Evaluating the Design of the Ethiopian TVET System in Light of Theoretical Principles of Competence-Based Education and Training (CBET)

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Abstract
International consensus on policy and research agendas and the need to increase the quality of education and training has heightened the importance of the competence-based education and training (CBET) approach. Adopting European experience (mainly the German model), Ethiopia has embraced the outcome-based approach in its TVET reform since 2008. Drawing on (integrating) the theoretical background on CBET and TVET, this research aimed to evaluate the design of the Ethiopian TVET system to identify the interventions and assumptions that underlie the design of the system and to evaluate it in light of the theoretical principles of CBET. Based on documents analysis, this research has identified various government interventions and assumptions under four elements: overarching/regulatory framework (qualifications framework, OS, management and financing, accreditation of TVET institutions/programs); curriculum design; organization of instruction-learning; and, external assessment and certification of competence. Based on evaluation of the design of the TVET system in light of certain theoretical principles of CBET, this study concludes that the Ethiopian TVET system is (on paper) outcome-based. Whether the interventions and assumptions underlying the design of the TVET system are actually being practiced and are delivering the promised results is yet to be evaluated through upcoming research. In this respect, this research paves the way for such subsequent studies. This study contributes to the literature through its innovative approach to the evaluation of a national TVET system by adapting the theoretical principles of CBET.

1. Introduction

Before the 1990s, the focus in global development agenda and in national policies and plans has been on creating more access to education and training. Since 1990, however, the issue of improving the quality of education and training has been increasingly recognized globally as an indispensable means for achieving sustainable development and poverty alleviation (King, 2009, Tarabini, 2010, Wallenborn, 2009). A landmark event was the *World Education Forum* (held in 2000) that recognized low education quality as a major challenge to the attainment of the broader goal of Education for All (EFA). The *Dakar Framework for Action,* which is a key deliberation of this forum, promotes learning outcomes and development of useful work-related skills as a means to ensure ongoing (life-long) learning (UNESCO, 2000). In this regard, different empirical research studies that examined the link between education quality and socio-economic factors have reported that schooling quality (rather than mere school attainment) is a significant determinant of the levels of individual earnings, distribution of income, and economic growth (Hanushek and Wößmann, 2007, Barro, 2001, Hanushek and Kimko, 2000, Hanushek and Woessmann, 2009).

Another global shift in thinking that emerged after the 1990s is that general primary and secondary education has been regarded as being inadequate in equipping the youth with marketable skills. As a result, due emphasis has been increasingly given to skills development through Technical and Vocational Education and Training (TVET). In this regard, the *World Education Forum,* which was held in April 2000 in Dakar (Senegal), reaffirmed the vision of the World Declaration on Education by developing the Dakar Framework as a collective commitment to action and has envisioned a role for TVET (UNESCO, 2000). Consequently, skills development through TVET attracted a renewed interest both at national and international levels.

In the developed regions such as Europe, Australia, and United States, the growing recognition to quality of education and training has led to the adoption and adaptation of the Outcome-Based Education (OBE), which is also known as Competence-Based Education and Training (CBET) approach. According to Mulder (2004), CBET has evolved in the developed world due to recognition of the need for making education and training demand-driven by linking the supply side to the demand side (the world of work). This underscores the need for redirection of the goal of education and training towards development of capabilities or competence rather than issuance of diplomas in certain qualifications or disciplines (i.e., educational attainment). Hence, CBET involves the reorganization of curriculum, instruction/delivery, and assessment based on an articulation of learning outcomes or competencies. Consequently, CBET has become the prominent approach in the United States, Australia and Europe (Biemans et al., 2004, Smith, 2010, Velde, 1999). Drawing on the various literature, Sturing, Biemans, Mulder, & De Bruijn (2011) also state that the concept of competence has been the driving force towards curriculum reforms in many Asian, South African and Middle Eastern countries.

The literature indicates that there is no universally accepted model for CBET. For example, the German or European model is different from the British model. The key difference in these models lies in the conception of competence. In their comparative study of competence in the European Qualifications Framework and VET systems, Brockmann, Clarke, & Winch (2009) state that in the German or European (including the French and Dutch) conception, competence refers to "the ability or capacity of the individual to act within the labour process of a defined *Beruf* or occupation" (p. 789). Here the focus is on the individual's capability within a broadly defined occupational field. Furthermore, the individual is seen not only as a performer but also as an active agent who reflects upon his or her experience in the construction of knowledge. In contrast, the British conception of competence is described as being based not on occupational capacities but on a person's ability to perform specific tasks to meet predefined standards (Brockmann et al., 2009).

This divergence in CBET models has had its influence on TVET systems in Sub-Saharan Africa (SSA). In this respect, Atchoarena and Delluc (as cited in Oketch et al., 2009) state that TVET systems in the Francophone countries follow the French model while TVET systems in the Anglophone countries are modeled after the British system. An exceptional case here is the Ethiopian case as the country has had the leverage to adopt or adapt best international experiences (mainly from Europe) while designing its TVET system (Kingombe, 2011).

Oketch (2007) analyzed the trends as well as the issues in TVET in Africa and concluded that demand-driven TVET is important for Africa's development and stressed the need for transforming it through reforms. Similarly, a World Bank policy paper on TVET (Adams et al., 1992, p. 129) concluded that when supported by sound macroeconomic policies that are conducive to job creation and employment for TVET graduates, a demand-driven training (i.e., outcome-based TVET) can generate good returns. UNESCO (2001) also argues that demand-driven TVET prepares people for occupational fields and helps them participate in the world of work effectively. Doing so, it facilitates economic growth and poverty alleviation. However, studies that promote TVET in Africa have not systematically analyzed the design, implementation and effectiveness of TVET on empirical grounds. Therefore, the design, implementation and effectiveness of competence-based TVET in the context of Sub-Saharan Africa, is yet to be investigated.

