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COMPETENCY-BASED CURRICULUM: A FRAMEWORK FOR BRIDGING THE GAP IN TEACHING, ASSESSMENT AND THE WORLD OF WORK

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ABSTRACT: *In this era of creative and flexible learning, most vocational education and training (VET) in developing countries still adopt a passive approach to learning where students' success in examination is based on their ability to reproduce a credible portion of their notes from memory. Although the curricula and teaching methods have remained largely unchanged in developing countries over the years, employers are increasingly demanding technical competencies, analytical thinking, communication and entrepreneurial skills. Essentially, the study seeks to find out how curriculum development processes of CBT provides framework for aligning teaching and learning processes to equip trainees with requisite skills and competencies to perform in the world of work. The study examines relevant literature and policy papers from several databases together with key stakeholder consultations to obtain insights into CBT curriculum development processes, underlying assumptions, philosophies, linkages with Bloom taxonomy of educational objectives, assessment practices and outcomes and their eventual effects on the achievement of relevant skills and competencies required to perform professional tasks. The study shows that although mastery of a job-specific task is important, it does not ensure a competent employee particularly in the context of rapid pace of technological change and high labour mobility. Moreover, when outcomes of learning are tied to descriptions of work, or specific workplace activity, it emphasises tradition and limits transfer of skills and labour mobility, leaving graduates largely for routine and restricted tasks which may not guarantee employability (Nuffield Review, 2008). Prospective employees need to acquire a broader range of soft skills, professional competencies and attitudes to continually adapt and transfer skills and knowledge in different contexts. It is imperative for industry to engage in innovative forms of collaboration to achieve industry–demand driven form of training and smooth transition of students from school to work. Feedback from assessment must focus on task-oriented information and corrective advice to build students' self-esteem to self-regulate their learning towards the achievement of learning goals.*

KEYWORDS: Competency-Based, Assessment, Workplace, Curriculum, Skills.

INTRODUCTION

Ever increasing technology and demanding forces of globalization have introduced new discourses into curriculum development to bridge the link between curriculum with teaching, assessment and the world of work. In order to sustain in the knowledge-based economy and demand of the job market, requires the development and application of skill standards derived from the curricula of competency-based training (CBT). In this era of creative and flexible learning, most vocational education and training (VET) in developing countries still adopt a passive approach to learning where students' success in examination is based on their ability to reproduce a credible portion of their notes from memory.

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Although the curricula and teaching methods have remained largely unchanged in developing countries over the years, employers are increasingly demanding analytical thinking, communication and entrepreneurial skills (World Development Report, 2007). Both technical and core competencies have become increasingly valuable in the rapidly changing labour market that requires employees to adapt to new development in technology and working operations. Against this background, it is crucial for developing nations to adopt a more innovative view of learning that emphasizes active intellectual engagement, participation and discovery, rather than passive absorption and reproduction of facts. This reform requires re-design, review and implementation of new curricula and academic programmes that would transform the teaching and learning process. Effective reform or innovation in VET in developing countries also requires high-level support from educators, industry, government, prospective students and other relevant stakeholders. Such innovation must be customized to fit the nation's stage of development, political system, social structure, economic capacities, history and cultural system (OECD, 2004). Thus, CBT is one major teaching and learning approach that is believed to have a strong potential to increase skill levels, reduce unemployment rate, increase productivity and to achieve international competitiveness (Smith & Blake, 2005). It also requires development of competencies for each discipline and subsequent of means of measurement and performance of assessment. Thus, CBT curriculum has become necessary because of the increasing number of students passing out from institutions of higher education are without the requisite skills to work in the real world environment.

