ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

COMPETENCY BASED TRAINING: QUALITY DELIVERY FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) INSTITUTIONS

Caroline Aba Anane

World of Work Centre, ACCRA Polytechnic,
GHANA.

canane@apoly.edu.gh, caronanab@yahoo.com

ABSTRACT

This paper examines the Competency Based Training concept as a mode of delivery in skills development and highlights some of the challenges of implementing CBT. It also justifies why CBT is the way to go for TVET Institutions. As part of the new educational reform, Technical and Vocational Education and Training (TVET) system in Ghana has undergone a fine tuning in order to make it a credible alternative to general education. This new reform introduces the Competency Based Training (CBT) concept as a mode of delivery of TVET in Ghana. The CBT programme is an exciting new outcome based qualification which has been developed in partnership with leading employers. This mode of delivery is providing the kind of workers industry demands and also is preparing individuals for self employment. The introduction of the CBT in the TVET reform will therefore engage must youth of the country in well structured skills development and workplace experience to ensure employment opportunities and industry led skills development.

The Council for Technical and Vocational Education and Training (COTVET) was therefore established by an Act of Parliament in 2006 to coordinate and oversee all aspects of technical and vocational education and training in Ghana and implement Ghana's TVET Reform through the Competency Based Training (CBT) system. The establishment of the Council has in effect brought about a paradigm shift in the TVET sector. In 2009, with assistance from Japan International Cooperation Agency (JICA), COTVET piloted the CBT system in some selected technical institutions at three levels of the 9-Level National TVET Qualification Framework. These levels were: Level 3 (Certificate 1) Electronics at National Vocational Training Institute; Level 4 (Certificate 2) Welding at Accra Technical Training Centre, and Level 6 (Higher National Diploma (HND) Plant Engineering at Accra Polytechnic.

Keywords: Competency Based Training, TVET, Industry-led skills, National TVET Qualification Framework, Workplace experience

INTRODUCTION

Vocational and Technical Education (VTE) systems play a vital role in the social and economic development of a nation. Due to their vibrant nature, they are continuously subject to the forces which drive changes in the schools, industry and society. The challenges and opportunities of VTE are unique due to the needs of the changing economy and local community. The concern today is not so much about the value and importance of VTE but how to ensure its relevance, responsiveness and value in an increasingly global economy. (Law, 2007)

There is no doubt that the proper development of technical and vocational skills is vital to the economic development of every country especially developing ones. Moreover, in today's knowledge driven and competitive global economy, Technical/Vocational Education is a

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

fundamental element in the development equation because it allows individuals and societies to unlock their potential, expand their horizons and adapt to the changes in the dynamic world. In line with this realization, the basic philosophy and orientation of Ghana's vision 2020 is to reform the education system to make it more responsive to the national goals and aspirations as well as local and global demands. Therefore, the policy prescription which focuses on human resource development, poverty reduction, employment generation and accelerated economic growth would be achieved through TVET education.

In order to make technical and vocational education the key to socio-economic development in Ghana, many reforms in that sector have been introduced notable among them was the establishment of the Council for Technical and Vocational Education and Training (COTVET) in 2006. The Council's mandate is to coordinate and oversee all aspects of technical and vocational education and training in Ghana. Its establishment has brought about a paradigm shift in the TVET sector because the Council has embarked on serious efforts to implement Ghana's TVET Reform through the Competency Based Training (CBT) system.

The table below compares two paradigms of TVET. The old paradigm is how over the years TVET institutions have been undertaking their training, and the new paradigm is based on the CBT system which COTVET has piloted at three levels of technical education.