By taking the Ethiopian TVET system as a case study, this research aims at evaluating the design of the TVET system. As part of the international move towards the CBET approach, the Ethiopian government issued a national TVET strategy (MoE, 2008) in 2008, which envisages putting in place an outcome-based or competence-based TVET system to enhance (among other objectives) the quality of TVET. The Ethiopian case would be an interesting case due to some key considerations. On the one hand, the national and TVET context in Ethiopia is similar to the context in many of the low-income countries of SSA. Therefore, the findings of this study could possibly be applicable to other low-income countries of SSA. On the other hand, unlike many of the countries of SSA whose TVET systems have been adopted from the TVET systems of their former colonizers, Ethiopia has had the leverage to adopt or adapt best international experiences. The Ethiopian TVET system is designed by adapting/adopting the German or European model and by incorporating good practices from elsewhere in the world.

As discussed in Rossi et al. (2004), an assessment of the design of a program or a system requires either describing the program's theory (when it is clearly spelled out in program documents) or eliciting the theory. Such an approach is known as theory-driven evaluation. Creemers et al (2010) suggest that theory-driven evaluation could be used in evaluation research studies in education. Therefore, this research aims to carry out a theory-driven evaluation of the design of TVET systems the Ethiopian context in light of the theoretical principles of CBET. By doing so, this research paves the way for process and outcome evaluations. To achieve this objective, this paper also describes or elicits the theory/assumptions and the interventions that underlie the design of the TVET system. Specifically, this research answers the following two research questions:

   i)   What are the assumptions/theories and interventions underlying the design of the Ethiopian TVET system?
   ii) Are the envisaged assumptions and interventions in conformity with the theoretical principles of CBET (i.e., is it outcome-based)?

2. Theoretical and Conceptual Framework
Concepts: Competence, Learning Outcomes and CBET

Learning and conformance to competence requirements are central to the conceptualization of quality (Carmichael et al., 2001) and to the understanding CBET systems. Nevertheless, there is no universal definition for the concept of competence. In their exploratory review of the definitions and usage of competence, Le Deist and Winterton (2005) identified three approaches to the definition of competence: the Behavioural Approach (the US tradition), which views the individual's characteristics/behavior as the driver of superior performance; the functional approach (the UK tradition), which defines competence as the individual's ability in meeting standards; and, the multi-dimensional and holistic approach (i.e., an approach that emerged out of France,

Germany and Austria and is currently adopted by many other European countries). In its typology of competence, the holistic/multi-dimensional approach integrates knowledge, skills and behaviours as dimensions of competence and, hence incorporates cognitive competence, functional competence, social competence, and meta-competence. Functional competence captures skills; social competence captures the behavioural and attitudinal aspects of competence; and, meta-competence is concerned with the ability to cope with uncertainty and to deal with learning and reflection (i.e., learning how to learn).

Despite the fact that the competence typology of Le Deist and Winterton provides a comprehensive and holistic conceptualization of competence, it does not provide a single definition that captures all the dimensions. In line with the German or European conception, competence refers to "the proven and individual capacity to use know-how, skills, qualifications or knowledge in order to meet both familiar and evolving occupational situations and requirements" (Descy and Tessaring, 2002, p. 13). Similarly, the TVET glossary of MacKenzie and Polvere (2009, p. 63), which draws on conceptions from VOCED and ILO, defines competence as "the individual's demonstrated capacity to perform, i.e. the possession of knowledge, skills and personal characteristics needed to satisfy the special demands or requirements of a particular situation". These two definitions seem to capture knowledge, skills and behaviours as dimensions of competence.

In the literature, the concept of learning outcomes is highly related to the concept of competence. Citing European Parliament and Council of the EU (2008, Annex I), the European Centre for the Development of Vocational Training (CEDEFOP) states that in the European qualifications framework (EQF), the concept of learning outcomes refers to "statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined as knowledge, skills and competencies (CEDEFOP, 2010, p. 22). Similarly, the TVET glossary of MacKenzie and Polvere (2009, p. 69) defines learning outcomes as "the set of knowledge, skills and/or competencies an individual has acquired and/or is able to demonstrate after completion of a learning process".

CBET is an educational innovation that was initiated in the United States in the 1970s and that has evolved over time and received growing acceptance and some criticisms, especially at its early stage of development (Mulder, 2004). As cited in Mulder (2004, p. 6), Gerald Grant (1979) provided a definition of CBET based on his studies of the CBET movement in the United States. Similarly, William G. Spady (1994, pp. 12-13) provided a definition for Outcome-Based Education. Even though these definitions are not directly quoted in this paper due to space limitations, their implications are drawn (below).

So, what do the two definitions imply? First, CBET takes learners' competence and learning outcomes (rather than completion of study years) as the primary objective of education and training. Hence, CBET begins with an analysis of real work situations in industries (world of work) to derive desired competence or outcomes. Second, CBET involves integrating the desired competence into the components of the TVET system (i.e., curriculum, instruction, and assessment). Third, CBET requires establishing the necessary conditions and opportunities (e.g., supportive learning environments) and organizing everything around the desired competence or outcomes. A further understanding about what CBET can also be achieved by contrasting it with previous approaches such as the knowledge-based approach. Table 1 provides a summary of the contrasting discussions made in Spady (1994) and Harris et al (1995).

