



# **Influence of school teaching and Learning resources on effective implementation of competency based training (CBT) in Rwanda TVET schools: A case of Nyamasheke district**

**<sup>1\*</sup> Ernestine Niyigena & <sup>2\*</sup> Dr Faustin Mugiraneza**

**<sup>1\*</sup>School of Education, Mount Kenya University  
Kigali, Rwanda**

**<sup>2\*</sup>School of Education, Mount Kenya University  
Kigali, Rwanda**

**Email of the corresponding author: @gmail.com**

## **Abstract**

This study evaluated teaching and learning resource on the implementation of competency based training in TVET schools in Nyamasheke District. Specifically, this study assessed effect of availability of teaching and learning materials, adequacy of physical facilities, and adequate of qualified trainers on implementation of competency based training in TVET School in Nyamasheke District. The sample size of 107 respondents was withdrawn from 145 respondents. Primary source was gathered using questionnaire, interviews and observation methods to triangulate data. Simple random and purposive sampling techniques were used adopted select trainees, school managers, trainers, SEOs and DEO. Qualitative data were collected using interview guide while quantitative data was obtained using questionnaire. The study analyzed data using both qualitative and quantitative techniques. Content analysis helped qualitative data analysis and quantitative data was presented using statistical package for social sciences by descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (correlational and regression analysis). Regarding the first objective, results showed the availability of the high number of reference books, 34.0% were strongly agreed. Number of teachers guide were available, 40.1% were strongly agreed. The study revealed that teaching resources with 42.8% were strongly agree. Results revealed the association between research variables. Number of books with improved trainee practical skills ( $r=0.0317$ ). A correlation was between description of requirements with books ( $0.817^{**}$ ,  $p\text{-value}=0.000$ ). Contrary to insignificant correlation between books and improved trainee practical skills ( $r=0.006$ ,  $p\text{-value}=0.950$ ). To the second objective, results revealed that tables and chairs in staffroom, 40.1% strongly agree. Results showed the capacity in labs, 38.2% were strongly agree, results showed reliability of power supply with 59.8%. A strong relationship was established between tables, chairs in staffroom and technical skills improved trainees ( $r=0.424^{**}$ ,  $p\text{-value}=0.000$ ), tables and chairs in staffroom and improved trainee practical skills ( $0.740^{**}$ ,  $p\text{-value}=0.000$ ). The third objective revealed employment status of teachers 30.2% strongly agreed. 15.8% remarked a strongly agreement, 56.6% strongly agreed while 23.7% agreed. The large base of teachers employed per school, 45.4% show a strong agreement, and 74.3% indicate strongly agreement. Information revealed that the tables and chairs in staffroom is impacting technical skills improved competent trainees with a level of significance of 0.000 where an increase in desks and chairs in the classrooms led to technical skills improved competent trainees increase by 0.330 units. The study concluded that teacher training should improve CBC implementation in public primary schools. Teaching staff members should make a good preparation of teaching instructions and materials. The government should prepared more capacity building programs related to competency-based curriculum to ameliorate CBT execution. There is a need to stimulate capacity building programs for CBT..Schools should mobilize local community members to ensure effective execution of CBT and teaching staff members should be well trained in executing CBT.

**Keywords:** *Competency Based Training (CBT), Technical Vocational and Educational Training (TVET), Teaching Resources, effective implementation, Adequate qualified trainers Physical facilities, Resource Use*

## 1.0 Introduction

When it is taken into consideration what was written in Urunana rw'Abarezi V. 006, July 2018, a peer learning Magazine published by REB in collaboration with VVOB, entitled "Implementing CBC: Successes and Challenges" which serves as a platform for all stakeholders to share experiences, good practices, challenges about the implementation of CBC, it shows us that the new curriculum has challenges. Some challenges are connected to the accessibility of teaching and learning resources, insufficiency of learning and teaching materials, the training of teachers, and some teachers who resist to the change, who have negative perception, many trainees in the same class (REB, 2018). Kanamugire (2016), in the online newspaper, with the following title "Rwanda Schools did not succeed to use curriculum", has said that learning in Rwandan schools was challenged by scarce teaching and learning materials and textbooks to assist in the execution of competence based curriculum from nursery and secondary schools. There was that context that the researcher had planned to do this study and we focused on TVET Institutions. It aims to find out school level factors affecting implementation of CBT on in TVET Schools, especially Level 3 to Level 5 in Nyamasheke District, after 5 years since its introduction. Results of the ongoing research filled the gap in acknowledging effect of school teaching and learning resources on the implementation of CBT in TVET Schools by establishing the link between availability of teaching and learning materials, adequacy of physical facilities, adequate qualified trainers and effective implementation of CBT in TVET schools in Nyamasheke District. Specifically, the paper had:

- i. To assess effect of availability of teaching and learning materials on effective implementation of competence based training in TVET School from level 3 up to level 5 in Nyamasheke District.
- ii. To determine effect of adequacy of physical facilities on effective implementation of competence based training in TVET School from level 3 up to level 5 in Nyamasheke District.
- iii. To ascertain effect of adequate qualified trainers on effective implementation of competence based training in TVET School from level 3 up to level 5 in Nyamasheke District.

## 2.0 Review of Related Literature

### 2.1 Empirical Literature

Globally, teaching and learning materials were examined the competency-based training, curriculum, curriculum implementation, effective implementation, TVET Schools, Trainer's perceptions. In this regard, Okoye and Isaac (2015), while defining CBT, focus on the outcomes to be achieved. Trainees know learners aware of what they have to be capable of doing. On the other side of trainers, they understand training or learning was given while institutions aware skills necessary for persons. In Europe, According to Gautam (2015), adequacy of instructional materials such as textbooks which is the main instruction material is the most cost effective input affecting student performance. In this context adequate supply is usually assumed to be a minimum of one textbook per three students, and at primary level enough reading books so that every child has the opportunity to read at least one new book every week. In North America, especially in Canada, Quebec, Potvin (2012) have conducted a study about effect of a competence based curriculum on learners resolving competence and approves and data indicate that amelioration of problem solving competence and some change in some aspects of attitude and interest toward science and technology.

