

Effectiveness of Staff Capacity Building on Integration of CBET Approach in TVET Institutions in the North Rift Region, Kenya

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Abstract

The relevance of training is critical since it ensures that the labour market is as efficient as possible and that human capital is effectively utilized. The major purpose of this study was to establish the effectiveness of staff capacity building for effective integration of CBET. The study adopted the Diffusion of Innovation Theory developed by Rogers in 2003. The study utilized the descriptive survey research design. The study was undertaken in TVET institutions in the North Rift Region, Kenya. The study targeted principals, industry supervisors, trainers, industrial liaisons officers, lecturers and trainees. The sample size was 636 respondents. Purposive sampling technique was used to select 6 principals and 18 industry supervisors. To identify 285 trainers a combination of stratified random sampling and simple random sampling techniques were used. The instruments for data collection were interview schedules and questionnaires. Questionnaires were administered to the trainees and trainers while interview schedules were carried out on Principals, industrial supervisors and industrial liaisons officers. The data was analyzed using frequencies, percentages, means, standard deviations and Pearson product moment correlation. The study found out that, facilities and resources that could aid in capacity building were not adequate for the trainers. Appraisals that are very essential in regards to capacity building were not effectively done thus making it difficult to identify the inherent gaps in the CBET approach. The correlation coefficient between staff capacity building and integration of CBET in TVET was 0.612 indicating a strong effect size. This correlation indicates that as staff capacity building increases, integration of CBET in TVET institution tends to increase. The findings will be significant to the government policy makers, managers in TVET institutions and industries involved in the transformation of TVET institutions.

Key words: *Staff capacity building, integration, CBET approach*

Introduction

Competency Based Education and Training (CBET) is an industry and outcomes-based learning program founded on industry created occupational standards. A vital trait of competency-based training is the adaptability it offers the individual students as to which time to handle a project and to what extent it takes to finish (Anane, 2013) on what the career expects of him, additionally knowing how he can

optimally use the extraordinary abilities he has (Kelechi, 2020). With this model, rather than concentrating on the use of credit hours, capabilities are granted through confirmation of evidence that learning indeed took place. This is as opposed to the traditional approach which places focus on theoretical instruction in training.

Countries all around the world recognize that in order to remain economically competitive and maintain and encourage investors, they must acquire and develop the necessary information, skills, including values. More so the policies for skills development must meet the needs and expectations of learners, local employers and the wider society (Landesmann & Stöllinger, 2019).

In the United States of America, there is a resurgence of interest in TVET. On a fundamental level, the current and ongoing transformation aims to improve the quality and image of optional TVET, as well as to use TVET to improve academic results and transition to universities. The goal of the government TVET program is to give education about work, for employment, or via work. The goal of the strategic plan for 2011-2014 is to improve higher education and lifetime learning opportunities for kids and adults in order to boost college access, quality, and completion rates. The national policy seeks to improve students' academic and technical skills at secondary and tertiary institutions by providing individuals with opportunities throughout their lives to develop the necessary information and abilities, in tandem with the curriculum, to keep the United States of America competitive (Gauci, 2020).

Malaysia has put in place various initiatives to move the nation towards its objective of turning it into a highly developed economy by the year 2020. The availability of exceptionally gifted human capital lies at the heart of this yearning, and its lack has stymied the country's efforts to advance from a middle-income to a highly developed economy (Leong, 2011). In this framework, Technical and Vocational Education and Training (TVET) plays an important role in developing the skilled workforce needed to accelerate the country's economic transition. The availability of exceptionally gifted human capital lies at the heart of this yearning, and its lack has stymied the country's efforts to advance from a middle-income to a highly developed economy (Leong, 2011).

Cameroon plans to set up professional vocational training to prepare and encourage adoption into the labor market in its poverty reduction strategy document; Cote d'Ivoire focuses on bolstering professional vocational education.

After independence, Kenya adapted a policy to rapidly expand its formal school system as a means to social and economic development. This formal education adapted was geared towards training people for white collar jobs and lacked practical knowledge, the expanded education system also led to rapid enrolment in schools. This led to many school leavers who remained unemployed. Thus, the Kenya government together with non-governmental organizations (NGOs) looked for resolutions to solve the school leavers' problem. This led to the emergence of vocational training centers and in particular the youth polytechnics programme (Mureithi, 2012). Boahin and Hofman (2012) observed that internship programs in training institutions are poorly structured, resulting in poor monitoring and supervision, and also that students' internships do not often correlate to their study programs.