Table 1: Comparison of CBE/OBE/CBET with traditional approaches

CBET approaches	Traditional approaches
Curriculum, instructional technology, assessment and performance standards are built on a clearly defined framework of exit outcomes or competence (based on national standards driven from industry needs).	Not structured around clearly defined outcomes; curriculum and assessment systems are treated as ends in themselves.
Time is an alterable resource to teachers and students to the best advantage of all learners.	Time is an inflexible constraint for teachers and students' learning and success.
Standards are clearly defined, known, and "criterion-based" for all students; success is open to every student as long as they attain it.	No predetermined standards; success is comparative/competitive or depends on pre-determined quota.
Focus is on increasing students' learning and ;ultimate performance abilities (competence/capabilities)	Focus is not on what students can ultimately do against standards but on how well they did the assignments and exams given in class.
Credentials indicate that specific competences with respect to specific standards are achieved by the holder	Credentials do not indicate the level of competence achieved; simply Indicate that the holder has successfully completed a course(s).
Course design is based on consistent guidelines for didactic design of modules	Course design is not consistent; individual trainer are free to design the course in any way.

Source: Based on comparative discussions in Spady (1994, pp. 6-7) and Harris et al (1995, p. 27)

The Philosophical Basis and Elements of CBET

According to Wesselink, Biemans, Mulder, & Van den Elsen (2007), the comprehensive CBET is influenced by a psychological theory of learning known as constructivist social theory, which arose from dissatisfaction with previous theories of learning: behaviorism and cognitivism. Drawing on previous works, Fosnot and Perry (1996) state that Constructivism evolved from cognitivism and recognizes the Cognitvist concept of schema (i.e., the leaner's internal knowledge structure) that builds on prior knowledge and experience.

However, constructivism differs from cognitivism in its underlying epistemology. That is, while Cognitivism is based on objectivism (i.e., objects exist independent of the learner's mind and his/her individual mental constructions), constructivism is based on the epistemology of subjectivism. Accordingly, constructivists hold that reality is social and is constructed in the individual's mind. In other words, the learner constructs his/her own reality and interprets social reality (hence, formulates knowledge) by deploying his/her previous perception of physical and social experiences, mental structures and beliefs.

According to Fosnot and Perry (1996), there are several viewpoints that are common to variants of constructivist perspectives. One of these views is that the learner is an active constructor of new knowledge (based on current knowledge) rather than being a passive recipient of knowledge. It is argued that education and training should follow a learner-centered teaching and learning approach in which the learner has a considerable autonomy and control in carrying out learning activities (i.e., he/she is not controlled by the teacher while carrying out the activities). It is also argued that learning and assessment should take place and be integrated in realistic settings. In a research work that analyzed social constructivist perspectives in relation to teaching and learning, Palincsar (1998) also identifies another view that is common to constructivist perspectives. It is the view that knowledge is co-constructed, rather than being transmitted from one person to another, through interdependent social and individual processes.

Fosnot and Perry (1996) further discussed that constructivists (as opposed to behaviourism and cognitivism) support open-ended learning (e.g., through problem-based, experimental, situated or action learning or investigational work); facilitative curricula and teaching (i.e., not control-oriented); flexible delivery; focus on learning process rather than learning outcomes; and, subjective and performance-based assessment including portfolios or projects. In this regard, the teachers/trainers' role is more of facilitation, guidance and coaching rather than instruction while the learners take control of their learning (citing Yilmaz, 2008). In the context of TVET, situated learning (i.e., learning that is situated in actual work situations) implies that the work place has an important role as a learning site in which individual learners learn by actively participating in social groups, being coached by experts.

In his publication in which he gave answers to what he called 'frequently asked questions', Mulder (2012b) stated that a CBET system consists of four interrelated elements: curriculum, learning and instruction, organization of learning, competence assessment. He stated that the curriculum element determines 'what' of teaching and learning – what to teach and what to learn. The learning-instruction element is about how the students' learning can be supported (i.e., the role of and the relationship between the teacher and the student). In CBET, the teaching and learning should basically be learner-centered. The organization element of learning is about the practical aspect of learning. Apart from classroom-based theoretical leaning activities, CBET requires the provision of learning opportunities through projects, practical exercises, internships, site visits, guest lectures and so on.

Expected System-Level Interventions for CBET

Qualifications Framework (QF): According to Kerre and Hollander (2009), a QF is 'a quality-assured national system or structure for giving recognition to the attainment of knowledge, skills, attitudes and values in middle-level skilled occupations' (p. 2902). QFs necessitate that the design of curricula concentrates around learning outcomes/competence (Coles and Werquin, 2009). They are demanded by CBET.

Occupational or Competency Standards (OS): According to Hart (2009), standards refer to "a set of information about outcomes of learning against which learners' performance can be judged in assessment; standards can also form the end-point of learning programmes" (p. 2881). In CBET, OS is supposed to be the crucial basis in curriculum design, instruction-learning and assessment.

Modular curriculum: Stanwick (2009) states that modularization involves the breaking down of qualifications into useful sub units or modules with measurable learning outcomes to ensure the accessibility, responsiveness and flexibility of training to student and industry needs (Stanwick, 2009).

Assessment and certification system: CBET requires that the quality of the delivery of TVET programs be verified and validated through assessment. It is argued that an external system for assessment and certification of competence is necessary to enhance learning outcomes (MacKenzie and Polvere, 2009, Colardyn, 2009a). It does so by giving a direct signal and by facilitating the structuring of knowledge (Colardyn, 2009b).