In Africa, for instance in Nigeria, Ayonmike (2014) have carried out a study on ability of students in TVET, problem related to national security and development. The researches argued that the start of CBET in TVET curriculum will encourage the government to deal with several challenges of scarcity of employable skills with TVE alumnae from Nigeria schools this decrease young unemployment. Hence, Kufaine and Chitera (2013) have conducted a research on CBET in technical education problems and perspectives. This research presents a discussion of the challenges faced by TVET Schools in Malawi. The findings discovered the challenges including CBET being viewed as costly to implement; misunderstandings of CBET objectives; private technical colleges not fully implementing CBET.

In Tanzania, Rutayuga (2014), the emerging Tanzania concept of competence through the condition for successful implementation and future development. The study aimed at finding out whether availability of teaching and learning resources influenced implementation of inclusive education in pre-school Centers. The study employed descriptive survey research design. The target population was 134 head teachers in 134 pre-school centers, 402

pre-school teachers, 12 Education officers and 938 pre-school parents. Descriptive statistics of means, percentages and weighted averages was used in analyzing the data. Findings revealed that there were inadequate teaching and learning resources at pre-school centers. 78 percent of the respondents revealed that inadequate resources affected the implementation of inclusive education. The study recommends that adequate teaching and learning resources should be provided to ensure effective implementation of inclusive education and more funds to be allocated for procuring teaching and learning materials for Special Needs Education (SNE) learners.

In Rwanda, providing text books to students who lack them seems to be an obvious way to improve educational performance. Textbook provision is almost universally accepted as an effective education policy, even by those who doubt the effectiveness of increased school spending (Harindintwari, 2020). Empirical results show that providing textbooks to schools did not increase average test scores, although it did increase the scores of pupils with high initial achievement. The latter finding suggests that the official textbooks are ill-suited for the typical students and may reflect more fundamental problems with centralized educational systems, heterogeneous students' populations and entrenched elite power.

Globally, a research done in Europe by Kafyulilo, et al., (2013) on instructional materials are book, audio visual, applications related to education ICT. It was seen that available, adequate, relevant instruction material in class may affect quality learning outcomes and the student's success. The point of view from the above author on the connection between instructional materials and learning outcomes help the problem in providing quality education. The adequacy of high production for teach and learn. In the United States of America, the elaboration of more on the same point, Levstik & Barton (2015) focus that they are provided to attain expectation of teaching, students would have access to source materials usage and would be able to learn at his or her own speed. The general outcomes is that learners had high academic performance. A great number of people enrolled in secondary schools emanated from extension of secondary education through a construction policy in each sector in Tanzania. In Aisa, Lewin, et al., (2011), the instructional materials denotes a crucial instrument for teachers and students due to the availability of textbooks and other teaching materials. Lack of them complicated education system and affect student learning outcomes. For instance, textbooks, audio video and radio play a pertinent role in education. The contribution of the above elements is more marked in the learning outcomes. This scholar argued that secondary school with educators are using instructional material are more likely to succeed than those which do not have teachers who use those materials.

In Nigeria, Komba & Mwandangi (2015) instructional material were strategies in structuring and giving education. This was due to elaborating a term that teaching may not, without an instructional materials. This permits learners to acquire skills on their learning outcomes. The writing on contribution of instructional materials usage linked that policies may not be seen adequately without exercising material for teaching. Researches were undertaken specifically emphasizing on pedagogy and curriculum evolution. Meanwhile, researches on the influence of materials in learning outcomes in Tanzania were largely expected owing the pertinence analyzed and obstacles encountering education in the country. Learning outcomes as denoted by Onweh and Akpan, (2014) was seen as indicated by examination grades owing to education objectives.

In East African Community Countries, different researches about implementation of CBT have been carried out. For instance, a research done by Kanyonga, et al (2019) in Kenya on the the execution of competence based curriculum in technical secondary schools using a case of Arusha. Findings have discovered that most of teachers obtained in service training more than restricted to understand about the implication and CBET objectives. From the results, the study argued that CBET was started without adequate and suitable preparations. Moreover, in similar context of CBT execution. In Rwanda, Ndiokubwayo and Habiaremye (2018) have carried out a research on the reasons for shifting from KCBC, where programs, textbooks by comparing them in term of structure and illustration with content. Findings revealed that activities in CBC textbooks were trainee based, but some contents are too heavy for trainees' level.

Globally, a research done by Tebabal and Kahssay (2010) evidenced that non-governmental schools succeeded than government secondary schools due to available and adequate education equipment. The same author demonstrated few number of material in government secondary schools and thus provide feedbacks that those secondary schools did not have enough instructional materials. In Europe, a research done Zakaria, et al., (2010) on the adequacy of instructional materials used by student identifies the suitability of education system between it can illuminate students toward the best learning outcomes. One scholar known as Levstik and Barton (2015) did not contradict the effects of learning outcomes as emanates from the number and efficiency of instructional teaching materials. It denotes that secondary schools that have appropriate equipment's had been able to perform well comparing with schools with no adequate materials.

In Africa, especially, in Nigeria, a research conducted by Lukindo (2016) in assessing the effects of physical equipment on learning outcomes for student in secondary schools in Tanzania confirmed this point of view.

Reconsidering information provided in the research above, the author argued that the learning outcome is able to be a result of instructional teaching materials in secondary schools. The study proposed that for the purpose of giving adequate education, enough materials is very pertinent. Moreover, Chonjo relied on tangible materials including classes, desks, tables were not ready to given right materials. These materials were very important. A research conducted by Maloy and LaRoche (2010) evidences that secondary schools had the best leaning outcomes, it could be adequately prepared with pertinent and suitable textbooks and other instructional materials. A research done in Tanzania by Tambwe (2017) has carried out a research on challenges facing execution of CBT. The results have revealed diverse limitations and challenges including low understanding of CBT approach, shortage of instructional resources large for learners, trainers because of critical working conditions. Moreover, in the same country, Kafyulilo at al. (2013) have conducted a research on the execution of CBT Teaching in Murogoro teaching staff members. Findings discovered that pre- service trainers perceived their level of awareness and capacity to execute competence methods indicated challenges for providing explanation related to competence based terms. Besides, Amina (2016), in the research on facilitators and learners on the execution has exposed that CBT curricula execution was begin by lack of teaching and learning resoruces such inadequate library space.