Concept of Competence

The term 'competence' and 'competency' are confused in the literature and defined from several viewpoints from different researchers. Most of these definitions are centred on "descriptions of work tasks" ie; what a person has to do in a job and "description of behaviour" i.e; how a person does their job (Burke, 1990). For these descriptions, some authors view competence(s) as 'ability based on work task' and competency(ies) as ability based on behaviour (Whiddett and Hollyforde, 2003). Further, Armstrong (2005) cited in Barman & Konwar (2011) also argues that while competency is a person-related concept, competence is a work-related concept. Supporting the argument, Kouwenhoven (2003) said that 'Competency' is the capability to apply an integrated combination of knowledge, skills and attitudes to perform a task in a given context whilst competence connotes the capacity to accomplish 'up to standard' the key occupational tasks that characterise a profession. Simply put, competences are usually role or job-specific while competencies can cover a wide range of different jobs ((Whiddett & Hollyforde, 2003). It can deduced from the foregoing that competency defines the necessary knowledge, skills, experience and attributes to carry out specific function effectively whilst competence connotes the capability to effectively perform a given task at both individual and organisational levels using required skills, traits, characteristics and behaviours.

In recent times, the economy of every nation needs adaptable and flexible workers, supervisor, trainers, bureaucrats and managers. Therefore, the need for routine, technical task skills is declining and that economic aims of every nations are becoming more strategically focused with holistic work approach. Many progressive employers are recognising that the narrow specific approaches to job training are far from adequate to meet their future strategic needs. Competence therefore should be described in general terms as being able to perform whole work roles rather than just specific skills and tasks to the standards expected in employment in

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real working environments (Barman & Konwar, 2011). It must be emphasized that acquiring and developing competences is more than learning a set of skills (Kouwenhoven, 2009). Generally, the term Competency-based education (CBE) describes the acquisition and development of competences while 'training' as in Competency-based training (CBT) is more concerned with the mastering of specific knowledge and skills.

In this study however, competence and competency are used interchangeably in a broader sense to mean the ability to use required knowledge, skills and attitude to perform a task in a given context.

Characteristics underpinning the curriculum development of Competency-Based Education

On the basis of the foregoing views about the concepts of competence, the following characteristics are said to underpin the development of competence-based education (CBE) curriculum (Kouwenhoven, 2003).

- CBE is oriented to the professional practice. This means that future occupational practice of the student must be the pivot around which the curriculum should evolve.
- CBE is learner-centred and the learning process is central. Therefore, learning approach must involve individualized materials, flexible learning time and continuous feedback to the learner (Guthrie, 2009; Hattie, 2009)
- CBE is based on constructivist approach and that the individual must be actively involved in the acquisition of knowledge and skills.
- In CBE the teacher's role is that of a 'cognitive guide' that encourages students to engage in active inquiry in the learning activities
- CBE provides learning environments that promote the development of competencies
- CBE includes the development of generic competencies which are integrated in the curriculum to stimulate transfer in a variety of settings.
- Assessment of CBE focuses on competencies and includes both formative and summative.
- CBE curriculum development is based on the elaboration of profiles and identification of competencies required in the performance of a professional task.

The characteristics of CBE require new teaching and learning roles of both teachers and students in the instructional processes. As teachers shift away from the traditional 'chalk to talk' to become a facilitator, an adviser or coach (Mitchel, 2003), learners need to be active and exploratory in the training programmes (Swailes & Roodhouse, 2004; Creamers et al, 2005).

Various literature and policy documents also describe the characteristics of CBT as (a) oriented to the professional practice (b) curriculum development is based on the elaboration of profiles and identification of competencies (c) modular format (c) focus on outcome and not input or process focused (d) industry involved (e) flexibly delivered, involving self-paced approaches (f) performance oriented (g) assessment based on criterion-referenced rather than norm-

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referenced and allowing for recognition of prior learning (Smith & Keating, 1997; NCVER, 2009).