Accreditation of TVET institutions/ programs: By requiring providers of education and training meet certain quality standards or hold them accountable, it is argued that an accreditation system contributes in enhancing

learning outcomes and competence. Accreditation refers to a process in which an institution or a course or training program is officially recognized and approved (MacKenzie and Polvere, 2009).

Integration of cooperative training (apprenticeship) into TVET: Fuller and Unwin (2011) view apprenticeship as a vehicle of learning from four interconnected dimensions (i.e., pedagogical, occupational, locational and social). Pedagogically, apprenticeship is viewed as "a social theory of learning involving varying forms of teaching, instruction, and feedback, leading to the development of an appropriate level of vocational knowledge, practice and expertise" (p. 262). Nielsen and Pedersen (2011) state that the growing interest in apprenticeship emanates from rapid changes in nature of production that necessitate acquiring knowledge that is local, socially distributed, flexible, changing and pragmatic. In the work of Poortman et al. (2011), apprenticeship is seen as a means for application of theoretical (cognitive) learning into practice through social interaction between the learner and his/her learning environment. Similarly, it is argued that "cooperative training can make TVET more relevant by providing world-of-work experience to trainees" (GTZ, 2006, p. 22). Nevertheless, its success requires sufficient number of apprenticeship places (Walden and Troltsch, 2011) and financial resources.

Integration of ICT into TVET: It is argued that ICT facilitates the accessibility of knowledge to all and ensure a flexible and cost-effective delivery, to link theory with practice, to facilitate assessment, and to encourage learners exercise independent (self) learning (Zarini, 2009). In their study in Flanders, Tondeur et al. (2007) pointed out that the integration of ICT into education refers not just to the development of technical ICT skills but to the integrated use of ICT in different processes of learning-teaching. In a study that included schools drawn from 26 countries, Pelgrum (2001) indicated that lack of knowledge among teachers and lack of computers are among the major impediments to the integration of ICT. According to Kotsik et al. (2009), ICT can be applied in various aspects of TVET including curriculum/program design, teaching-learning, assessment, labour market information, career education and guidance, graduate placement, virtual internship, addressing the needs of learners with special needs, research and communication, and administration (pp. 1881-1882).

Integration of vocational guidance and counseling (VGC) into TVET: It is argued that VGC "can also influence the effectiveness and efficiency of education and training provision, and thus ensure a better balance between the wishes of individuals and the necessities of the working world, and reduce the considerably high drop-out rates in study courses and training programmes" (Company, 2009, p. 2314). Gendron (2001) holds that VGC facilitates educational selection and allocation and promotes learning.

The Management and Financing of TVET: The proceeding of the international symposium (held in Addis Ababa) on implementation issues of diversified financing strategies for TVET draws lessons learnt from the symposium. Among the suggested strategies to reduce the government's burden in financing TVET include cost sharing by students combined with exemptions to poor students; establishing (moderate) fees; integrating cooperative training as a mechanism to make employers and trainees share the costs, income generation (e.g., through training and consultancy services) and cost recovery by TVET institutions, promoting private investment in TVET and provision of incentives (GTZ, 2006).

Theoretical Principles of Comprehensive CBET Systems

In his discussion of the origins and elements of competence-based education, Mulder (2004) outlined 10 theoretical principles of CBET. The literature indicates that these theoretical principles of CBET are derived from a critical review of the historical backdrop of competence-based education (Mulder, 2004) and from a consideration of the holistic and social constructivist view of learning (Wesselink et al., 2007). These principles are also empirically tested further and refined in subsequent researches. For example, Wesselink, et al. (2007) applied the principles in their study in the Netherlands and validated the usefulness of the CBET principles proposed by Mulder (2004). Wesselink, et al.(2007) concluded that the principles "have to be seen as a coherent and comprehensive set that together determine the extent to which an educational program can be characterized as competence-based" (p. 818).

Table 2: The 10 theoretical principles of CBET

	CBET Principle	Description
1	The study programme is based on core tasks, working processes and competences (the qualification profile).	During the development of the study programme, the qualification profile is at all times used and the programme is synchronized with practices and developments in the profession. Teachers are familiar with the qualification profile.
2	Complex vocational core problems are central.	Complex vocational core problems are at all times central to the study programme and are assessed in many different contexts. The complexity of the problems increases during the study programme.
3	Learning activities take place in different concrete, meaningful vocational situations.	Participants always work (both in and outside school) individually and in teams on learning activities that take place in various meaningful, concrete practice settings. A link is always made between classroom learning and learning through practical experience.
4	Knowledge, skills and attitudes (KSA) are integrated	KSA are always integrated in the learning process. KSA are assessed as an integrated whole.
5	Students are regularly assessed	Assessment takes place before, during and after the learning process and is both qualifying and focused on the competence development of students. Students determine the timing and format of assessment themselves. Assessments involve vocational practice.
6	Students are challenged to reflect on their own learning	Students are at all times challenged to reflect on their learning, the learning outcomes and the occupation
7	The study programme is structured in such a way that the students increasingly self-steer their learning.	The study programme offers at all times possibilities for self-steering. Students design their own learning process. The students' self-steering of their learning process increases during the programme. Each student is ultimately self-responsible for his/her own learning process
8	The study programme is flexible	Study programmes are flexible and planned with the coach based on the characteristics of the students.
9	The guidance is adjusted to the learning needs of the students	The teacher is a coach, mentor and expert. The teacher offers varied guidance which at all times is adjusted to the learning needs of the students. Students are stimulated to help each other
10	In the study programme attention is paid to learning, career and citizenship competences	Attention is paid at all times to learning, career and citizenship competences during the study programme. These competences are integrated in the study programme.