From the arguments above, it is clear that, a TVET framework takes the centre stage in the social and economic advancement of a country. The issue today is less about the worth and significance of TVET but how to guarantee its pertinence, responsiveness and quality in a competitive international economy.

Statement of the Problem

Globally, there has been a paradigm shift in TVET towards CBET strategy to enhance the quality of training and relevance of TVET by equipping trainees with the demanded technological skills in the workplace environment and attain global competitiveness. In Kenya, the establishment of the TVET policy in 2012 led to the introduction of CBET approach geared towards enhancing quality training for the achievement of Kenya Vision

2030. However, since the policy came into place in 2012, one can ask, what has changed in TVET institutions as far as the integration of CBET approach for quality training is concerned? If this is not done urgently, then the training of innovative, creative and responsive skilled workforce for industry and for the realization of Kenya vision 2030 would be a mirage. According to Tarno and Omondi (2014), one needs to determine if the TVET training, as offered currently in Kenya, and progressively, meets the needs of the

21st century Kenyan worker. This study therefore, examined the extent to which the integration of CBET model for quality training has been entrenched as a strategy for meeting the demands of the labour market and hence the realization of Kenya Vision 2030

Objective of the Study

The study sought to investigate the effectiveness of staff capacity building on integration of CBET approach in TVET institutions.

Hypothesis

The study utilized the following hypothesis;

H01: There is no statistically significant relationship between staff capacity building and integration of CBET approach in TVET institutions.

Methodology

The descriptive survey research design was used in this study. Creswell and Hirose (2019) consider sample survey to be more superior in terms of its ability to provide required information conveniently. A survey collects data about variables as they are found in a social system such as a TVET institution. The researcher will be able to describe, analyze, and investigate the extent to which CBET has been implemented in Kenyan TVET institutions using a descriptive survey research design.

The target population comprised the Principals, the trainers, industry supervisors, Industrial Liaison Officers and the trainees enrolled in various departments in the TVET institutions. The trainee supervisors in selected industries were also included to enable the researcher to ascertain the impact of CBET on the training. This is indicated in Table 1.

Table 1
Target Population

Target	Eldoret Polytechnic	Kitale Polytechnic	Kaiboi TTI	O'Lessos TTI	RVTTI	Aldai TTI	Population
Principals	1	1	1	1	1	1	6
Lecturers	250	120	80	120	200	322	1092
Industry Supervisors	3	3	3	3	3	3	18
Students	5400	1600	1300	2300	6000	6000	22600
Total	5654	1724	1384	2424	6204	6326	23716

Simple random sample, stratified sampling, and purposive sampling were used in this investigation. Since the number of the well-established institutions in the North Rift is small, the researcher included all of them in the study leading to a larger percentage of the sample as advocated by (Sharma, 2017). The number of lecturers in each department was identified with the assistance of the Heads of Departments as per the records. Using the lottery method of random sampling technique, 30% of the lecturers' will be selected for the study from each department.

As for the trainees enrolled in each department, proportionate stratified random sampling was used for selection in each department depending on the size of the department. In this case the selected departments were considered as strata. In a particular department, the trainees were stratified into 1st years, 2nd years, and 3rd years.

Within the study process, Creswell and Clark (2012) called for the mixing of data gathering methodologies with data analysis procedures. The following data collection and instrumentation were used in this study: questionnaires, interview schedules and document analysis. The specific research questions to be established guided the collection of primary data (McMillan, 2012). The nature of the data to be collected, the time available, and the study's objectives all influenced the tool selection (Sharma, 2017).

For quantitative data, descriptive statistics was employed. For purposes of interpreting and analysis of data, the researcher summarized it using tables, frequencies and percentages. To test for the null hypothesis, the data was analyzed using Pearson's Product Moment Correlation. Qualitative data was analyzed qualitatively using content analysis is based on analysis of meanings and implications emanating from respondent's information and document analysis.