Table 1. Old and New Paradigm of TVET

S/N	*Old Paradigm of TVET*	*New Paradigm of TVET*
1	Passive learners	Active learners
2	Exam-driven	Learners are assessed on an ongoing basis
3	Rote learning	Critical thinking, reasoning, reflection and action
4	Syllabus is content-based and broken down into subjects	An integration of knowledge, skills and attitude/value, learning is relevant and connected to real-life situations/real work situations
5	Textbook/worksheet bound and educator-centred;	Learning materials/training packages, learner-centred; educator/trainer is a facilitator
6	Educator/trainer uses "deductive" approach in teaching	Facilitator uses "inductive" approach in facilitating
7	Sees syllabus as rigid and non-negotiable	Learning programmes seen as guide that allow facilitators to be innovative and creative in designing programme
8	Educators responsible for learning; motivation dependent on the personality of educator	Learners take responsibility for their learning: learners are motivated by constant feedback and affirmation of their worth
9	Emphasis on what the educator hopes to achieve	Emphasis on outcomes (what the learner becomes and understands)
10	Content organised according to rigid time-frames	Flexible time-frames allow the learner to work at their own pace
11	Curriculum development process is not open to public comment	Comment and input from the wider community / stakeholders is encouraged

Source: Technical Committee Report on the Harmonisation of CBT in Ghana (2009)

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

WHAT THEN IS COMPETENCY BASED TRAINING

Competency Based Training (CBT) is an industry and demand driven (outcomes-based) education and training programme based on well defined industry generated standards (occupational standards). These industry standards are the basis upon which the program (curriculum), assessment and learning materials are designed and developed.

CBT programmes focus on what the participant is expected to be able to do in the workplace as opposed to just having theoretical knowledge. It is therefore a training programme which ensures that learners gain the necessary knowledge, skills and attitudes or values to be successful in the working environment.

Characteristics of Competency Based Programmes

According to Foyster (1990), Delker (1990) and Norton (1987) there are a number of characteristics of competency-based programs. Key characteristics of Competency Based Programmes are: a) Competencies are carefully selected, b) Supporting theory is integrated with skill practice. Essential knowledge is learned to support the performance of skills, c) Detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills, d) Methods of instruction involve mastery learning, the premise that all participants can master the required knowledge or skill, provided sufficient time and appropriate training methods are used, e) Participants' knowledge and skills are assessed as they enter the program and those with satisfactory knowledge and skills may bypass education and training or competencies already attained, f) Learning should be self-paced, g) Flexible training approaches including large group methods, small group activities and individual study are essential components, h) A variety of support materials including print, audiovisual and simulations (models) keyed to the skills being mastered is used, and i) Satisfactory completion of education and training is based on achievement of all specified competencies.

Structure of Competency Based Training

Norton (1987) describes five essential elements of a CBT system: a) Competencies to be achieved are carefully identified, verified and made public in advance, b) Criteria to be used in assessing achievement and the conditions under which achievement will be assessed are explicitly stated and made public in advance, c) The instructional program provides for the individual development and evaluation of each of the competencies specified, d) Assessment of competency takes the participant's knowledge and attitudes into account but requires actual performance of the competency as the primary source of evidence and e) Participants progress through the instructional program at their own rate by demonstrating the attainment of the specified competencies.

Objective of a Competency Based Qualification

The objectives are as follows: a) Set clear standards which can be measured, b) Develop competent individuals with transferable skills, c) Link education and training to skills needed by employers, d) Provide an objective quality assured system which will have the confidence of all users, i.e. learners, educational establishments and employers, e) Develop individual's potential fully, and f) Promote the concept of lifelong learning.

It must be stated here that there are different CBT models with countries such as The Netherlands, Canada, UK, Republic of South Africa, Japan, all using CBT mode of training. The differences are mainly in terminologies, processes for the development of programmes and in assessment methods. However, the characteristics, structure and objectives of CBT are

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

the same for all models. In Ghana different models of CBT were being piloted in the TVET sector. Therefore to ensure uniformity, COTVET has harmonised all models of CBT in Ghana so as to pave the way for graduating students to fit into the job market, and thereby promote national youth employment, reduce poverty and create wealth.

PROGRAMME DELIVERY

As earlier on indicated, CBT is a programme whose curriculum development is based on occupational standards. This is to ensure that the problem of skills mismatch, which has been identified by industry as a major cause of unemployment, is addressed. Therefore, after institutions have consulted with industry and businesses to generate valid and quality occupational standards, what is known as Learning Unit Specification is developed for all the courses of the respective programmes. This Learning Unit Specification lays down the Level, Quality and Scope of the performance that must be achieved by the learner. The standards set out in the Learning Unit Specification must also reflect national standards of achievement which must be appropriate to the target audience.

