley, 2013). According to Wongnaa and Boachie (2018), instructional materials are essential components of learning, and an intended program cannot be easily implemented without them. No significant teaching and learning can take place without enough teaching and learning resources and therefore smooth implementation of competency-based education requires adequacy of teaching and learning materials. For the formally designed curriculum to be fully implemented as in step with the plan, the government or Ministry of Education has to deliver schools with enough aid materials including textbooks, coaching aids and stationery so as to allow instructors and students to play their position satisfactorily in the curriculum implementation systems.

The existing body of literature provides valuable insights into the implementation of competency-based education and training (CBET) across various educational contexts globally. Researchers have emphasized the importance of CBET in equipping students with the necessary skills, knowledge, and attitudes to thrive in the workforce and meet the demands of the rapidly changing job market. This approach is seen as a response to the shortcomings of traditional education systems that often emphasize knowledge acquisition over practical skills and competencies. While previous studies have shed light on the benefits of CBET, there have been certain gaps and areas where further investigation is warranted. Firstly, much of the research has been centered around Competency-Based Curriculum (CBC) in specific subject areas or disciplines. While this focus is essential, it doesn't provide a comprehensive view of CBET as a broader educational framework applicable across various fields and industries. One significant gap in the existing literature is the limited exploration of institutional or school-related factors that influence the successful implementation of CBET. Understanding these factors is crucial, as they directly impact the effectiveness of CBET programs. These institutional determinants may include teacher preparedness, availability of instructional resources, administrative support, curriculum alignment, infrastructure, and the overall school environment in which CBET is implemented.

METHODOLOGY

The study adopted a descriptive survey design using mixed methods approach. The target population was TVET trainees, trainers, technicians and principals in public TVET institutions in Meru County. A sample size of 363 respondents was selected to participate in the study. These included 335 trainees, 23 trainers, 3 technicians and 2 principals. Interview schedule and questionnaires were used to collect data where institution principals were interviewed while questionnaires were administered to trainers, technicians and trainees. Data obtained was analyzed using quantitative and qualitative techniques. Frequencies, percentages were used in analyzing descriptive data. Pearson Correlation Coefficient and regression analysis were employed to determine relationship that exists between the independent variable (institutional factors) and implementation of CBET (dependent variable). Qualitative data from interview schedule were transcribed, thematically and reported in narrations and quotations.

RESULTS AND DISCUSSION

Institutional factors and Implementation of competency-Based Education and Training

The purpose of this study was to determine the influence of institutional factors on implementation of competency-based education and training in Meru County. To achieve this objective, the respondents were requested to rate items concerning the influence of institutional factors on implementation of competency-based education and training on five-point Likert scale as (SA-Strongly agree (5), A-Agree (4), UD-Undecided (3), D-Disagree (2), SD-Strongly Disagree (1). Their responses were tabulated and the results are presented in Table 1.

Table 1: Institutional Factors and Implementation of Competency-Based Education and Training

Statement	SD		D		UD		A		SA	
	F	%	F	%	F	%	F	%	F	%
The institution provides adequate teaching and learning resources suitable for competency-based education and training	38	11.0	98	28.3	15	4.3	110	31.8	85	24.6
Our institution has provided clear guidelines on the implementation of the competency-based education and training	141	40.8	117	33.8	2	.6	69	19.9	17	4.9
Our institution has adopted implementation policies on competency-based education and training	114	32.9	135	39.0	30	8.7	59	17.1	8	2.3
Our institution has updated workshops for effective implementation of CBET	79	22.8	106	30.6	30	8.7	70	20.2	61	17.6
Our institution is well equipped with adequate learning infrastructure in terms of lecture halls, workshops, sporting facilities etc. which facilitates smooth implementation of CBET	102	29.5	98	28.3	3	.9	84	24.3	59	17.1
The institution administration has been conducting monitoring and evaluation on the progress of the implementation of CBET	141	40.8	102	29.5	12	3.5	44	12.7	47	13.6

Source (Field Data, 2022)

Table 1 points out that 110(31.8%) study participants agreed with the statement that the institution provide adequate teaching and learning resources suitable for competency-based education and training, 85(24.6%) study participants strongly agreed with the statement, 98(28.3%) participants disagreed with the statement and 38(11.0%) respondents strongly disagreed with the statement while 15(4.3%) respondents were undecided. The study showed that most (56.4%) of the respondents of Meru County believed that the institution provides adequate teaching and learning resources suitable for competency-based education and training.