In Kenya, Anthony and Wanjohi (2018), with his article entitled “CBC Implementation Challenges and the Way Forward” have provided an overview of the challenges and the way forward. Here are some constraints encountering the execution of new competence based curriculum in Kenya, lack of finance owing to the hurry in development, pretesting and the roll out processes, a lot of monetary resources were necessary, a CBC needs various environment schools, shortage of enough trained teachers and inappropriate infrastructure and lastly, curriculum was in place now up to grade three these infrastructures are not yet in place. In Rwanda, Mbarushimana and Kabuja (2016) have conducted a study on period of CBC, the research aimed to evaluate the general trend of applying CBT in southern Rwandan province. The findings have demonstrated that CBT curriculum had improved the living conditions of youths in Rwanda. Then, Ndiokubwayo et al. (2019) have conducted the second study on new CBC execution and teacher training. As constraints encountered by the trainees, information evidenced that most of SEOs communicate the training to teachers very late, training taken place so afar at long distance from homes and ticket do not match with the journey, no follow up from REB and no motivation of trainers, a large number of trainees in same room. In the same school year, Mbarushimana, et al (2017) explains CBC. The results have revealed that training and learning process, recognition of competences and evaluation were predictors of labor force awareness. In addition to those researches, Sibomana and Dushimumuremyi (2018) have carried out a study entitled CBE in Rwanda. Nelson Mbarushimana & Allida (2017) have conducted a study on curriculum adjustment and teachers involvement in TVET in Nyandungu, Rwanda. This research assessed curriculum shift and trainer involvement in AIPER Nyandungu in terms of meaning, awareness, participation and implementation. The study proves that trainers are comfortable with modalities of curriculum change and appreciated its implementation.

On the other hand, three years since the introduction of the CBC in Rwandan schools, the 6th volume of Urunana rw'abarezi, a peer learning magazine have been published by REB in collaboration with VVOB, entitled “Implementing CBC: Successes and Challenges”. Among those shared challenges of implementing CBC, Mrs Batamuriza Edith, the Director of Education in Nyagatare District, said that some teachers resist changing. She mentioned also challenges of insufficiency of learning and teaching materials. Then, Komezusenge Dieudonné, A tutor at TTC Mururu, and Msoni Godfroid, a Teacher in Kirehe District complained that the Government have launched the new curriculum but didn't give them the required materials to implement it effectively, their schools have received few textbooks and not supplied on time. They mentioned also the problems of class size; big number of trainees in a classroom where some classes has more than 65 learners and affects negatively CBC implementation. Most of studies that have been conducted in Rwanda in this context were focused on competence based curriculum in general Education.

## **2.2 Theoretical Framework**

In this theoretical framework, the researcher described the theories and models adopted in the research. This researcher used Vygotsky Constructivism theory, theory of instructional material and sociocultural theory of teaching, learning and development.

### **2.2.1 Constructivism theory**

According to Mbarushimana & Kuboja, (2016), knowledge may only be relied on one mind and transferred through social relations. This is one of the main principles of educational psychology. This research as it discuss about Competence Based Training, is supported by the role played cooperation and collaboration between community members where trainees were conducted in self discovery to produce successful academic results and learn in social contexts and Trainers constructs active learning communities. Vygotsky, as quoted in Mbarushimana& Kuboja,

(2016) declared that, Trainers are supposed to construct conducive learning conditions to help students to work together in their classrooms. In this model, trainees must independently find out and change complex information if they are to make it their own. Learner (Mbarushimana & Kuboja, 2016). With the same idea, (Rwezaura, 2016) add that competency based model in education activities from some models like social development model. It means that training and learning activities are constructed by learners themselves. Also, Kanyonga et al (2019) have confirmed that the training model or learning theory that fits for CBT in technical education is Constructivism theory.

### **2.2.2 Theory of Instructional Material**

The instructional material model denotes the connection between material and the academic success of students in secondary schools. The learning outcomes are measured through high capability, strategic quality and achieving class action and significant behavior towards the success. In this regard, the model argues that instructional materials had ability to advance into learners high order of skills and they assess step by step on the way of following up the principles and given terms and had clear effect on the resolution of issues by assessing and giving a design (Maloy & LaRoche, 2010).

Orlich et al., (2010) argued that instructional material may be helpful in developing the capacity to learn by students using self-teaching and guided learning. It means that they include producing their success and giving comments on the success adequacy. Moreover to give guideline for exploratory learning. Most of opinion had the ability to train them in order to have capacity to resolve problems. Therefore, the author for the current research seeks to assess the importance of ICT devices in education. It was taken into consideration being the field of instructional materials may begin with intellectual progress was assessed with regards to class teaching and research will assess them.

### **2.2.3 Sociocultural Theory of Teaching, Learning and Development**

This model was another approach that was adopted during the whole research process of the present study. It argues that persons did not advance habits of certain fixed rational organization that explain as advanced one (Makunja, 2015). It reiterates that people's thoughts grow up as an outcome of perpetual collaboration social and cultural collaboration. Therefore, through this cooperation, people are learning and developing from others' experiences and skills in order to attain the effectiveness and efficiency of instructional materials.

Learning by utilizing instruments is not helping the mind to grow up to attain a new and more organized or structured forms of mental function. For instance, when a child master this difficult cultural tools like language, this may not lead only in their capability to dialogue but stimulate new thought, self-regulation and mentality in generally speaking. This lead to the effect structured facets of children's skills. Prominently, cultural instruments were not entirely static things but expressions of some ways of functioning in human societies (Tebabal & Kahssay, 2011).