Source: The principles are obtained from (Sturing et al., 2011) and the description is based on review of related literature.

The 10 theoretical principles of CBET were empirically tested in subsequent studies (Wesselink et al., 2010, Sturing et al., 2011) carried out in The Netherlands. The study by Sturing et al. (2011) resulted in various semantic and content-related adjustments to Mulder's (2004) original set of CBET principles. The refined theoretical principles are, therefore, presented and prescribed in recent works (Mulder, 2012a, Mulder and Gulikers, 2011) as practical guidelines for the development of comprehensive competence-based education and training. Table 2 presents the list and descriptions of the 10 theoretical principles of CBET, which are in line with the constructivist theory of learning. While the statements of the principles are taken from the annex of the paper by Sturing, et al. (2011), the principles are also presented and prescribed in recent works (Mulder, 2012a, Mulder and Gulikers, 2011). Nevertheless, no other studies have used these theoretical principles of CBET in the context of developing countries. Even in the context of developed countries, these principles were not applied to a system-level evaluation of a TVET system that is claimed to be an outcome-based system. Therefore, with some possible minor adjustment (adaptation), these principles could be used to a system-level evaluation of the TVET system.

The Conceptual Framework
In this study, evaluation of the system design is carried out with respect to the four CBET elements, which are operationally defined in Table 3.

Table 3: Operational definition of the elements of CBET

	CBET Principle	Description
1	Overarching/ regulatory framework (qualifications framework and occupational standards)	In this study, overarching/regulatory framework constitutes qualifications framework, occupational standards, accreditation of TVET institutions/programs, and the management and financing of TVET. Following Kerre & Hollander (2009), a qualifications framework is understood in this study as 'a quality-assured national system or structure for giving recognition to the attainment of knowledge, skills, attitudes and values in middle-level skilled occupations' (p. 2902). Occupational standards refer to "a set of information about outcomes of learning against which learners' performance can be judged in assessment; standards can also form the end-point of learning programmes". In this study, occupational standards are regarded as crucial bases for curriculum design, instruction-learning and assessment.
2	Curriculum Design	Following Mulder (2012b), this element is understood as the process of determining the 'what' of teaching and learning – what to teach and what to learn.
3	Organization of instruction-learning	This element refers to the delivery of TVET curriculum or programs to trainees at TVET institution level. It integrates two of Mulder's (2012b) elements: 'learning and instruction' and 'organization of learning'. Learning and instruction refers to how the students' learning can be supported. This refers to the role of and the relationship between the teacher and the student (Mulder, 2012b). Organization of learning refers to the practical aspect of learning that constitutes various learning opportunities through projects, practical exercises, internships, site visits, gust lectures, etc (Mulder, 2012b). Furthermore, this element constitutes the integration of CT, ICT and VGC into TVET.
4	Assessment and certification:	This element refers to an external (independent) system for assessment and certification of competence as well as to internal assessments.

Source: Operationally defined by authors based on the literature

As indicated earlier, the CBET principles are originally developed for an evaluation of TVET programs at school/institution level. Evaluation of TVET system design requires adapting the principles. Table 4 provides the conceptual framework developed by adapting the 10 CBET principles.

Table 4: Adaptation of the CBE principles to evaluation of the design of the system

#	CBE Principle	Themes, measures/criteria and operational questions
1	The study programme is based on core tasks, working processes and competences (the qualification profile)	*A. Overarching/regulatory framework*: Whether the system a) takes the development of competence as the main goal of the TVET system; b) requires that qualification framework and competence standards serve as the basis for curriculum design, organization of instruction-learning, and assessment and certification.
2	Complex vocational core problems are central	*B. Modular Curriculum Design:* *i) Curriculum-standard linkage:* Does the system require that curriculum design and delivery be based on occupational standards that reflect needs of the world of work? What interventions are envisaged for this to happen?
3	The study programme is flexible	
4	In the study programme attention is paid to learning, career and citizenship competences	*ii) Program flexibility:* Do the system require adherence to the principle of flexibility at system, program and module level? What interventions are envisaged for this to happen? *iii) Life-long learning:* Does the system promote the development of career and citizenship competence and life-long learning attitude? What interventions are envisaged for this to happen?
5	Learning activities take place in different concrete, meaningful vocational situations	*C. Instruction-learning Organization* *i) Authenticity of organization of learning*: Does the system recognize that learning activities should take place in different concrete, meaningful vocational situations? What interventions are envisaged for this to happen?
6	Knowledge, skills and attitudes (K, S &A) are integrated	*ii) Integration of KSA:* Does the system recognize that learning and assessment should integrate K, S and A? What interventions are envisaged?
7	Students are challenged to reflect on their own learning	*iii) Student-teacher relationship:* Does the system treat trainees as active learners? Does it require the teacher to act as an expert and a coach? *iv) Degree of responsibility of the learner:* Does the system require the
8	The study programme is structured in such a way that the students increasingly self-steer their learning	design of curriculum in a manner that increases the magnitude of self–steering by the students/trainees especially as the level of the program increases?
9	The guidance is adjusted to the learning needs of the students	*v) Vocational guidance and counseling:* Does the system promote VGC at various stages of the learning process? What interventions are envisaged for this to happen?
10	Students are regularly Assessed	*D. Competence-based Assessment System:* Whether the system promotes competence-based assessment and vocational practice during assessment. interventions are envisaged for this to happen?