Furthermore, 141(40.8%) respondents strongly disagreed that the institutions provided clear guidelines on the implementation of the competency-based education and training, 117(33.8%) participants disagreed with the statement and 69(19.9%) participants agreed with the statement while 17(4.9%) participants strongly agreed with the statement. The results showed that majority (74.6%) of the respondents believed that the institutions did not provide clear guidelines on the implementation of the competency-based education and training.

On the statement that the institutions have adopted implementation policies on competency-based education and training, 135(39.0%) study participants disagreed with the statement, 114(32.9%) participants strongly disagreed, 59(17.1%) respondents agreed with the statement and 30(8.9%) respondents were undecided on the statement while 8(2.3%) respondents were strongly in agreement. From the responses, it emerged that majority (71.9%) of the inhabitants of the study area pointed out that the institutions have not adopted implementation policies on competency-based education and training.

Similarly, 106(30.6%) of the study participants disagreed with the statement that institutions have adequate workshops and materials for effective implementation of CBET, 79(22.8%) participants strongly disagreed with the statement, 70(20.2%) participants strongly agreed with the statement and 61(17.6%) respondents strongly agreed with the statement while 30(8.7%) respondents were undecided on the statement. As shown by the responses, most (53.4%) of the inhabitants of Meru County noted that institutions have inadequate workshops and materials for effective implementation of CBET.

Additionally, 102(29.5%) respondents strongly disagreed that the institutions are well equipped with adequate learning infrastructure in terms of lecture halls, workshops, sporting facilities etc. which facilitates smooth implementation of CBET, 98(28.3%) study participants disagreed with the statement and 84(24.3%) respondents were in agreement, 59(17.1%) while 3(0.9%) respondents were in agreement with the statement. As shown by the responses, it emerged that majority (57.8%) of the study's respondents reported that institutions have inadequate learning infrastructure in terms of lecture halls, workshops, sporting facilities etc. which would facilitate smooth implementation of CBET.

Similarly, 141(40.8%) of the study participants strongly disagreed with the statement that the institutions administration has been conducting monitoring and evaluation on the progress of the implementation of CBET, 102(29.5%) participants were disagreement with the statement, 47(13.6%) participants were strongly in agreement with the statement and 44(12.7%) respondents were in agreement with the statement while 12(3.5%) respondents were neutral on the statement. As shown by the responses, majority (70.3%) of the

respondents believed that the institutions administration has not been conducting monitoring and evaluation on the progress of the implementation of CBET.

Relationship between Institutional factors and implementation of CBET

The hypothesis of this study stated that: There is no significant relationship between Institutional factors and implementation of competency-based education and training in Meru County.

This hypothesis was also tested using Pearson Correlation Coefficient analysis. The results of the analyzed data are presented in Table 2.

Table 2: Correlation Coefficient between Institutional factors and implementation of CBET

	Implementation of CBET
Institutional factors	r = .286**
	p = .000
	n = 346

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows that there was a weak and positive correlation between Institutional factors and implementation of CBET in Meru County (r = .286; p = .000). This shows that at 95% confidence level, the r value for institutional factors was .286 showing a weak correlation with implementation of CBET. The positive values show a positive correlation meaning that increased resolution of institutional factors lead to increased implementation of CBET. Therefore, the null hypothesis which stated that there is no significant relationship between institutional factors and implementation of competency-based education and training in Meru County was rejected. Hence there exists a significant relationship between Institutional factors and implementation of competency-based education and training in Meru County. Similarly, as study conducted by Waweru (2018) investigated the factors influencing the implementation of CBET in TVET institutions. The findings identified institutional factors such as curriculum development, resource availability, infrastructure, staff capacity, and collaboration with industry partners as key determinants of successful CBET implementation.