COTVET

Learning Unit Specification

Unit Title:	Manufacturing Technology 1
Date Started:	September 2009
Date to be completed:	August 2014
Program Level:	Level 6 (HND)
Credit Value:	3
Access Statement:	Access is at the discretion of the learning environment. However, it would be beneficial if the learner had successfully completed Mechanical Engineering Technician II or had an equivalent qualification or level of experience.

Unit/Module Introduction: On completion of this unit/module, the learner will be able to demonstrate basic knowledge of machine tools and their operations

Learning Outcome:
1. Apply metrological instrument in manufacturing technology
2. Demonstrate knowledge on standard measuring tools
3. Explain the working principle of machine tools
4. Explain the working principle of cutting tools
5. Demonstrate knowledge on Polymer production processes

Figure 1. Learning Unit Specification

Characteristics of the Learning Unit Specification

The Learning Unit Specification has four key elements which set out the standards on which certification is based: a) *Learning Outcomes:* What is expected of the learner to know and be able to do at the end of the facilitation of the unit, b) *Performance Criteria:* What the learner

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

should know and do in order to achieve the specific learning outcome, c) *Range Statement:* Parameters of learning the learner should cover in order to be able to perform, d) *Evidence Requirement:* This is the assessment criteria. In CBT assessment is the process of collecting evidence of learners' performance in order to judge whether or not, or the extent to which the learner has met the performance requirements.

The assessment process includes a variety of approaches: i) *Observation:* observing the learner while he/she is carrying out the activity, ii) *Product***:** looking at something a learner has made or done, iii) *Questioning:* asking the learner questions which can be answered either verbally or in writing.

Sample Learning Unit Specification

Below is a sample Learning Unit Specification. The course used for this sample is one of the technical skill areas of the CBT HND Plant Engineering programme piloted at Accra Polytechnic. The programme had a total of 28 courses made up of six mandatory core generic skills and 22 technical skills.

The information in the Learning Unit Specification helps the learner to know the competences to achieve having gone through the respective course.

What is then expected of each learner to know and do in order to achieve the respective learning outcomes are then specified for each Learning Outcome stated in the Learning Unit Specification.

Below are the details for the first Learning Outcome in the Learning Unit Specification above:

Unit Title: Manufacturing Technology 1

Learning Outcome 1: Apply metrological instrument in manufacturing technology

Performance Criteria:

a) Explain the term interchangeability as applied to engineering manufacturing

b) Use given range of hole and shaft dimension to identify the types of fits

c) Apply BS 4500 A and D to dimension engineering components in sub-assemblies

Range Statement:

Interchangeability: Tolerance, limits, fits tolerance grade, hole and shaft basis

Sub-assemblies: Linear, circular, angular

Evidence Requirements:

Written evidence of the learner's ability to apply metrological instrument in manufacturing technology as per performance criteria (a) and (b) and its ranges

Performance evidence of the learner's ability to apply metrological instrument in manufacturing technology as per performance criteria (c) and its range.

Figure 2. Details of Learning Outcome 1

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

Learner-centred Learning Materials are then developed for the learners from the unit specification. These detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills. They are developed in a way that they encourage the learner to work as independently as possible both out of class and while in class. The content of these learning materials which includes self assessment instruments and peer assessment/appraisal instrument for learners encourages active participation in learning through group, pair and whole class interaction.

FACILITATION METHODS USED FOR CBT PROGRAMMES

Competency based training demands a different approach to teaching and even assessment and certification. This is because conceptually CBT is different from the traditional system. It is based on defined competency standards which are industry oriented; it is unit based or modular and it can be applied to both formal and informal education and training. For these reasons training or teaching approach requires flexibility.

The education and training is more learner-centred (more emphasis is placed on the learner's role in the learning process) than teacher-centred (teacher has control over what is taught and how the learners are given the information they have to learn).

Though CBT uses both the teacher-centred and the learner-centred approaches, the emphasis is more on the learner-centred approaches.