Source: The authors' operationalization of the CBET principles developed by Sturing et al. (2011, Annex A, Table 5).

3.   Methodology

This qualitative research is an evaluation research as it evaluates the design of the TVET system (by taking Ethiopia as a case study) in light of certain principles of CBET. It can also be seen as a descriptive research as it describes the assumptions and interventions that underlie the design of the TVET system of Ethiopia. The evaluation is conducted by collecting qualitative secondary data and by administering interviews to key informants from the FTVETA, the Addis Ababa TVET Agency (AATVETA), and the Addis Ababa Occupational Competence Assessment and Certification Center (AAOCACC). Government documents (mainly the national TVET strategy and other system documents) are used as sources of secondary data. The secondary data are analyzed using the method of document analysis while the primary (interview) data are analyzed through narrative analysis. According to Bowen (2009), "document analysis is a systematic procedure for reviewing or evaluating documents—both printed and electronic (computer-based and Internet-transmitted) material" (p. 27). As indicated in Yin (1994), document analysis is applicable to qualitative case studies that aim to provide rich descriptions of a single or multiple cases (i.e., events or phenomenon, organisation(s), program(s), etc). This method is the most suitable method of analysis to this study because the assumptions and interventions underlying the design of the Ethiopian TVET system are found in the system documents, which are collected by contacting the TVET authorities.

4.   Results and Discussions

Results

Overarching/Regulatory Frameworks

Results of review of relevant government documents reveal that the Ethiopian TVET system envisages the following overarching interventions: development of the Ethiopian national qualifications framework for TVET (ETQF); development of occupational standards (OS), development of accreditation system, and rearrangements in TVET management and financing. A description of these interventions and the specific measures that are envisaged to be taken is presented in Table5

The structure for the management of TVET in Ethiopia constitutes various bodies (i.e., federal and regional TVET agencies, federal and regional TVET councils, and TVET school/institution management and their management boards). The national TVET strategy (MoE, 2008, pp. 45-50) clearly delineates the duties and responsibilities of those bodies. Accordingly:

- The FTVETA is the body under the Ministry of Education that leads the TVET sector. It is responsible for: a) formulating national policy/guideline, rules, and procedures; develop the ETQF, occupational standards, and an outcome-based assessment and certification system; b) developing a system for accreditation of TVET institutions; c) develop and oversee implementation of a quality management system for TVET; d) devise a system of labour market monitoring for TVET; e) develop rules and guidelines for financing TVET; f) devise strategies for capacity building of public and private TVET provision; g) conduct, commission and oversee all necessary research; and, h) conduct monitoring and evaluation.
- Federal TVET Council is the governing body of the FTVETA. It is envisaged that the council will constitute various stakeholders including representatives of industry.
- Regional TVET Agencies are responsible for: a) formulating state TVET policy/legislation/rules/guidelines/ plans; b) coordinating TVET with other sectors; organize/oversee quality management and occupational assessment and certification; c) accrediting TVET schools in the state/city administration; d) conducting labour market monitoring; e) facilitating private sector participation in TVET; f) providing capacity building for TVET institutions; g) developing state specific occupational standards; h) implementing occupational assessment and certification on behalf of the FTVETA; i) conducting, commissioning and overseeing necessary research; and, j) monitoring the implementation of TVET reform/system at state level (pp. 48-49).
- TVET School/institution Management is responsible for implementing The ETQF and OS while designing curriculum, organizing teaching-learning processes, managing quality, conducting internal assessment of competences, etc.
- School Management boards have (by design) an oversight responsibility: a) approve the institution's budgets, activity plans and annual reports, b) render wide-ranging advice on all issues related to management and TVET system implementation in the institutions.

Table 5: Description of the interventions that are envisaged in the national TVET strategy of Ethiopia

Intervention	Description of the intervention
ETQF	The 2008 TVET strategy (MoE, 2008, p. 28) points out that the ETQF will (a) define the different occupational qualification levels; (b) devise level descriptors (i.e., define the scope and composition of qualifications and the level of responsibility a qualified person can assume in the workplace); and (c) formulate rules for horizontal and vertical mobility of learners between different occupational areas and qualification levels. It is assumed that: (a) ETQF realizes comparability of different qualifications; (b) ETQF facilitates horizontal mobility within the TVET system and vertical mobility outside the TVET system (i.e., into higher education); and, (c) the integration of the ETQF with the National Qualifications Framework (NQF) helps realize the movement of TVET graduates from TVET into general education and their progression to higher education.
OS	The TVET strategy also envisages the development of national occupational standards (OS) based on an analysis of labour market demand. In the strategy, it is indicated that the OS would define the competence a person is expected to achieve/demonstrate so that he/she will be considered as a qualified person in a certain filed at a certain qualification level. Hence, the strategy document clearly states that the TVET regulatory bodies will develop and issue OS for all occupational fields demanded in the labour market to address the competence requirements of the world of work. It is assumed that industries will participate in and gradually take the ownership in the preparation of OS.
TVET Management and Financing	The TVET strategy envisages a new management structure in which the FTVETA and the Federal TVET Council are the regulatory bodies at national level. At regional level, regional TVET Agencies and the corresponding councils have a regulatory role. At TVET institution level, the institutions management manages the day-to-day operations of the institution under the guidance, supervision and support from the management board. Regarding TVET financing, the strategy (MoE, 2008) envisages: (a) promoting private sector participation in TVET provision and financing; (b) integrating apprenticeship into formal TVET so that industries (employers) partly finance the training; (c) government budgetary allocations; (d) funds from donors; and, (e) internal revenue generation by TVET institutions (MoE, 2008).
Accreditation of TVET institutions	The 2008 TVET strategy envisages the development of an outcome-based (rather than input-based) accreditation system. The strategy envisages a shift from traditional (i.e., input-based) quality indicators/criteria (e.g., classrooms, workshops, and trainers/teachers) into standards/outcome-based criteria (i.e., whether the trainees of the institution are being able to fulfill the competences required by the OS). It is assumed that such a system will: (a) provide quality benchmarks for TVET schools and guide self-assessment; (b) help TVET authorities in the identification and provision of support to TVET schools to enhance quality; and, (c) ensure transparency in the labour market so that trainees will not get poor quality TVET.