Competence Based Training

Competence-based training(CBT) has been defined as an approach to training that places emphasis on what a person can actually do as a result of training (ACCI, 1992). NCVER (2008) also defines CBT as training which develops the skills, knowledge, and attitudes required to achieve competency standards. The main idea behind the introduction of CBT in the VET of many countries is to move away from the time-served approach of training to one based on the mastery of competency standards. Secondly, it is a shift from the supply or producer/educator-driven approach to and industry-led training system (Misko & Robbinson, 2000). Other reason is that training activities in the most VET systems do not match with the skill needs of the industry. It is believed that countries that invest more in high-level skills tend to increase productivity; intermediate-level skills also address unemployment, while lower-levels skills reduce social inequities and vices in an economy (Keating, 2008). As a result, both governments and industry have attached importance to the VET system to provide all levels of skills as a means to reduce unemployment rate, increase productivity and achieve international competitiveness.

The pressure for change in teaching and learning in the vocational and educational training (VET) systems has become even more necessary due to reasons such as global economics, industry restructuring and policy initiatives from the government (OECD, 2000; Curtain, 2004). Though socio-political factors may account for the introduction of CBT in some countries, the demand for well-educated and innovative workforce at all occupational levels has been a major reason for CBT reforms in the VET systems of many countries**.**

Differences between CBT and traditional training methods

The methods of CBT are regarded as suitable alternative to the traditional forms of training for several reasons. In CBT, training is divided into learnable units or elements of competence targeted towards specific skill development. Traditional training is often generic, and not so much focused on bridging specific skill gaps to improve job performance. Furthermore, CBT training is flexible, not time-based and learning is student-centred, where learners progress through modules individually or in small groups at their own pace while the role of the instructor is that of a coach, mentor or facilitator (Hobart & Lundberg, 1995 cited in Smith & Lowrie, 1998, Eggink & Werf, 2006). In the traditional programmes, training is centred on subject contents, and the instruction is time-based and teacher-centred, where the role of the instructor is typically restricted to that of the expert, while class size is large and the teaching style is lecture-oriented.

CBT is organized in modules, performance-based, practically-oriented, and theory is taught mainly as underpinning knowledge usually at a workshop and workplace or in a simulated environment. Many traditional programmes merely focus on the acquisition of large amounts of knowledge, with a small emphasis on structured practical activities often performed simultaneously by all class members within a classroom setting. Assessment in the traditional training is primarily based on performance of written test and practical assignment and achievement is compared with other students taking the course (norm-referenced). In CBT, assessment is geared towards clearly specified criteria or standards in the industry and the

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outcome of the training is measured against a single performance criterion (criterion-referenced) which can either be demonstrated as competent (pass) or not yet competent (fail).

In the traditional training, there is no structured system of recognition of prior learning (RPL) and that credit for prior learning is open to interpretation. In CBT however, trainees who already possess special skills through previous formal training, work or life experience can receive credits for or exemption from modules which contain those specific competencies. CBT is also customized to meet the skill development needs of an organization and its employees than the traditional training that is often generic in nature. In short, CBT allows for a more precise match between education/ training and on-the-job needs (Cremers, Eggink & Hoetink, 2005).

Changing trends in the labour market demands

The world of work has changed significantly since the 1980's. Commerce and industry, public and private sectors are all operating in the world of continuous change driven by the information revolution, as well as the growing need to be responsive to stakeholders and the increased pressure from global competitors. It is reported that within the next decade or so, African countries will be at risk because most factory jobs in USA would be taken over by robots which are cheaper to operate than hire workers (Daily Graphic, Tuesday, March, 20, 2018). Falling automation costs are predicted to cause job losses with serious implications on most migrant workers from African countries to most developed economies in Europe and America. This trend however, presents important opportunities for African countries by improving its labour productivity in manufacturing and technological sectors. This can be achieved by increasing investment in technical skills, promoting technological innovation, setting up import substitution industries to convert our raw materials to finished goods, take advantage of diverse opportunities in non-traditional areas or jobs formerly done by non-graduates, small and medium scale enterprises, freelance work (especially in art and design) and self-employment (Harvey et al, 2008). Although new technologies eliminate some jobs at the workplace by automation, they also create certain jobs that cannot be performed by machines but through human beings. They include interactive attributes-communication skills, interpersonal skills and team working, personal attributes - intellect, problem solving, analytic, critical and reflective, willingness to learn and continue learning, flexibility, adaptability and risk-taking. Essential to all occupations, these competencies are embedded in all study programmes to equip individuals to function effectively in a wide range of social settings, professions and workplaces as well as pre-requisites for self-employment and life-long learning