Findings

This section analyses, interprets, presents and discusses descriptive statistics relating to the effectiveness of staff capacity building on integration of CBET in TVET institutions. The findings are indicated in the following sub sections.

Staff Capacity Building on CBET Integration by Trainers

Trainers were asked to indicate the extent to which they agree or disagree with the statements below on the effectiveness of staff capacity building on CBET in their institution. Trainers were required to rate their level of agreement in regards to their understanding of the new concept of CBET. The findings as indicated in Table 2 showed that 23 (8.2%) of the trainers strongly disagreed that they understand the new concept of CBET, 44 (15.7%) disagreed, 3 (1.1%) were undecided 95 (33.9%)

agreed while 115 (41.1%) strongly agreed. From the findings majority of the trainers understood the concept of CBET (Mean = 3.8393, SD = 1.33033). It is critical to mention that trainers' are very essential in the implementation of the CBET thus it is arguable to say that when the trainers understand the CBET concept then the CBET approach of instruction is bound to be successful.

Results from one of the Principal in the National Polytechnic offering CBET confirmed these sentiments;

CBET is a Competency Based Education and Training programme and as an institution or organization we have not only heard about it but we are implementing. Currently the institution has over 5 programme. The council has approved 9 new programmes in the next academic year. Thus the institution will be offering 14 CBET programmes in total.

These results indicate that trainers are aware of CBET because it has been implemented in the institution. This is further confirmed by the Industrial Liaisons Officer in another National Polytechnic who had this to say;

As an ILO (Industrial Liaisons Officer) I understand the CBET approach of instruction in the TVET institution very well. To my understanding CBET has courses that are offered and specifically geared towards the trainee achieving competencies in the courses they are pursuing. There are stages that ought to be undertaken. For instance in the electrical and electronic department the CBET programme requires a trainee to undertake electrical installation and planning. Basically what we are saying is that, CBET breaks down the learning process. The programme is broken down into smaller units to enable flexibility. In addition to the electrical and electronic department that I mentioned earlier, in the motor vehicle technology a trainee may train on the electrical system, go through the course and do the practical. Much of it is hands on. Unlike before where courses were knowledge based.

Table 2
Trainers' Descriptive Statistics on Staff Capacity Building on CBET Integration

Statements		SD	D	UD	A	SA	Mean	SD					
1	I understand the new concept of CBET.	23	8.2	44	15.7	3	1.1	95	33.9	115	41.1	3.8393	1.33033
2	I have received some orientation/training on CBET.	22	7.9	30	10.7	5	1.8	100	35.7	123	43.9	3.9714	1.26402
3	The institution provides enough/adequate resources/tools/facilities for effective implementation of CBET.	110	39.3	124	44.3	10	3.6	24	8.6	12	4.3	1.9429	1.07611
4	I regularly accompany students for attachment in industry.	33	11.8	46	16.4	7	2.5	85	30.4	109	38.9	3.6821	1.42772
5	I work closely with industry facilitators for effective monitoring of students.	90	32.1	51	18.2	12	4.3	39	13.9	88	31.4	2.9429	1.69448
6	I have been exposed/inducted to the industry standards and expectations.	25	8.9	50	17.9	3	1.1	95	33.9	107	38.2	3.7464	1.36126
7	The institution has good ICT infrastructure for teaching.	100	35.7	111	39.6	10	3.6	40	14.3	19	6.8	2.1679	1.24594
8	The workload is too much/the teachers are inadequate.	18	6.4	15	5.4	8	2.9	114	40.7	125	44.6	4.1179	1.12181
9	There are monitoring structures to ensure that CBET is effectively integrated in classroom instruction.	35	12.5	50	17.9	10	3.6	80	28.6	105	37.5	3.6071	1.45023
10	New facilities/tools/books have lately been purchased.	97	34.6	112	40	16	5.7	35	12.5	20	7.1	2.175	1.23338
11	Staff appraisals are done regularly.	113	40.4	60	21.4	19	6.8	42	15	46	16.4	2.4571	1.53278
12	There is continuous upgrading and career development of trainees.	38	13.6	22	7.9	7	2.5	100	35.7	113	40.4	3.8143	1.39166
13	Evaluation reports on graduate outcomes or employers view of the relevance of course in the workplace are regularly provided.	12	4.3	26	9.3	13	4.6	104	37.1	125	44.6	4.0857	1.11674