Source: Developed by authors based on review of government system documents.

To evaluate the conformity of the overarching/regulatory framework with CBET principles, the conceptual framework sets two evaluation criteria. The first criterion is concerned with whether or not the system takes the development of competence as the main goal of the TVET system. This corresponds to the first CBET principle that states that 'the study programme is based on core tasks, working processes and competences (the qualification profile)'. In this respect, the national TVET strategy document (MoE, 2008) stipulates that TVET will be re-organized into an outcome-based system. Specifically, it is stated that market-driven competences "will become the final benchmark of teaching, training and learning" (p. 21). In the strategy, the conceptualization of 'competence' is as follows:

Competence is a broad concept comprising the possession and application of a set of skills, knowledge and attitudes which are necessary to successfully compete for jobs in the labour market; to be a productive and adaptable entrepreneur, employee or self-employed, and thus to contribute to personal empowerment in economic and social development (MoE, 2008, p. 21).

The second evaluation criteria in relation to the overarching/regulatory framework refers to whether the system requires that qualification frameworks and OS serve as the basis for curriculum design, organization of instruction-learning, and assessment and certification. There is evidence that the 2008 TVET strategy takes qualification frameworks and OS as bases for defining different qualification levels, developing OS, and determining the organization of TVET curriculum, delivery and assessment (MoE, 2008).

It is envisaged that the ETQF will ensure flexibility by facilitating horizontal and vertical movement (mobility) of learners between various qualifications levels or pathways (MoE, 2010a). It is argued that the ETQF facilitates decision to choose a particular occupational qualification or to transfer credits from one qualification to another, both vertically and horizontally. It is also stipulated that TVET providers will have the

leverage (flexibility) during curriculum design to take into account local needs and specific contexts (MoE, 2012).

The national TVET strategy envisages that the OS will serve as the basis for the definition of competences and for curriculum design and delivery (MoE, 2012). More specifically, the occupational standards development guideline states that the TVET system should link the world of work (demand side) and the world of education and training (supply side) by using "the occupational standard as the target or expected outcome for TVET-delivery" (MoE, 2012, p. 1). It is further articulated that the purpose of OS is to define "the competence a person has to achieve in order to be considered 'qualified' in a certain field" (MoE, 2008, p. 26). Hence, the document clearly states that OS will be developed for all occupational fields.

Curriculum Design

The 2008 TVET strategy indicates that public, private and non-governmental organizations' (NGO) TVET institutions are expected to design curriculum and prepare teaching-learning materials (TTLM) following the modular approach. In the strategy, modularization of curriculum is regarded in the TVET strategy as a central mechanism to: (a) make TVET delivery flexible and that facilitates learners' flexible entry into and exit from a program; and (b) prepare and deliver tailor made (short-term) trainings (MoE, 2008). As a result, modular curriculum is mandatory among all TVET providers. To realize this, it is envisaged that TVET executive bodies will provide support to all TEVT institutions in terms of guiding manuals, model curricula, related TTLM, and, new skills to TVET institution managers and TVET teachers/trainers on curriculum design (MoE, 2008).

In the conceptual framework, three criteria are set to evaluate the conformity of this element with CBET principles. These are curriculum-standard linkage, program flexibility, and life-long learning. Concerning curriculum-standard linkage, the TVET strategy envisages that curriculum design will be modular. Concerning these issues, the national TVET strategy envisages the following:

> TVET programmes will be organized in a modular fashion to meet the requirements as defined in the occupational standards. In this way, each module or combination of modules describes an employable set of competencies (MoE, 2008, p. 29).

With respect to program flexibility (the second criteria), two issues are involved. The first issue refers to whether the system requires adherence to principle of flexibility at system, program and module level. This relates to the third CBET principle, which requires that the study programme be flexible. In this regard, the TVET strategy document states that flexibility is one of the guiding principles of the national TVET system. Specifically, the strategy document (MoE, 2008) states the following:

> To respond to the changing occupational requirements and to accommodate the different demand of the various target groups, the TVET system will allow and encourage flexibility and dynamic development of the TVET offers (p.14).

With respect to the principle of life-long learning (i.e., the third criterion), the tenth CBET principle requires that the study program (curriculum) pays attention to and integrates learning, career and citizenship competences. In support of the principle of life-long learning, the national TVET strategy document envisages that "the TVET system will provide life-long learning opportunities (including initial and further TVET) to enable the workforce to keep pace with the rapidly changing work environment" (MoE, 2008, p. 14). Life-long learning is also conceptualized in the strategy document as implying that people can continuously enhance their qualifications.