Problem statement

In Ghana, one of the major challenges confronting the tertiary education system is the relevance of training programmes to the changing needs of students, industry and society. In a study of the labour market about the performance of tertiary graduates in Ghana, Boateng and Ofori-Sarpong (2002) observed from the employers that most of the graduates lacked basic skills to complete simple routine assignment. As a result, some employers take prospective employees through longer orientation and probation schemes after which the best performing candidates are selected.

Like other professional institutions, the Polytechnics now technical universities in Ghana was established to provide career–focused education, skill training and opportunities for conducting practical research in collaboration with business and industry. However, a report by the

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Japanese International Cooperation Agency (JICA, 2001) on the Technical and Vocational Education and Training (TVET) in Ghana revealed that "the curricula of the HND in the Polytechnics are more theory-oriented with theory-based form of assessment" (p. 49). A further report by the Technical Committee on Polytechnic Education ((Technical Report Series, 2001) also showed that NABPTEX, which is the main the Examining Body for the Polytechnic Education in Ghana, lacked the appropriate schemes for the assessment of skills, competencies, aptitudes and practical training in HND examinations. This means that the HND awards by NABPTEX are based on theory.

A tracer study on the performance of polytechnic graduates in the Ghanaian labour market by Boahin, Kamphorst and Hofman (2010) revealed skills deficiencies in some specific study programmes. For instance, in the Agricultural sector, inadequate skills in numeracy accounted for (43%), IT professional skills (42%) and general IT user skills were 40%.These inadequacies have resulted into migration of graduates, increasing rate of unemployment and graduates undertaking further training after completing their study programmes. Almost half of the graduates (43.8%) undertake professional training to either improve their job skills and knowledge or learn new skills to overcome deficiencies in their skill training. Among other reasons, changes in global economy and the desire of firms and industry to reduce cost of production and increase their profit margins have led to continuous refinement of their production processes, internal systems and marketing strategies which do not align with the training system of the polytechnics. As a result, there is continuous demand for skilled workers due to what is commonly referred by economist as 'technological bias' which states that at the same time that new technologies eliminate some jobs through automation, they create new higher skilled employment and up-skill existing jobs (Brown et al, 2008). The existence of supply-demand gaps does not only results into graduate unemployment but also affects the efficient use of public investment and resources in the polytechnic education.

Innovation in the training system in the technical universities or polytechnics is needed to bring out new teaching methods that will lead to better outcomes and performance of learners. Such outcomes include relevant knowledge, skills and competencies that are marketable either for the organization and their staffing demands, or for individuals to secure greater employability in the wider world of work.

Research question

The intent of this research is to find out how CBT curriculum provides framework for aligning teaching and learning processes with assessment and the workplace. The main research question is to what extent does the curriculum development processes in CBT equip trainees with requisite skills and competencies to perform in the world of work?

Significance of the study

The pressure for change in teaching and learning in the vocational and educational training (VET) systems has become even more necessary due to reasons such as growing unemployment rate, global economics, industry restructuring and policy initiatives from the government (OECD, 2000; Curtain, 2004). Mismatch of training programmes in the technical universities and labour market needs has been a topical issue in the political platforms by government, students, parents, and relevant stakeholders with its resultants rates of graduate unemployment problem developing nations. The study is therefore significant to the TVET sector, government, and trainees to produce highly skilled personnel for national development

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in the field of manufacturing, commerce, science, technology and engineering applied social sciences. Reviewing training curricula to become practical-oriented, strengthening linkages and engagement with industry leading to relevance of courses with technologies currently in use by firms, efficient schemes of industrial attachment, technical teachers with applied experience from industry, adequate job placements or equipping trainees with employable skills to afford graduates to set up their own firms and towards smooth transition from school to work.