The following facilitation methods are employed for the CBT programmes:

1. **Direct Instruction Method:** It is effective when you have to introduce learners to a new study area or define new concepts and show how they are interrelated or for teaching factual information. On the other hand, because the method relies mostly on one-way communication there are limited opportunities to get a feed back on the learner's understanding of what is being taught and it is not possible to teach psychomotor skills using this method.
2. **Discussion Method:** Allows learners to share knowledge and ideas thereby motivating them to achieve more particularly when others respect their contribution. It also helps the teacher to determine whether the learner understands the content of the lesson. On the other hand, there is the possibility of straying from the topic under discussion and dominating learners might influence the group to accept their view.
3. **Small Group Method:** Pairing is done in such a way that learners help each other to learn faster than the teacher would have been able to do with the whole class. There may however be difficulties with the physical arrangement of the classroom and individual assessment using group work is difficult.
4. **Problem Solving Method:** Very popular teaching strategy for CBT. Provides a challenge to learners; gives them a sense of satisfaction and increases their confidence when they are able to solve new problems and thus gain new knowledge. It also allows the learner to develop critical thinking skills and the ability to adapt to new learning situations. It is however time consuming and because learners sometimes work individually, they may not learn all the things that they are expected to learn.
5. **Research Method:** It is used for workshops and laboratory tasks, field experiments, case studies. It encourages learners to investigate and find answers for themselves and to critically evaluate information. It however requires a lot of time and careful planning of research projects for the learner.

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

Workplace Experience Learning

One critical component of the CBT programme is internship or attachment which is referred to as Workplace Experience Learning.

The purpose of the workplace experience is to provide opportunities for the CBT learner to develop planning, organizational, interpersonal and problem solving skills, self-awareness and technical competencies through workplace experience in real work role situations with a limited degree of facilitator support. This is undertaken twice (usually two months each) within the entire training period.

All students, especially at the tertiary level in Ghana, are to go on industrial attachment to help put into practice what has been learnt in the lecture rooms. Unfortunately, some students do not get the opportunity to experience this because they are not able to secure places for such an exercise due to limited number of industries in the country and the large number of students wanting places for attachment.

The CBT 'Workplace Experience Learning' is however structured differently from the traditional industrial attachment thereby giving all the CBT students an opportunity to undergo this exercise which gives them practical experiences relevant to the skills they have learnt. The students are not only placed in organizations relevant to their workplace skills but they also undergo supervised practical training.

Below is a table highlighting the major differences between the two types of attachments:

Table 2. Industrial Attachment

S/N	*Traditional Education Industrial Attachment*	*Cbt Workplace Experience*
1	Students are given introductory letters from their institutions to look for their own places for attachment	Institutions/COTVET identify, negotiate and sign MOU with appropriate industries for Workplace Experience
2	Students go for attachment with no training standards /unit specifications; they learn whatever the industries do	Students go to industry with standards/ unit specifications which they will study at the industries
3	Attachments are not carefully guided and assessed because no facilitators, assessors and verifiers identified and trained	Industry facilitators, assessors are identified, trained to facilitate and assess students
4	There is only periodic and general monitoring of students on attachment **Effects**: Some students easily dodge the attachment	Students are closely monitored on daily, weekly and monthly bases through Logbooks, Registers, Facilitators, Assessors and Verifiers to ensure that they acquire the requisite competencies
5	Attachment does not have credit value and may not form part of the certification	Workplace Experience has credit value and forms part of certification

From the differences highlighted in Table 2 above, one can rightly say that the CBT workplace experience is a far better way of training competent graduates than the traditional

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

education industrial attachment. This is because, the CBT workplace experience is better structured and in view of that the CBT students have a better attitude towards work and they know what to expect in real work situations.

Testimonies from various industries where students on the CBT pilot programmes had their workplace experience learning have attested to the high performance of these CBT students. They all rated the students' ability to apply theory to practice to be very good and their competencies to be far above average.

Judging from industry's impressions about these CBT students when they interacted with these students during their workplace experience learning, it would be accurate to say that the competency levels of the CBT students are higher.

CBT Assessment

To determine whether a learner has imbibed what he/she has learnt, an assessment is organised for all learners. The assessment is based on the learning outcomes specified in the learning unit specifications developed for each course. Therefore, in CBT assessment is the process of collecting evidence of a learner's performance, upon which an assessor judges whether or not, or the extent to which a learner has met the performance requirements of the learning outcome laid in a particular unit and then making a decision, based on these judgements as to whether a learner has achieved the learning outcome as a whole or not.