In line with the first statement on whether trainers have understood the concept of CBE, the study further established that trainers had received orientation and training on CBET. This is indicated in Table 2 which presents findings such as 22 (7.9%) of the trainers strongly disagreed that they have received training on CBET, 30 (10.7%) disagreed, 5 (1.8%) were undecided, 100 (35.7%) agreed while 123 (43.9%) strongly agreed. The findings show that majority of the trainers (Mean = 3.9714, SD = 1.26402) had received orientation and or training on CBET. This implies that trainers are concise and accurate in imparting skills during instruction. It further shows that the trainers are confident and can adapt to the concepts in CBET.

The data gathered from the interview from one of the Industrial Liaisons Officers corroborated with the quantitative data collected. The ILO excerpt indicates that induction and training on CBET had been done on all cadres of staff as shown in the excerpt.

When the CBET programme was initially started the senior management was inducted then induction cascaded downwards to the trainers. The trainers from CDACC secretariat came and trained everyone. From the training some internal trainers were picked and became trainer of trainers (TOT). They were even taken to other colleges to train other institution. From where I sit the trainers are positive because they were

Table 2 further indicated that 110 (39.3%) of the trainers strongly disagreed that the institution provides enough/ adequate resources/tools/facilities for effective implementation of CBET, 124 (44.3%) disagreed, 10 (3.6%) were undecided, 24 (8.6%) agreed while 12 (4.3%) strongly agreed. These findings show that majority of the TVET institutions (Mean =1.9429, SD = 1.076111) were not providing necessary resources and tools to actualize implementation of CBET.

Table 2 further indicated that 33 (11.8%) of the trainers strongly disagreed that they regularly accompany students for attachment in industry, 46 (16.4%) disagreed, 7 (2.5%) were undecided, 85 (30.4%) agreed while 109 (38.6%) strongly agreed institution provides enough/ adequate resources/tool-/facilities for effective implementation of CBET, 124 (44.3%) disagreed, 10 (3.6%) were undecided, 24 (8.6%) agreed while 12 (4.3%) strongly agreed. These findings show that majority of the trainers in the TVET institutions (Mean =3.6821, SD = 1.42772) were accompanying trainees for attachment in the industry.

In regards to working closely with the industrial supervisors, findings indicated that majority of the trainers in the TVET institution were not working closely with the industrial supervisors. This is presented in Table 2 which shows that 90 (32.1%) of the trainers strongly disagreed that they work closely with industry facilitators for effective monitoring of students, 51 (18.2%) disagreed, 12 (4.3%) were

undecided, 39 (13.9%) agreed while 88 (31.4%) strongly agreed. The results show that majority of the trainers did not work with industry supervisors (Mean = 2.9429, SD = 1.69448). This result implies that trainers may not be having adequate time to link with the industrial supervisors as far as trainees' skills acquisition is concerned. Other than the trainers' understanding and being inducted on CBET as indicated earlier the findings in Table 2 further showed that 25 (8.9%) of the trainers strongly disagreed that they had been exposed and inducted to the industry standards and expectations, 50 (17.9%) disagreed, 3 (1.1%) were undecided 95 (33.9%) agreed while 107 (38.2%) strongly disagreed. The finding shows that majority of the trainers (Mean = 3.7464, SD = 1.36126). This implies that trainers are aware of the trainees' expectation as far as industrial attachment and practice are concerned. This therefore discredits earlier findings indicating that trainers were not accompanying trainees to the industry.

Responses from the interview showed that indeed the trainers have been professionally capacitated as indicated in the following excerpt;
Competency Based Assessment (CBA) training has been carried out in order to induct and upscale the trainers. This is demonstrated in the following excerpt;

CBA is a requirement for assessors in order for them to carry out assessment. This training takes place in three sessions. Trainers from the council come to the institution to train. There is also capacity building forum. Owing to the financial implication its' carried out at a rotational basis. Trainers and other essential staff go for a month to expose themselves. We still have a long way to go in terms of actualizing all the trainers.

After such training has taken place the institution does request the trained and inducted members to cascade the training down to the other members.