METHODOLOGY

The main aim of the study was to examine how the competency-based curriculum provides framework for bridging the gap between teaching and learning process and the world of work. The basic premise of CBE is that there is a direct link between attainment of learning outcomes and teaching and learning process (Goodman et al, 2006). Burke (1990) argues that while of designing curricula begins to meet assumed needs (bottom-up) approach the development of CBT curriculum reverses the traditional approach and rather adopts the top-down or backward design/forward implementation of curriculum. In seeking to obtain clarity on these assertions, relevant literature and policy papers from several databases including Academic Search Elite, Science Direct, Educational Resources Information Centre (ERIC) and Web of Science were examined together with key stakeholder consultations to identify main issues to be investigated in the study.

Furthermore, series of Google searches were also performed using combination of specific keywords and descriptors such as 'competency-based curriculum, bridging curriculum and assessment, competency and standards, CBT development processes, standards and assessment among others revealed more recent developments, current trends, stages, processes and linkages among curriculum, teaching and learning and assessment materials on the topic.

In evaluating key questions about the link between CBT curriculum, teaching and learning processes and the world of work, a more deeper exploration was conducted on CBT curriculum development processes, linkages between the curriculum and teaching and learning process and CBE design tools with Bloom taxonomy of educational objectives. Using the content analysis, relevant scholarly literature and policy documents were thoroughly examined to obtain insights into development processes of CBT curriculum, the underlying assumptions, philosophies, assessment practices and outcomes and their eventual effects on the achievement of relevant skills and competencies required to perform professional tasks. The outcome of the review was used to generate conclusions to provide framework for developing CBT curricula towards labor market needs.

Curriculum development process

One of the reasons for the importance of detailed prescriptive syllabuses in the VET sector is its public and accountable nature to its users of the system, namely students, professional associations, employers, higher education institutes and thus, a very close nexus between training and work. Unlike traditional curriculum with a high theory component, CBT courses need to be reviewed at least every five years due to rapidly changing industrial settings and workplace practices. In this wise, developing or reviewing an existing programme of study

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requires questions such as (a) how has an industry or occupation changed over the last five years? (b) how is it likely to change over the next five years (c) what training is required for whom and by whom? Answers to these questions involve the following procedures:

- Establishment of need and demand
- Identification of workplace competencies
- Syllabus writing
- Accreditation
- Implementation
- Review

Establishing the need and demand is to do with the allocation of limited public resources in relation to programmes. Assessment of needs and demands requires information gathering. It involves consultation with relevant stakeholders, employer organisations, Labour unions, government agencies with a view to seeking information about short-term and long-term needs, alternative avenues, and resources required among others.

The next stage is to identify and document workplace competencies or tasks, duties or performances that a worker actually does to perform his/her job in specific industry or occupation and for which s/he is hired and paid for. Identifying specific occupational titles leads to obtaining specific job titles (job profiling), broad categories of job tasks, duties, blocks or major units (job descriptions). Analysing the tasks in each job provides skills, knowledge and competencies upon which training programme is built. The processes involve (a) observing workers on the job for a length of time and record the tasks they actually perform, (b) meeting with a group of workers from an occupation and together identify task performed, usually referred to as DACUM (developing a curriculum) or (c) submitting a tentative task listing to workers in an occupation for validation. Each learning task contains a lecture, practical training, self-learning /study, a personal development plan and a complete assessment procedure ranging from simple to complex tasks for each job description. After an expert review, the final document is accredited as a curriculum blue-print or set of competency standards for an occupation, which also forms the basis for the training delivery and assessment procedures (Eggink and Werf, 2006, CBT Assessment in Ghana, 2007).