In other words, it is the process of measuring learner's skills, knowledge and understanding against the standards (occupational standards) laid down for a particular unit. If a learner can show, by generating sufficient evidence of their competence, that they meet the standards, they qualify for that unit.

Therefore CBT assessment measures whether a learner is competent or not competent. Only two possible outcomes can be the result of the assessment process, i.e. they are competent (i.e. they can perform what is stated in the standard) or they are not yet competent (they cannot perform yet what is stated in the standard). The assessment is not designed to measure a learner who is 30% or 50% or 80% etc. competent. If they do not meet the standards they develop their skills and knowledge further, after which they are assessed again.

The assessment process uses the following approaches to ensure that much emphasis is placed on performance: a) *Observation:* Observing the learner while he/she is carrying out the activity, b) *Product:* Looking at something a learner has made or done, c) *Questioning:* Asking the learner questions that can be answered either verbally or in writing.

CHALLENGES

There are some potential challenges with the implementation of CBT and these came to the fore during the piloting stages. Some of the challenges are highlighted below:

Funding

Competency Based Training is an expensive form of education and training because of its emphasis on equipment, well equipped laboratories and other teaching and learning materials for training. All these come with huge cost implications especially when the number of trainees increases making it a challenge due to budgetary constraints of TVET Institutions.

There is also the issue of outmoded equipment and inadequate facilities. Some modern equipment was procured by the donor agencies for use on the pilot programmes but that was for a small number of users. There will therefore be the need for re-equipment of TVET

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

institutions and increase in facilities if all technical programmes run by the 93 technical institutions in the country are to be delivered the CBT way. This will certainly entail major costs.

Facilitation

There is then the issue of facilitation. Since CBT is learner-centered, small class sizes are preferred to enable effective use of CBT facilitation techniques. The ideal CBT class size is between 16-20 learners. Currently in most of the institutions, the average class size is hundred students. With this number, it will mean getting five different facilitators to handle each class size of 20. There is no doubt that for effective program delivery, more facilitators with relevant training to deliver CBT will be required. However, taking the current situation in our institutions into consideration where there are inadequate trained facilitators to handle CBT programmes, teacher cost will double if not triple for CBT programmes. This will have huge financial implications for the institutions.

Secondly, unless initial training and follow up assistance is provided for these facilitators on periodic bases, there is a tendency to "teach as we were taught" and CBT trainers quickly slip back into the role of the traditional teacher. This is also compounded by the fact that not all the programmes running in the TVET institutions have gone CBT, but it is the same teachers who handle the two systems: Traditional and CBT. Switching from one role to the other poses a challenge for the teacher/facilitator. One needs a lot of commitment and determination to switch roles effectively.

Workplace Experience

One crucial component in the CBT programme is Workplace experience learning because it affords the trainee the chance to put into practice in a real work situation what he/she has been taught in order to perfect his/her competences. It is also assigned a credit value and contributes to the award of qualification. This means that all learners have to do the module on work placement to get a qualification, thus putting a lot of pressure on industry to provide work experience places for the learners. This is a challenge because each year thousands of students from the country's institutions are striving for industrial attachments in the limited industries available. At the pilot stage the numbers were limited so they were easily absorbed by industry. But when all TVET institutions fully implement CBT and the numbers increase, this will certainly be a challenge. Therefore, pragmatic steps must be taken by the government and management of institutions to deal with this.

BENEFITS OF CBT

In spite of all these challenges, there is ample evidence that the adoption of a Competency Based Training system would improve quality and relevance of TVET because of the numerous benefits.

Benefits of CBT identified by Norton (1987) include: a) Participants will achieve competencies required in the performance of their jobs, b) Participants build confidence as they succeed in mastering specific competencies, c) Participants receive a transcript or list of the competencies they have achieved, d) Training time is used more efficiently and effectively as the trainer is a facilitator of learning as opposed to a provider of information, e) More training time is devoted to working with participants individually or in small groups as opposed to presenting lectures, and f) More training time is devoted to evaluating each participant's ability to perform essential job skills.