Further findings indicate that TVET institutions did not have good ICT infrastructure. This is demonstrated in Table 2 which shows that 100 (35.7%) of the trainers strongly disagreed that the institution had a good ICT infrastructure, 111 (39.6%) disagreed, 10 (3.6) were undecided, 40 (14.3%) agreed while 19 (6.8%) strongly agreed. The finding indicates that majority of the trainers (Mean = 2.1679, SD = 1.24594) did not have good ICT infrastructure. This implies that some CBET courses that entail computer technology may be impacted negatively.

In regards to trainers' workload 18 (6.4%) of the trainers strongly disagreed that the work load is too much and that the teachers are inadequate, 15 (5.4%) disagreed, 8 (2.9%) were undecided, 114 (40.7%) agreed while 125 (44.6%) strongly agreed. The finding indicates that majority of the TVET institution (Mean = 4.1179, SD = 1.12181) had trainers with a workload that was too much and inadequate teaching staff. This implies that some courses in CBET may not have the required human resource that will ensure that trainees get the required skills.

Table 2 further established that 35 (12.5%) of the trainers strongly disagreed that there are monitoring structures to ensure that CBET is effectively integrated in classroom instruction, 50 (17.9%) disagreed, 10 (3.6%) were undecided, 80 (28.6%) agreed while 105 (37.5%) strongly agreed. The findings show that majority of the TVET institutions (Mean = 3.6071, SD = 1.45023) had monitoring structures to ensure that CBET is effectively integrated in classroom instruction. In regards to new facilities/ tools/ books 97 (34.6%) of the trainers strongly disagreed that they haven't been purchased of late, 112 (40%) disagreed, 16 (5.7%) were undecided, 35 (12.5%) agreed while 20 (7.1%) strongly agreed. The results show that majority of the TVET institution (Mean 2.1750, SD = 1.23338) do not have recently purchased tools and books to utilize during CBET. This implies that trainees may be using old books that are not relevant to the CBET skills that were recently introduced in the TVET institutions. This outcome supports the notion that "CBET necessitates a large amount of teaching and learning resources since it stresses practical and prompt assessment," as stated by the authors (Kufaine & Chitera, 2013).

Furthermore, because technology is always changing, CBET requires up-to-date teaching and learning tools. As a result, it is said that "for CBET to be successful, materials must change quickly in response to technological changes so that graduates from technical colleges can have industry-relevant skills" (Kufaine & Chitera, 2013). According to research, CBET is a resource-intensive system, which means it is demanding because it necessitates a large amount of human and material resources (Rutayuga, 2012). This means that a successful implementation of the CBET curriculum necessitates a large number of resources, including sufficient trainers whose numbers are proportional to the number of students.

For successful teaching and learning, there should be ample space in workshops and classrooms, as well as adequate amenities such as laboratory equipment, books, computers, a library, and internet access that are proportional to the number of pupils. It is also emphasized that resources are critical for effective curriculum change implementation, and that bad conditions and insufficient resources can hinder even the finest trainers and students' performance (Altinyelken, 2009).

As part of the staff capacity building the study looked into the frequency which the staff appraisals are done. As demonstrated in Table 2 113 (40.4%) of the trainers strongly disagreed that staff appraisals are done on a regular basis, 60 (21.4%) disagreed, 19 (6.8%) were undecided, 42 (15%) agreed while 46 (16.4%) strongly agreed. The results show that majority of the TVET institutions (Mean = 2.4571, SD = 1.53278) did not have regular staff appraisals. This implies that CBET approaches to learning may not be accounted for through the appraisal process. Trainers, trainees and facilities gaps in the institutions may not be established. This is supported by the content analysis on the appraisal documents that were viewed.

Most of the institutions had appraisal documents but were partially filled. In some institutions the appraisal tools were lacking. The annual reviews did not indicate the continuous performance ratings. These findings contradict those of Gasskov (2006), who found that managers routinely conduct periodic staff performance assessments that evaluate employees' performance against their expected outputs. The appraisals, according to him, give employees feedback on their strengths and flaws as well as their future professional development.