The focus on specific occupation or jobs is that trainees will be recruited, hired, and paid for and that should be the basis in which programmes should be organized. Offering training in several specific occupational titles within a broad programme area offers an advantage of training students for actual jobs that exist in the world of work. Students who wish to master only tasks required for specific occupation are not forced to struggle through the entire programme or areas they may be ill-prepared or uninterested. However, students must be encouraged to remain enrolled in the training programme as long as they can master the skills needed for all the specific job titles for which training is being offered.

After identifying specific job titles, each one of the job needs to be fully described to paint a clear picture of the occupation as it exists in the world of work. A typical job description provides the major activities in the factory or business performed by the worker in the occupation. They may include general working conditions, equipment or infrastructure used,

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special abilities, aptitudes, traits needed to work successfully in the occupation, level of training required, etc. Describing the job is concerned with only the job in the factory/business and not how the occupation is taught. A comprehensive, accurate and up-to-date job description is able to address the skills students will need to successfully function on the job. Also included are essential student pre-requisites for entry into the training programme. These are characteristics, traits, or ability that students should possess to be successful on the job.

Task listing describes the desired student outcomes or worthy accomplishments that result in some products or service of value for which someone is willing to pay. These tasks describe the desired students outcomes, procedure or activity. Listing the tasks are the procedures or activities that provide basic building blocks for effective planning about how outcomes are identified, stated, taught and learnt in the training programme. Identifying the tasks actually performed by workers on the job is essential to assist trainees acquiring the tasks that will make them successful workers. These tasks listing in the curriculum development process are translated into training syllabus. Each task has a terminal performance objective(TPO) which is a brief statement describing exactly what a trainee must do to show the task has been mastered and it describes the situation(condition),under which performance must be demonstrated, exactly what performance is required and how well the trainee must perform to reach mastery (criteria) (Blank, 1982). A well-written TPO helps trainers to develop appropriate learning/instructional materials, media, activities and related learning resources to master required competencies. It also assists in task sequencing to ensure smooth transition from one task to another especially where one task is an essential perquisite for learning another.

Instructional processes

New roles of teachers in CBT

The introduction of CBT demands new roles and pedagogical skills in the teaching profession. Teachers in CBT need to change their traditional role as an information provider to become an expert, coach, assessor, educational developer, researcher and manager (Seezink, 2009, Wesselink, 2010). Beyond knowledge in their subject matter, teachers need to be abreast with current development in businesses, organization and society, initiate regular interaction and feedback dialogue with students, diagnose and monitor students' learning, cooperate with relevant stakeholders and be abreast with the rapidly changing knowledge-based economy. More significantly, the instructional processes in CBT is based on constructivist learning principles that allow students to be actively involved in the learning process within an authentic learning conditions (Loyens and Gijbels, 2008).

Relationships between CBT and Bloom's taxonomy

Instructional units in CBT are designed to maximize trainee's attainment of desired outcomes. For these reasons other researchers believe that Blooms taxonomy of educational objectives are valuable tools for implementing CBT for two main reasons. First, it describes distinct levels of learning in concrete, observable, measurable and behavioural terms by linking instructions directly to desired outcomes through effective assessment tools. In addition, the taxonomy sequences the teaching and learning process from relatively simple to more complex outcomes that are dependent on the success of earlier stages. Learning from lower levels to higher skills helps trainees to develop critical thinking skills by attaining mastery of higher order cognitive

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and affective learning outcomes (Goodman, Henderson & Stenzel, 2006). Higher order thinking skills are acquired through modeling, demonstration, practice and critique