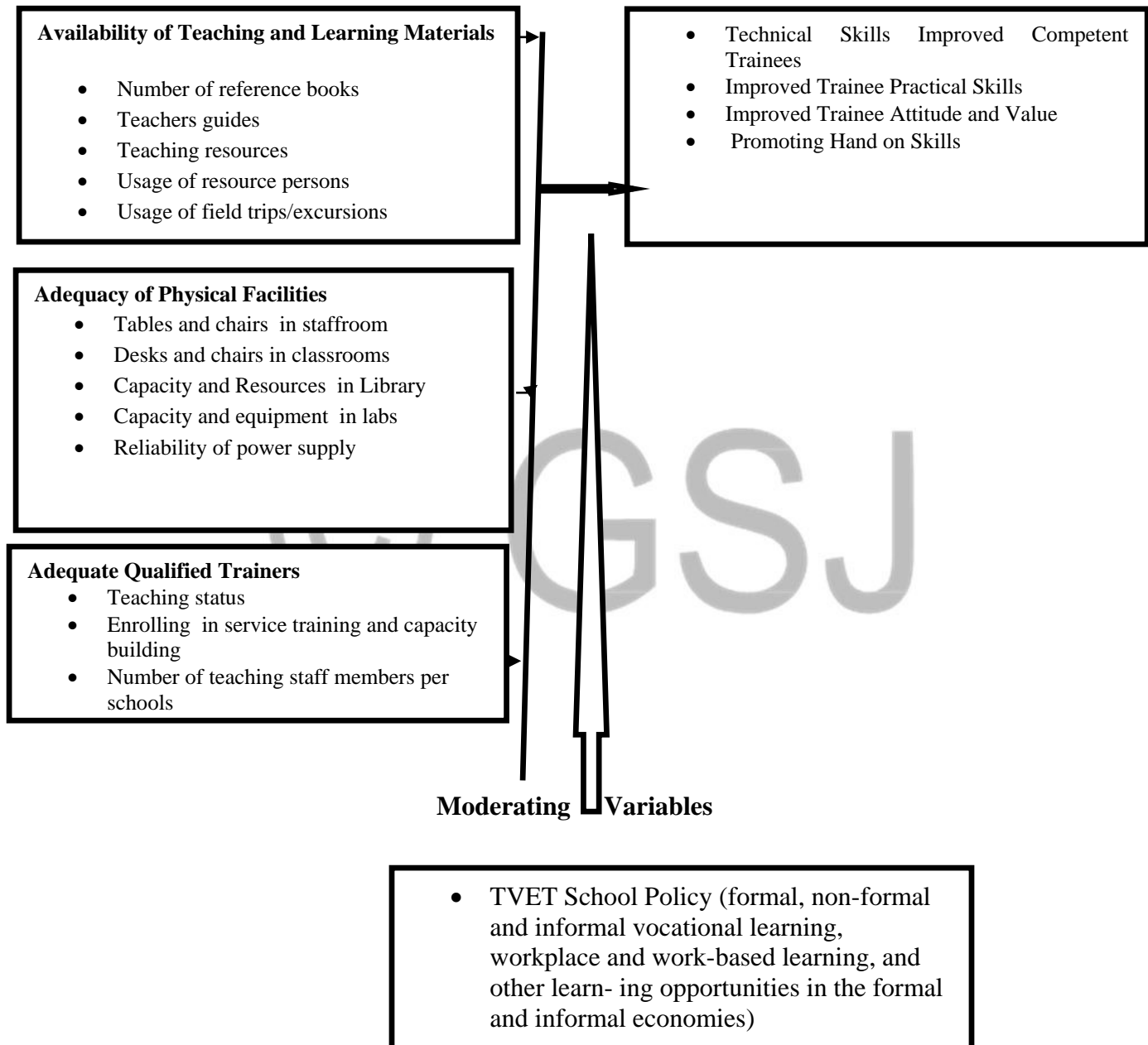
### 2.3 Conceptual Framework

#### Independent Variables

#### Dependent Variables

##### School Teaching and Learning Resources

##### CBT Implementation in TVET



### Conceptual Framework

Source: Primary Data (2023)

Data demonstrate the association between school teaching and learning resources (independent variable) and CBT Implementation in TVET (Dependent variable). The school teaching and learning resources, adequacy was assessed in order to establish their effect on CBT implementation. Availability of school materials were measured using number for reference books, the number of teachers guide, teaching resources, usage of qualified trainers, and usage of field trips/excursions. The adequacy of physical facilities was assessed using tables and chairs, desks in classrooms, ability and assets in library, ability and materials, and reliability of power supply. The adequate qualified trainers was measured. CBT implementation was examined in term of technical skills improved competent trainees, improved trainee practical skills, improved trainee attitude and value, and promoting hand on skills. Both independent and dependent variable were moderated by TVET school policy, and RTB monitoring and Evaluation.

### 3.0 Research Methodology

According of Orodho (2017), a study design denotes the blueprint selected to use suitable methods and strategies. The descriptive research design was applied during the process of collecting data related to persona; attitudes, ideas in relation to feelings or any of the diversified education problems (Wanjohi, 2018).. Therefore, the descriptive research design was utilized as it was adequate for qualitative and quantitative approaches for the execution of CBT in secondary education, level 3 up to level 5 of TVET schools were investigated.

### 3.2 Target Population

the total number of population of the study was 145 Including school managers of different TVET Schools, L3 up to L5, located in Nyamasheke District, trainers of those TVET schools, District Education Officers, Sector Education Officers (SEOs) of different Sectors where those schools are located and one District Education Officer in charge of TVET Schools in Nyamasheke District. The study calculated a representative group by means of Yamane formula:

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

Thus, the calculated sample size is 107 and to obtain the sample size representing each category of respondents, a proportional representation is applied as follows: means that in total there was 107 respondents composed of 95 trainers, 6 School managers of TVET Schools, L3 up to L5 , 5 SEO and 1 District Education Officer (DEO) in charge of TVET Schools.

## 4.0 Research Findings and Discussions

### 4.1 Effect of Availability of Teaching and Learning on Effective Implementation of competence based training in TVET School in Nyamasheke District.

Before establishing effect of availability of teaching and leaning on effective execution of competence based training in TVET school in Nyamasheke District. The researcher started with descriptive statistics in order to give information on whether the availability of teaching and learning impact effective implementation of competence based training in TVET School in Nyamasheke District.