On interviewing the principals, participant P2 said;

"Our institution has enrolled many students to pursue various courses but unfortunately the infrastructure and instructional facilities are inadequate. This institution needs more lecture halls, modern library, updated workshops and more work benches. We are therefore appealing to stakeholders especially the government through the ministry of Education to intervene so as to enable us to implement the competency-based education seamlessly".

This statement suggests that although the government has put a lot of effort in investing in TVET there is still challenges of infrastructure to accommodate students taking various course in Meru County. This interview response highlights a critical issue within the institution: the glaring inadequacy of infrastructure and instructional facilities to accommodate the significant number of enrolled students pursuing various courses. The interviewee underscores the pressing need for essential resources such as additional lecture halls, a modern library, updated workshops, and more workbenches. These facilities are deemed essential for the effective implementation of competency-based education. The appeal made to stakeholders, particularly the government through the Ministry of Education, is a plea for urgent intervention and support. It reflects a recognition that the success of the institution's transition to competency-based education hinges on the availability of these necessary resources, which are currently insufficient. In essence, the interviewee's statement serves as a call to address the infrastructure and facility gaps to ensure a seamless and successful implementation of the new educational approach. A study conducted by Nacho (2019) in Kenya explored the challenges facing technical and vocational education and training (TVET) institutions in the country. The researchers found that many TVET institutions in Kenya faced significant challenges, including inadequate funding, outdated equipment, and a shortage of trained teaching staff. These challenges were identified as major impediments to the effective implementation of competency-based education and training (CBET) programs. The study also highlighted the need for increased government support and investment in TVET institutions to address these issues and enhance the quality of technical and vocational education in Kenya. Similarly, a study on the challenges facing TVET institutions in Ghana, Abdulai, Mohammed, and Ibrahim (2019) identified inadequate infrastructure as one of the major challenges. The study noted that many TVET institutions in Ghana lacked the necessary infrastructure to provide high-quality education and training.

CONCLUSIONS AND RECOMMENDATIONS

The study revealed that a significant proportion of respondents reported that the institutions do not provide adequate teaching and learning resources suitable for CBET. Further, the institutions were perceived to have unclear guidelines for CBET implementation and a lack of adoption of implementation policies. The availability of computer labs for effective CBET implementation was reported to be inadequate and that there were concerns about

insufficient learning infrastructure such as lecture halls, workshops, and sporting facilities. Additionally, the study revealed that some institutions' administrations have not been conducting monitoring and evaluation of the progress of CBET implementation. However, there is room for improvement in terms of the adoption of clear guidelines and policies. The hypothesis testing indicated a significant relationship between institutional factors and the implementation of CBET. This suggests that institutional factors, including teaching and learning resources, guidelines, policies, infrastructure, and monitoring and evaluation practices, influence the successful implementation of CBET in Meru County.

Having revealed that inadequate availability of teaching and learning resources, unclear guidelines, lack of implementation policies, and the influence of institutional factors significantly affect CBET implementation, this study recommends that institutions should prioritize the allocation of adequate resources. These include teaching and learning materials, well-equipped workshops, and appropriate infrastructure to support the effective implementation of CBET. Clear guidelines and policies should be developed by institutional management in consultation with relevant stakeholders and communicated effectively to all parties involved in the implementation process. Additionally, regular monitoring and evaluation mechanisms should be established by the institutions' quality assurance departments or relevant oversight bodies to assess the progress of CBET implementation and identify areas for improvement. Collaboration with key stakeholders—such as government agencies, industry partners, and regulatory authorities—should also be strengthened to enhance institutional support and alignment with industry needs.

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