As a self-paced learning, CBT instruction is delivered by the use of learning packages that provide wide variety of learning resources and activities such as books, media, or hands-on practice that are appropriate for the task being learnt. A learning package is a well-designed and carefully developed learning aid that gives students detailed instructions to guide them through the learning process and provides them with appropriate learning materials when and how long needed, which results in each student having as much time on a task as needed to reach mastery. Notable among the approaches are the *student direction sheet, learning guide* and *self-contained module.* Whiles the *student direction sheet* is a single sheet with list of student directions for accomplishing a learning task the *learning guide* is self-instructional which involves the use of a wide variety of commercially produced and instructor–developed materials, media (book, slides, instruction sheet, etc) and references as well as hands-on practice including self-check and test. A *self-contained module* provides detailed instruction in performing the task, pictures, diagrams, self-tests, pretests and post tests. A module focuses on identifiable workplace activity which may require the use of knowledge, skills and attitudes. In a carpentry course that contain units such as calculations, drawings, use of tools, occupational health and safety and types of timber, a modular based program can be organised into units like constructing simple joins, building cupboards, finishes, and fitting out.

The final review of the curriculum document is course accreditation. This process is usually organised by an outside body, usually employers, employee bodies, government authorities or experts with broad training requirement from the industry. The review may consist of several committees who may consider the document alone or may include site visits, consultations with trainers or professional bodies. The outcome of the accreditation process may be to accredit a course for a specified period of time, recommend accreditation dependent on amendments or refuse accreditation.

Assessment

The only way to ensure that students have acquired the tasks is to develop appropriate performance task to assess the mastery of each task. As CBT is industry driven, assessment has to do with demonstrable outcomes and proven competence which means that the assessment instruments need to provide that proof. In the context of CBT, assessment is the process of judging competence against prescribed standards of performance. CBE assessment process is both formative and summative. Whiles formative assessment improves the quality of instruction and student learning, summative serves as a tool for measuring the attainment of outcomes. As argued by Blank (1982), assessment drives the process of learning; that is learning begins with assessment (diagnosing entry-level competence or prior learning), guided through the training by assessment (formative with immediate feedback and intervention) and is measured by assessment (summative).

Modularisation of courses is believed to expose students to different academic traditions of pedagogy, experiences and assessment practices which promote the development of professional competencies for successful employment (Hennessy et al, 2010). Assessment in CBT is linked with industry because it must be conducted in the work environment or in simulated conditions and learners' performances must be measured against the industry competency standards. Crebert, et al (2004) found that industry-based learning, internship and practicum improved the generic skills of students in different disciplines. Furthermore adequate

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practice and feedback are essential in modular courses to assist students to progress towards their desired goals.

Whereas school-based assessment serves a variety of roles such as providing feedback to students and educators, grading or ranking, predicting success in future courses and employment, CBT assessment primarily focuses diagnosing entry-level competence of new trainees, providing immediate feedback to students during the training process, judging whether a student's performance reaches mastery of each task and evaluating effectiveness of training materials (Blank. This requires creative ways of allowing students to demonstrate their competence by methods such as self-assessment, peer assessment, team teaching, on-the job, off-the-job, during the training, at the end of training, Recognition of Prior Learning (RPL) or Recognition of Current Competencies (RCC) and the integration of learning and assessment( ). Assessment methods are means by which we obtain evidence at the workplace, simulation or artificial environment, or questioning techniques in a form of performance or knowledge. Outcome of evaluation of student assessment requires 'competent' 'not yet competent' with regard to each competency or learning. It uses criterion-referencing that measures how each trainee scores compared to a pre-determined standard or criterion level.

Evidence collected may be direct, such as observation of workplace performance, indirect such as assessing qualities of final product, review of previous work or supplementary such as references from employers or reports from supervisors. Each assessment contains general statement that list the range of options such as observation, written examination or role-play while others will prescribe a particular activity, the conditions under which will constitute satisfactory performance.