**Table 4. 1 : Descriptive statistics on Availability of Teaching and Learning Materials**

Statement on availability of teaching and learning materials	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree		Total	Mean	Sdv
	N	%	N	%	N	%	N	%	N	%			
Number of reference books	14	13.8	18	19.7	0	0.0	32	30.9	36	34.0	105	3.53	1.5

---

Number of teachers guide														3.25	1.21
	6	5.9	19	17.8	0	0.0	38	36.2	42	40.1	105				
Physical resource like manila, diusters and6 other materials		5.9	8	7.9	5	3.9	41	39.5	45	42.8	105			3.23	1.20
Usage of resource persons	10	9.9	15	13.8	0	0.0	38	36.1	42	40.1	105			3.48	1.27
Usage of field trips/excursions	10	9.9	6	5.9	0	0.0	65	61.8	24	22.4	105			3.53	1.5

---

**Source: Primary Data (2023)**

Results showed indicated the availability of the high number of reference books, 34.0% were strongly agreed, and 30.9% were agreed. Result evidenced that number of reference books contribute to effective implementation of CBT. Data demonstrated that the number of teachers guide are available, 40.1% are strongly agreed while 36.2% agree. Data evidenced that number of teachers guide contribute to effective implementation of CBT. The study revealed that those physical materials are used and contribute to effective execution of CBT where 42.8 accepted the use of those materials. Information presented the usage of resource persons. 40.1% were strongly agreed with the statement, 36.1% of the participants agreed. This indicated that usage of resource persons. The results demonstrated the Usage of field trips/excursions. From 105 respondents, 22.4% show a strong agreement while 61.8% are agreed. Information revealed that very great extent the usage of field trips/excursions. Table 4. 2: Correlation Analysis between Availability of Teaching and Learning Materials and CBT Implementation in TVET.





		Number of reference books	Number of teachers guide	Teaching resources such as manilas, dusters, chalk, models charts	Technical Skills Improved Competent Trainees	Improved Trainee Practical Skills	Improved Trainee Attitude and Value
Number of reference books	Pearson Correlation	1					
	Sig.(2-tailed)						
	N	105					
Number of teachers guide	Pearson Correlation	.669**	1				
	Sig.(2-tailed)	.000					
	N	105	105				
Teaching resources	Pearson Correlation	-.361**	-.521**	1			
	Sig. (2-tailed)	.000	.000				
	N	105	105	105			
Technical Skills Improved Competent Trainees	Perarson Correlation	.320**	.408**	-.657**	1		
	Sig.(2-tailed)	.001	.000	.000			
	N	105	105	105	105		
Improved Trainee Practical Skills	Pearson Correlation	.317**	.006	-.510**	.394**	1	
	Sig.(2-tailed)	.001	.950	.000	.000		
	N	105	105	105	105	105	
Improved Trainee Attitude and Value	Pearson Correlation	-.819**	-.716**	.072	-.113	-.034	1
	Sig.(2-tailed)	.000	.000	.470	.254	.732	
	N	105	105	105	105	105	105

Source: Primary Data (2023)

Data demonstrated in table 4.4 revealed association between research variables. For number of reference books, there statistically association between number of reference books and technical skills improved competent trainees ( $r=.320$ ,  $p\text{-value}=0.001$ ), number of reference books with improved trainee practical skills ( $r=.317$ ,  $p\text{-value}=0.001$ ). Finally, a correlation was between description of requirements with number of reference books ( $.817$ ,  $p\text{-value}=0.000$ ). These correlations were positively associated since the  $p\text{-value}$  was  $<0.5$  implying that increase in number of reference books affect the level of technical skills improved competent trainees, improved trainee practical skills, and improved trainee attitude and value. For estimated value, there are significant relationship between number of teachers guide and technical skills improved competent trainees ( $r=0.408$ ,  $p\text{-value}=0.048$ ), number of teachers guide and improved trainee attitude and value ( $r=0.716$ ,  $p\text{-value}=0.000$ ). These are significantly associated, meaning that a change within estimated value report stimulates a change to resource, and project quality and vice versa. Contrary to insignificant correlation between number of reference books and improved trainee practical skills ( $r=0.006$ ,  $p\text{-value}=0.950$ ). This correlation is insignificant since that  $p\text{-value}$  was  $>0.05$  explaining that the increase of calculated number of reference books did not affect improved trainee practical skills and vice versa. Results on teaching materials indicated significant correlation between teaching materials and technical skills improved competent trainees ( $r=.657$ ,  $p\text{-value}=0.000$ ), and timely delivery ( $r=0.510$ ,  $p\text{-value}=0.000$ ). However, insignificant relationship was established between improved trainee attitude and value ( $r=0.072$ ,  $p\text{-value}=0.470$ ). Therefore, applying a teaching assets did not affect automatically improved trainee attitude and value.

#### 4.2 Effect of Adequacy of Physical Facilities on Effective Implementation of Competence Based Training in TVET School in Nyamasheke District.

The second objective examined the influence of adequacy of physical facilities on effective execution of CBT in TVET School in Nyamasheke district. Most commonly physical facilities include: tables and chairs in the staffroom, desk and chairs in classrooms, capacity and asset in library, capacity and equipment, and reliability of power supply.

**Table 4. 3 : Descriptive Statistics on the Adequacy of Physical Facilities**

Statement on the Adequacy of Physical Facilities	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree		Total	Mean	Sdv
	N	%	N	%	N	%	N	%	N	%			
there are enough tables and chairs in the staffroom of TVET Schools	21	19.7	8	7.9	2	1.9	32	30.3	42	40.1	105	3.50	1.05
There are desks and chairs in the classrooms of TVET schools	4	3.9	8	7.9	0	0.0	34	32.2	59	55.9	105	3.40	1.21
There more capacity and resources in library of TVET schools of our schools	12	11.8	35	33.6	10	9.9	28	26.3	20	26.3	105	3.52	1.19
There more capacity and equipment in the labs in TVET Schools	12	11.8	16	15.7	6	5.9	30	28.3	41	38.2	105	3.34	1.18
Power supply is consistant In our TVET schools	42	40.2	0	0.0	0	0.0	0	0.0	63	59.8	105	3.50	1.05

**Source: Primary Data (2023)**

Results demonstrated that there are enough tables and chairs in the staffroom of TVET schools, 40.1% strongly agree while 30.3% agree. Results showed the existence of desks and chairs in the classrooms of TVET schools , 55.9% show a strong agreement while 32.5 were agreed. Results argued the presence of capacity and resources in library of TVET schools, the results revealed thatr 26.3% of participants were strongly agree, and 26.3% show an agreement with the statement. Results showed the availability of capacity and resources in library of TVET schools, 38.2% of the respondents were strongly agree, 28.3% of the participants are agree. Results showed the consistency of power supply in TVET schools, 59.8% of the respondents.