In regards to new facilities/ tools/ books 97 (34.6%) of the trainers strongly disagreed that they Table 2 indicated that 38 (13.6%) of the trainers disagreed that there is continuous upgrading and career development of trainees, 22 (7.9%) disagreed, 7(2.5%) were undecided, 100 (35.7%) agreed while 113 (40.4%) strongly agreed. The results indicate that majority (Mean = 3.8143, SD = 1.39166) of the trainers and trainees were taken for continuous upgrading and career development. This is important because CBET approach requires new skills each passing day thus the need for continuous upgrading.

These results are in line with sentiments given an ILO in one of the TVET institutions who pointed out that indeed trainers are involved in continuous upgrading. This is presented in the following excerpt;

Trainers in the Civil Engineering department have been trained and offered continuous upgrading. In the Mechanical Department a trainer was taken to South Africa to acquire skills. Others were sent to Masinde Muliro University for training on C & C machines.

It is important to note that some institutions were lagging behind in terms of staff development. This is demonstrated in the following excerpt;

The institution is planning to send trainers for professional development. The institution is still young thus in the process of inducting its trainers. The government sponsored trainers are not more than a quarter of the staff. But most importantly we urge our train- ers to participate in the professional development at a personal level.

Lastly, data in Table 2 indicated that 12 (4.3%) of the trainers strongly disagreed that evaluation reports on graduate outcomes or employees view of the relevance of course in the work place are regularly provided, 26 (9.3%) disagreed, 13 (4.6%) were undecided, 104 (37.1%) agreed while 125 (44.6%) strongly agreed. The finding established that majority of the TVET institution (Mean = 4.0857, SD = 1.11674) had evaluation reports that were regularly provided. It is useful to mention that as much as the majority pointed out that training was evaluated a few respondents indicated that this was not being done as indicated by 4.3% who strongly disagreed and 9.3% who disagreed.

Hypothesis Testing

Pearson's Product Moment Correlation coefficient was applied to check whether there is relationship between the variables. The correlation showed in the Table 3 presents bivariate correlations between the study variables (staff capacity building and integration of CBET in TVET institutions in the North Rift region Kenya

Table 3

Pearson Correlation Results between Staff Building Capacity and integration of CBET

		Correlation	
		Staff Capacity	Intergation of CBET
Staff Capacity	Pearson Correlation	1	.612***
	Sig. (2-tailed)		0
	N	280	280
Intergation of CBET	Pearson Correlation	.612***	1
	Sig. (2-tailed)	0	
	N	280	280

**. Correlation is significant at the 0.05 level (2-tailed).

A Pearson correlation analysis was conducted between staff capacity building and CBET approach in TVET institutions.

Table 3 presents the results of the correlation. The correlations were examined based on an alpha value of 0.05. A significant positive correlation was observed between staff capacity building and integration of CBET in TVET institutions ($r = 0.612$, $p < 0.05$). The correlation coefficient between staff capacity building and integration of CBET in TVET was 0.612 indicating a strong effect size. This correlation indicates that as staff capacity building increases, integration of CBET in TVET institution tends to increase.

The hypothesis stated that there is no statistically significant relationship between staff capacity building and integration of CBET approach in TVET institutions. However, findings in Table 3 showed that staff capacity building has a strong, positive and significant influence on integration of CBET approach in TVET institutions ($r = 0.612$, $p < 0.05$). Consequently, the study rejected the null hypothesis and concludes that the relationship is statistically significant. The sample data support the notion that the relationship between the independent variable and dependent variable exists in the population of TVET institutions in the North Rift. This implies that staff capacity building influences integration of CBET approach in TVET institutions in the North Rift.

Conclusion

The purpose of the study was to investigate the integration of CBET approach of instruction to learning. The study was conducted in the North Rift region of Kenya. From the findings the study concludes that the body mandated to offer training CDACC had lagged behind in terms of capacity building. Most of the TVET colleges sampled were much ahead of the CDACC in terms of training. It is further noted that, the trainers understood the concept of CBET effectively. Facilities and resources that could aid in capacity building were not adequate for the trainers. Appraisals that are very essential in regards to capacity building were not effectively done thus making it difficult to identify the inherent gaps in the CBET approach. The correlation coefficient between staff capacity building and integration of CBET in TVET was 0.612 indicating a strong correlation. This correlation indicates that as staff capacity building increases, integration of CBET in TVET institution tends to increase.

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