DISCUSSION

Conceptual differences and implementation issues

The introduction of CBT in the VET system of many countries has been controversial as many authors and researchers have different views about this learning innovation. Chief among these criticisms are lack of consensus on conceptual definitions for competence, training is too behaviouristic and narrowly-focused on skills, inadequate resources and low motivation among students to learn on their own (Mulder, 2004). These factors have resulted to different kinds of CBT curricular, models, principles and characteristics, learning processes, assessment practices and operationalisation of the concepts (Wesselink et al, 2010, Boahin & Hofman, 2012).

Although raising technical skills of workforce is important, it is not adequate in the context of rapid pace of technological change and high labour mobility. In other words, mastery of a job-specific task does not ensure a competent employee. Moreover, when outcomes of learning are tied to descriptions of work, or specific workplace activity, it emphasises tradition and limits transfer of skills and labour, innovative knowledge and new forms of practice, leaving graduates largely for routine and restricted tasks which may not guarantee employability (Nuffield Review, 2008). The rapid pace technological changes and high labour mobility requires prospective employees need to acquire a broader range of soft skills, professional competencies and attitudes to continually adapt and transfer skills and knowledge in different contexts.

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Industry involvement

The world of work keeps changing due to changes in science and technology which means that industry's role in CBT implementation demands continual adaptation. It is imperative for industry to engage in innovative forms of collaboration to improve linkages between VET systems and industry. Most industries in Ghana tend to be medium and small scale, making it difficult to offer adequate internship placements for students. Therefore, developing the workplace, enterprise or factories as a learning sites provides opportunities for both students and lecturers to engage in real-life practical training and exercise their skills in a meaningful and productive jobs through models of collaboration such as 'training by order' or combined production units. Thus, training institutions might be run by relevant companies like mining, railways, agricultural cooperatives, architecture and construction firms, commerce entities, garment factories, tourism agencies, or electronic industries. While the polytechnic institutions benefit from equipment and learning facilities, specialised expertise and workplace training, industry gains through industry–demand driven form of training, smooth transition of students from school to work, lifelong learning among workers, advancements in technology and increased production.

Assessment and grading

In a fast changing, technologically oriented world, specifying a single criterion in assessments restricts assessors' judgment and limits the successful and effective participation of students in a wider range of job settings. As global economics change, so do workplace operations which imply that assessment criteria must be broadened to cover not only the current job-based competencies but also future skill needs and innovations. Outcomes and interpretations of the assessment thus must involve short, written comments and corrective advice to address how and what students understand and misunderstand, along with directions and cues to improve processes that can lead to the achievement of learning goals (Hattie & Timperley, 2007). Competency-based training is about skill performance, which implies that teachers' feedback on assessment tasks must provide information about the tasks, processes or strategies needed to understand the tasks, as well as commitment to directing, monitoring and regulating activities toward the completion of the task. Therefore, the emphasis on grades or marks in CBT must be reduced because they contain little task-related information or commitment to learning goals (Hattie and Timperley, 2007). In this regard, feedback from assessment must focus on task-oriented information and corrective advice to build students' self-esteem to self-regulate their learning towards the achievement of learning goals. The assessors' roles in CBT do not only involve 'assessment of learning' (i.e., summative assessment) but also 'assessment for learning'(i.e., formative assessment) to evaluate, diagnose and provide task-oriented feedback and strategies to encourage students to self-regulate their learning and thus close the gap between intent and effect (Hattie and Timperly,2007).

In conclusion, curriculum design begins with clearly-defined set of outcomes the student will need to be well-prepared to function in existing professions and emerging challenges in the workplaces. The instructional design (formulation of objectives, teaching and learning strategies and assessment In the context of the changing labour market, the potential of CBT can be realised only when training programmes move away from 'knowledge and skills for performing at the workplace' towards 'knowledge and skills for performing beyond the workplace' (Kodiappan, 2011). Such a broader perspective of CBT is believed to equip students to acquire the competencies necessary to be employable and continue to develop their competencies to become adaptable labour force in a contemporary workplace (Wesselink & Wals 2011)

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