**Table 4. 4: Correlation Analysis Adequacy of physical facilities and CBT Implementation in TVET**

		Tables and chairs in staffroom	Desk and chairs in the classrooms	The Capacity and resources in libraries	Technical Skills Improved Competent Trainees	Improved Trainee Practical Skills	Improved Trainee Attitude and Value
Tables and chairs in the staffroom	Pearson Correlation	1					
	Sig.(2-tailed)						
	N	103					
Desks and chairs in classrooms	Pearson Correlation	.742**	1				
	Sig.(2-tailed)	.000					
	N	105	105				
The capacity and resources in the library	Pearson Correlation	.235*	.192	1			
	Sig. (2-tailed)	.017	.052				
	N	105	105	105			
Technical Skills Improved Competent Trainees	Pearson Correlation	.424**	.425**	.407**	1		
	Sig.(2-tailed)	.000	.000	.000			
	N	105	105	105	105		
Improved Trainee Practical Skills	Pearson Correlation	.740**	.514**	.665**	.394**	1	
	Sig.(2-tailed)	.000	.000	.000	.000		
	N	105	105	105	105	105	
Improved Trainee Attitude and Value	Pearson Correlation	.484**	.608**	.401**	.113	.034	1
	Sig. (2-tailed)	.000	.000	.000	.254	.732	
	N	105	105	105	105	105	105

**Source: Primary Data (2023)**

A strong relationship was established between tables and chairs in the staffroom and technical skills improved competent trainees ( $r=0.424$ ,  $p\text{-value}=0.000$ ), tables and chairs in the staffroom and improved trainee practical skills ( $0.740^{**}$ ,  $p\text{-value}=0.000$ ), tables and chairs in the staffroom and improved trainee attitude and value ( $0.484^{**}$ ,  $p\text{-value}=0.000$ ). The association is positively related because the p-value was less than 0.05, explaining that adjustment within tables and chairs in the staffroom increased the technical skills improved competent trainees, improved trainee practical skills, and improved trainee attitude and value and vice versa. For Desks and chairs in the classrooms and technical skills improved competent trainees ( $r=0.425^{**}$ ,  $p\text{-value}=0.000$ ), improved trainee practical skills ( $r=0.514^{**}$ ,  $p\text{-value}=0.000$ ) and improved trainee attitude and value ( $r=0.608$ ,  $p\text{-value}=0.000$ ) are associated as well as the p-value is less than 0.05 explaining that a variation in desks and chairs in the classrooms did not impact effective implementation of CBT. There is a significant correlation found between ability and resources in libraries and technical skills improved competent trainees ( $r=0.407^{**}$ ,  $p\text{-value}=0.000$ ), improved trainee practical skills ( $r=0.665^{**}$ ,  $p\text{-value}=0.000$ ) and improved trainee attitude and value ( $0.401^{**}$ ,  $p\text{-value}=0.000$ ). Significant correlations are established because the degree of association was less than 0.05 implying that an adjustment in the capacity and resources in the library improved technical skills improved competent trainees, improved trainee practical skills, improved trainee attitude and value and the vice versa.

### 4.3 Effect of Adequate of Qualified Trainers on Effective Implementation of Competence Based Training in TVET School in Nyamasheke District

Third objective assessed CBT in TVET School effect of adequate of qualified trainers on effective execution in Nyamasheke District. Most commonly qualified trainers respected by TVET in Nyamasheke District are: job status for teaching staff members, participation in capacity building, mean of educations per secondary schools, and usage of books in teaching

**Table 4. 5 : Descriptive Statistics on the adequacy of Qualified Trainers**

Statement on Adequate qualified trainers	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Total	Mean	Sdv
	N	%	N	%	N	%	N	%	N	%			
Employment status of teachers	42	40.1	12	11.8	2	1.9	17	15.8	32	30.2	105	3.42	1.26
Enrolment for in service training	12	11.8	8	7.9	0	0.0	25	23.7	60	56.6	105	3.61	1.07
Average number of teachers employed per school	22	21.1	4	3.9	6	5.9	25	23.7	48	45.4	105	3.59	1.21
Using books in teaching and learning process	6	5.9	8	7.9	4	3.9	8	7.9	79	74.3	105	3.32	1.32

**Source: Primary Data (2023)**

Results demonstrated the employment status of teachers 30.2% strongly agreed. 15.8% remarked a strongly agreement. This means that to the large extent the job status for teaching staff members. Results showed enrolling in capacity building, 56.6% strongly agreed while 23.7% agreed. The large base of average number of teachers employed per school, 45.4% show a strong agreement, while 23.7% agreed with the statement. Results showed the usage of the set books in teaching, 74.3% indicate strongly agreement.

**Table 4. 6: Correlation Analysis between Adequate Qualified Trainers and CBT Implementation in TVET**

		Employment status of teachers	Enrolment for service training	Average number of teachers employed per school	Technical Skills Improved Competent Trainees	Improved Trainee Practical Skills	Improved Trainee Attitude and Value
Employment status of teachers	Pearson Correlation	1					
	Sig.(2-tailed)						
	N	105					
Enrolment in service training	Pearson Correlation	0.212	1				
	Sig.(2-tailed)	0.004					
	N	105	105				
Average number of teachers employed per school	Pearson Correlation	0.263	0.203	1			
	Sig.(2-tailed)	0.000	0.006				
	N	105	105	105			
Technical Skills Improved Competent Trainees	Pearson Correlation	0.333	0.136	0.037	1		
	Sig.(2-tailed)	0.000	0.067	0.619			
	N	105	105	105	105		
Improved Trainee Practical Skills	Pearson Correlation	0.044	-0.012	0.016	-0.043	1	
	Sig.(2-tailed)	0.555	-0.876	0.829	0.566		
	N	105	105	105	105	105	
Improved Trainee Attitude and Value	Pearson Correlation	-0.024	0.017	0.163*	-0.068	-0.040	1
	Sig.(2-tailed)	0.750	0.816	0.028	0.363	0.593	
	N	105	105	105	105	105	105

\*Correlation is Significant at the 0.05 level (0.05)

**Source: Primary (2023)**

A strong relationship was established between tables and chairs in the staffroom and technical skills improved competent trainees ( $r=0.424^{**}$ ,  $p\text{-value}=0.000$ ), tables and chairs in the staffroom and improved trainee practical skills ( $0.740^{**}$ ,  $p\text{-value}=0.000$ ), tables and chairs in the staffroom and improved trainee attitude and value ( $0.484^{*}$ ,  $p\text{-value}=0.000$ ). The association is positively related because  $p\text{-value}$  was less than 0.05, explaining that adjustment in tables and chairs in the staffroom increased the technical skills improved competent trainees, improved trainee practical skills, and improved trainee attitude and value and vice versa.