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

Competency Based Training is an industry and demand driven education and training programme, its products have a high demand on the job market. Therefore, unemployment which other programmes are grappling with is not an issue for CBT graduates. Having gone through CBT, they either go into self employment because they have acquired the competences to set up their own businesses or are absorbed by the industries whose skills requirement they have met by nature of their training. There is no doubt that having gone through CBT, graduates do not simply provide service in the working environment; they accomplish results and this is what the world of work expects from its work force and which the CBT graduates have exhibited.

We are in an era where emerging industries are in dire need of expertise to run their industries. In Ghana, the oil and gas industries, for example, are in need of graduates with the technical skills to run these companies but which are not readily available so they are depending on foreign expertise. Civil society is insisting on a certain percentage of the work force to be local content. But how can this be a reality if our technical institutions, apart from those which piloted the CBT model, are using the old paradigm of TVET? From what CBT offers, and the success stories of countries such as Japan, the UK and South Africa, who because of this form of training have a highly skilled workforce, there is no doubt that to get competent graduates to run our emerging industries, they must be trained the CBT way.

It is worth mentioning here that a follow up done on the CBT graduates from the pilot programmes has revealed that they have achieved a 100 % employment rate. The 149 CBT graduates from the three levels: Level 3 (Certificate 1 in Electronics), which run for two years; Level 4 (Certificate 2 in Welding), which run for sixteen months; and Level 6 (Higher National Diploma (HND) in Plant Engineering), which run for three years have either gotten formal employment or are self employed because they have acquired the competences needed to operate efficiently in their respective professions. This goes to batterers the point that Competency Based Training is indeed quality delivery for TVET Institutions.

CONCLUSION

There is no doubt that Competency Based Training is the way to go for TVET programmes. However, its implementation during the pilot stages at the three levels has brought to the fore certain challenges which need to be addressed for the best form of Competency Based Training to be given. Countries such as The Republic of South Africa, The Netherlands and Japan, have all succeeded in making their education and training competency-based so there are success stories to follow.

In addition, the testimonies from industry about the performance of the products of the pilot CBT programmes are enough evidence that if a nation emphasizes on skills development through competency-based training, there will be sustainable development for industries and the nation as a whole. Therefore, every effort must be made by stakeholders to surmount these challenges through the adoption of systematic and pragmatic strategies to ensure that the CBT system is sustained.

Currently, a co researcher and I are undertaking tracer studies on all the CBT graduates to evaluate their performance on the job market now that they have completed their respective programmes of study and are in the world of work. It is hoped that the findings of this study will reiterate the importance of CBT programmes and emphasize why policy makers and other stakeholders should ensure its full implementation in TVET institutions even when donor funding ceases.

ISSN-L: 2307-3713, ISSN: 2307-3721
Vol. 2 No. 2 October 2013

REFERENCES

[1] Delker, P. V. (1990). *Basic Skills Education in Business and Industry: Factors for Success or Failure*. Contractor Report, Office of Technology Assessment, United States Congress.

[2] Foyster, J. (1990). *Getting to Grips with Competency-Based Training and Assessment.* TAFE National Centre for Research and Development: Leabrook, Australia. ERIC: ED 317849

[3] Killer, R. (2000). *Outcomes-based education: Principles and possibilities*. http://drjj.uitm.edu.my/DRJJ/CONFERENCE/UPSI/OBEKillen.pdf

[4] Law, S. S. (2007). Vocational Technical Education and Economic development – The Singapore Experience. *ITE Paper No.9, 2007,* pp. 5.

[5] Norton, R. E. (1987). *Competency-Based Education and Training: A Humanistic and Realistic Approach to Technical and Vocational Instruction*. Paper presented at the Regional Workshop on Technical/Vocational Teacher Training in Chiba City, Japan. ERIC: ED 279910.

[6] COTVET (2009). Report of the Technical Committee on the Harmonisation of Competency-Based Training (CBT) in Ghana. Ghana: COTVET

[7] Watson, A. (1990). *Competency-Based Vocational Education and Self-Paced Learning*. Monograph Series, Technology University: Sydney, Australia. ERIC: ED 324443