For Desks and chairs in the classrooms and technical skills improved competent trainees ( $r=0.425^{**}$ ,  $p\text{-value}=0.000$ ), improved trainee practical skills ( $r=0.514^{*}$ ,  $p\text{-value}=0.000$ ) and improved trainee attitude and value ( $r=0.608$ ,  $p\text{-value}=0.000$ ) are associated as well as the  $p\text{-value}$  is less than 0.05 explaining that a variation in desks and chairs in the classrooms did not impact effective implementation of CBT. There is a significant correlation found between ability and resources in libraries and technical skills improved competent trainees ( $r=0.407^{**}$ ,  $p\text{-value}=0.000$ ), improved trainee practical skills ( $r=0.665^{**}$ ,  $p\text{-value}=0.000$ ) and improved trainee attitude and value ( $0.401^{**}$ ,  $p\text{-value}=0.000$ ). Significant correlations are established because the  $p\text{-value}$  was less than 0.05 explaining that an adjustment in capacity and resources in the library improved technical skills improved competent trainees, improved trainee practical skills, improved trainee attitude and value and the vice versa.

## **5.0 Discussion of Findings**

The study discusses results based teaching and learning on effective implementation of CBT, adequacy of physical facilities, and effect of adequate qualified trainers influence CBT in TVET School in Nyamasheke District.

### **5.1 Effect of Availability of Teaching and Learning on Effective Implementation of Competence based Training in TVET Schools**

The results to the first objective indicated that the availability of the high number of reference books, 64.9% of respondent's demonstrated an agreement on the number of reference books contribute to effective implementation of CBT. Data demonstrated that the Number of teachers guide are available, 76.3% were agreed with the statement. The study established a strong relations since the p-value was  $< 0.5$  implying that increase in number of reference books affect the level of technical skills improved competent trainees, improved trainee practical skills, and improved trainee attitude and value. Contrary to insignificant correlation between number of reference books and improved trainee practical skills ( $r=0.006$ ,  $p\text{-value}=0.950$ ). Therefore, result from the present study did not contradict the work done in Canada by Potvin (2012) who had conducted a study about effect of a competence based curriculum on learners resolving problems, competence and behavior. Data indicate that amelioration of problem solving competence and some change in some aspects of attitude and interest toward science and technology. In the same line, Ayonmike (2014) have carried out a study on CBT in TVET, the researches argued that the start of CBET in TVET curriculum encourage government to deal with several challenges of scarcity of job knowledge and understanding with alumnae in Nigerian schools this decrease unemployment. This research presents a discussion of the challenges faced by TVET Schools in Malawi. Findings discovered the challenges including CBET being viewed as costly to implement; misunderstandings of CBET objectives; private technical colleges not fully implementing CBET.

### **5.2 Effect of Adequacy of Physical Facilities on Effective Implementation based on Training in TVET School**

Results demonstrated that tables and chairs in the staffroom, 70.4% strongly agree with the statement. Results showed the desks and chairs in the classrooms, 55.9% show a strong agreement while 32.5 were agreed. Results showed the capacity and equipment in the labs, 38.2% were strongly agree. This research lead to strong association between variables since the association is positively related because the p-value was less than 0.05, explaining that adjustment in tables and chairs in the staffroom increased the technical skills improved competent trainees, improved trainee practical skills, and improved trainee attitude and value and vice versa. Reconsidering the above information, the present study concur with previous studies done in In East African Community Countries, different researches about implementation of CBT have been carried out. For instance, Kanyonga, *et al* (2019) did a research on CBT in Arusha. Findings have discovered that most of teachers obtained in service training more than restricted to understand about the implementation and CBET objectives. In the same content, Anthony and Wanjohi (2018) who evidenced that some constraints encountering the execution of new competence based curriculum in Kenya, lack of finance owing to the hurry in development, pretesting and the roll out processes, a lot of monetary resources were necessary, a CBC needs various environment schools, shortage of enough trained teachers and inappropriate infrastructure and lastly, curriculum was in place now up to grade three infrastructures are not yet in place.

### **5.3 Effect of Adequate qualified trainers on Effective Implementation of Competence based Training in TVET School**

The study show that the employment status of teachers 46.0% of respondents show agreement on the statement. Results showed enrolling for capacity development, 56.6% strongly agreed while 23.7% agreed. as the data demonstrated that the tables and chairs in the staffroom is impacting technical skills improved competent trainees with a level of significance of 0.000 where an increase in desks and chairs in the classrooms led automatically to technical skills improved competent trainees increase by 0.330 units. The study concurs with the findings from a research done by Mbarushimana and Kabuja (2016) who established the study the general trend of applying CBT in southern Rwandan province. The findings demonstrated that CBT curriculum had improved the living conditions of youths in Rwanda.

## **6 Conclusions and Recommendations**

To the first research question, on whether the availability of teaching and learning materials affects the implementation of CBT, the researcher concludes that teaching and learning materials were available in TVET secondary schools in Nyamasheke District. These the availability of those materials were assessed through number of reference books, teachers guides, teaching resources , the use of resource persons, and field trips/excursions. In this regards, a statistically positive relationship was established between availability of teaching and learning material constructs and the CBT constructs. To the second research question, on whether the adequacy physical facilities affects the implementation of CBT, the researcher concludes that physical facilities was adequate in TVET secondary schools in Nyamasheke District. These the adequacy of those materials were assessed through the tables and chairs in staffroom, desks and chairs in classrooms, capacity and resources in library, capacity and equipment in labs, and reliability of power supply . In this regards, a statistically positive relationship was established between adequacy physical facilities constructs and the CBT constructs. To the third research question, the researcher concluded that that teacher training improved the CBC implementation in public primary schools in Nyamasheke District. The educational level of respondents affect the level of executing CBT, teacher's skills and awareness of curriculum standard and affect teaching and learning procedure. Teacher preparation hindered execution of Competency Based Curriculum. Results demonstrated that teaching staff members were associated with the execution of CBT. Teachers should make a good preparation of teaching instructions and materials. The government should prepared more capacity building programs related to competency-based curriculum to ameliorate CBT execution. There is a need to stimulate capacity building programs for CBT. Schools should mobilize local community members to ensure effective execution of CBT. Teaching staff members should be well trained in executing CBT. Future studies should be done in other districts in order to assess different reality and perspectives. .

## REFERENCES

1. Akampurira, A. (2016). *Curriculum implementation and program management. A case of Uganda in Primary and Secondary Schools*. Kabale, Uganda. [Retrieved from <https://www.grin.com/document/345229>]
2. Amina, A. (2016). *Facilitators and Learners' Perceptions on the Implementation of Competence-Based Curricula in Adult Education Programs in Tanzania* (Master's thesis, The Open University of Tanzania)
3. Ayonmike, A. (2014).” Ayonmike, C., Okwelle, P. C. & Okeke, Benjamin C.(2014). *Competence based Education and Training in Technical Vocational Education: Implication for Sustainable National Security and Development*. Journal of Educational Policy and Entrepreneurial Research (JEPER). Vol.1, NO.2, October 2014. Pp 290-300.
4. Gautam, K. C. (2015). Factors affecting curriculum implementation for students. *International Journal of Applied Research* 2015; 1(12): 984-986
5. Harris, R. & Hodge, S. (2012). Discipline, Govern mentality and 25 Years of Competence Based *Training: Studies in the education of Adults*, 44(2)
6. Kafyulilo, A. C., Rugambuka, I. B., & Moses, I. (2013). *Implementation of Competence Based Teaching in Murogoro Weatherstripping College, Tanzania*. Makerere Journal of Higher Education. ISSN: 1816-6822; 4(2) (2013) 311 – 326 DOI.
7. Kanamugire, J. (2016). *Rwandan schools fail to teach using new curriculum*. The east African.
8. Kanyonga, L., Mtana, N., & Wendt, H. (2019). *Implementation of competence-based curriculum in Technical College: The Case of Arusha City, Tanzania*. *International Journal of Vocational and Technical Education*. Vol.11(1), pp. 1-20. DOI: 10.5897/IJVTE2018.0262
9. Kigenyi, E M. (2017). Staff welfare and Teachers; performance in Public Primary School in *Bugisu Sub-Region in Uganda*. (Doctoral dissertation, Mbarara University of Science and Technology, Mbarara, Uganda).
10. Kufaine, N. & Chitera N. (2013). *Competence based education and training in technical Education. Problems and perspectives*. <http://www.academicjournals.org/IJVTE>, [Retrieved on 17<sup>th</sup> March, 2020]
11. Mbarushimana, N. & Allida, D. (2017). *Curriculum Change and Teacher participation in Technical and Vocational Education Training Programs (TVET): Experience of AIPER Nyandungu, Rwanda*
12. Baraton Interdisciplinary Research Journal (2017), 7(Special Issue), pp 1-10[<https://www.researchgate.net/publication/322821947>].

13. Mbarushimana, N. & Kuboja, J. M. (2016). *A paradigm shift towards CBC: The Experience of Rwanda*. Saudi Journal of Business and Management Studies, 1(1), 6-17
14. Mbarushimana, N., Role, E. & Vencie, A. (2017). *Competence Based Curriculum in Tourism and Hospitality: A Practical Model for Rwanda*. Journal of Research Innovation and Implication in Education (JRIIE) Vol.1(3) pp. 96 -109, June 2017.
15. MINEDUC. (2013). *Education Sector Strategic Plan 2013/14 – 2017/18*.
16. MINEDUC. (2015). *Rwanda TVET Policy*. Kigali: Ministry of Education.
17. Ndiokubwayo, K. & Habiyaremye, H. T. (2018). *Why did Rwanda shift from Knowledge to Competence Based Curriculum? Syllabuses and Textbooks Point of View*. African Research Review. International Multi-Disciplinary Journal Bahir Dar, Ethiopia, AFRREV VOL.12 (3), Serial No 51, July, 2018:
18. Ngendahayo & Williams (2016). *Rwanda's New Competence-Based School Curriculum. New approaches to assessing Student learning needed*.
19. Okoye, K. & Isaac M. (2015). *Enhancing Technical and Vocational Education and Training in Nigeria for Sustainable Development: Competence Based Training(CBT) Approach*. Journal of Education and Practice 6/29, 66-69,
20. Potvin, P., Dumont J.G., Boucher G. F. & Riopel M. (2012). *The Effects of a Competence Based Interest towards Science and Technology*.
21. Rutayuga, A.B. (2014). *The emerging Tanzania Concept of competence: Condition for successful implementation and future development* (PhD Dissertation, Institute of Education: University of London
22. Rwanda Education Board & VVOB. (2018). *Implementing CBC: Successes and Challenges*. Urunana rw'Abarezi (6<sup>th</sup> Ed.), July 2018. [Retrieved from [https://rwanda.vvob.be/sites/rwanda/files/peer\\_learning\\_magazine006\\_v0.0\\_2018ss4web.pdf](https://rwanda.vvob.be/sites/rwanda/files/peer_learning_magazine006_v0.0_2018ss4web.pdf), on 22nd May, 2020].
23. Rwezaura, P. (2016). *The implementation of Competence Based English Curriculum in Kinondoni Minicipal Primary Schools*. (Master's thesis, The Open University of Tanzania)
24. Sibomana, E. & Dushimumuremyi, D. (2018). *Competence-Based English Language Teaching in Rwanda: Opportunities, Challenges and possible solutions*. Journal of Language, Technology & Entrepreneurship in Africa. Vol.9.NO2.2018.
25. Simion, K. (2016). *Qualitative and quantitative approaches to rule of Law Research*
26. Tambwe, M. (2017). *Challenges facing implementation of Competency based and Training (CBET) system in Tanzanian Technical Institutions*. Education Research Journal Vol. 7(11):277-283, November 2017 [Retrieved from <http://resjournals/educational-research-journal.html>]
27. UNICEF. (2017). *UNICEF Annual Report 2017. Rwanda*.
28. Wanjohi, A. M. (2018). *CBC Implementation Challenges and the Way Forward*.
29. WDA, (2019). *TVET Quality Management Handbook, 2019*.]
30. Wiggins, G. & M. Tighe, J. (2006). *Understanding by design: A framework for effective curriculum development and assessment*. Alexandria. Association for supervision and curriculum development. North Beauregard Street, Alexandria.
31. Wolf, A. (1995). *Competence-Based Assessment*, Buckingham (Open University Press). The Commonwealth of Learning, October 2000.