Organization of Instruction-Learning

Concerning the organization of instruction-learning, the TVET strategy (MoE, 2008) envisages that:(a) TVET delivery will be in line the OS; (b) TVET delivery follows the modular approach; and, (c) TVET programs will be delivered by certified teachers/trainers. Towards this end, it is envisaged that regional TVET agencies are expected to make sure that public TVET institutions: (a) have improved facilities; (b) are provided with software and electronic teaching-learning materials; (c) have access to trainings to develop the capacities of the management body and teachers/trainers; and, d) get assistance (e.g., facilities) to provide non-discriminatory TVET to students/trainees with special needs.

Furthermore, the strategy envisages that public, private and NGO TVET institutions get access to labour market information, regulations (guidelines), OS, research outputs, further training opportunities for teachers/trainers, and managerial courses for TVET management body (including the management boards). The strategy also envisages the integration of cooperative training or apprenticeship (CT), information and communication technologies (ICT), and VGC service into formal TVET delivery. A description of the envisaged interventions and the assumptions underlying the interventions is presented on Table 6

Under this element (i.e., organization of instruction-learning), the conceptual framework consists of five criteria that can be used to evaluate the conformity of the organization of instruction-learning with CBET principles. These criteria are: (i) authenticity of the organization of learning; (ii) integration of KSA; (iii)

student-teacher relationship; (iv) degree of responsibility of the learner; and, (v) VGC. Concerning authenticity of the organization of learning, the third CBET principle states that learning activities should take place in different concrete, meaningful vocational situations. In the TVET literature, CT or apprenticeship is recognized as a mechanism to provide students/trainees with concrete opportunity for practical application of theories that they learn in the class. In relation to authenticity of the organization of learning (i.e., the first criterion) and integration of KSA, it is found that the 2004 TVET proclamation as well as the 2008 TVET strategy (MoE, 2008) require the integration of CT into formal TVET programs as a mode of learning. Specifically, the TVET proclamation requires that every student attending TVET in any of the occupations at any level shall be given the opportunity for CT in the industries (employers). Furthermore, this proclamation stipulates the duties and responsibilities of all stakeholders - employers, training institutions, and apprentices with respect to the integration of CT into formal TVET (HoPR, 2004).

With respect to the second criterion (i.e., integration of KSA), the sixth CBET principle requires that knowledge, skill and attitude be integrated. Similarly, the TVET strategy envisages that TVET delivery will be no more be heavily theoretical. Instead, it requires that TVET delivery be more of practical. In the strategy, CT is regarded as a mechanism for integrating KSA.

The third and the fourth criteria under 'instruction-learning organization' are concerned with trainee-trainer relationship and the degree of responsibility of the learner, respectively. In connection to these, the seventh CBET principle states that students/trainees should be challenges to reflect on their own learning. The national TVET strategy as well as the national qualifications framework for TVET (ETQF) envisions that TVET provision will be based on learner-centered methods in which the role of the trainer is to coach, consult, audit and assess (MoE, 2010a).

Table 6: Envisaged interventions and assumptions with respect to organization of instruction-learning

Envisaged Interventions	Description of the intervention	Assumptions
Integration of CT into TVET	The 2008 TVET strategy envisages that: a) cooperative/apprenticeship training of several months will be incorporated into formal TVET; b) TVET providers will get the autonomy to establish relationships and negotiate with employers; c) TVET authorities will explore possibilities for entrepreneurship and encouraging large companies and MSEs to enter into cooperative agreements with TVET institutions.	It is assumed that through apprenticeship: a) Learners' occupational practice (skills), work attitudes and learning outcomes will improve; b) trainees will get employment opportunities; c) companies will add value in the overall development of TVET; and, d) helps in reducing investment cost and length of training periods.
Integration of ICT into TVET	The 2008 TVET strategy envisages that: a) TVET schools blend traditional teaching-learning methodologies with e-learning possibilities (e.g., internet, CD ROMs, intranet, etc); b) TVET authorities provide ICT support (e.g., training, software, and electronic teaching- learning materials) and develop ICT strategy for TVET.	ICT "supports learner-centred TVET delivery, improves access to information and knowledge and allows for self- and self-paced learning and assessment" (MoE, 2008, p. 32).
Integration of VGC service into TVET	The 2008 TVET strategy envisages that VGC service will be provided to potential entrants before they join the TVET system as well as to TVET students/trainees. It also envisages the provision of entrepreneurship training to trainees towards self-employment after graduation. To achieve this, TVET institutions will allocate VGC staff while TVET authorities will provide necessary support.	The underlying assumption is that VGC helps students/trainees develop positive attitude towards TVET, make the right career choice, and fully utilize the learning opportunities offered by the TVET system.

Source: Summarized by author based on articulations in MoE (2008, pp. 45-50)

Concerning degree of responsibility of the learner, the seventh principle of CBET also requires that the study programs be structured in such a way that the students/trainees increasingly self-steer their learning. In this respect, it is found that the national TVET strategy envisions that Ethiopia's TVET system facilitates "the emergence of modern teaching and learning methodologies, which are learner-centred and geared towards empowering trainees to assume responsibility for their own learning" (MoE, 2008, p. 29). Furthermore, the ETQF stipulates that the students/trainees ability to learn how to learn, to innovate, and to cope with non-routine activities increases with the qualification level (MoE, 2010a).

In connection with VGC, the ninth principle of CBET requires that guidance be provided to students/trainees and that the guidance is adjusted to the learning needs of the students/trainees. In this regard, the national TVET strategy (MoE, 2008) fosters the provision of VGC service to current and future trainees so that they make informed career choices from the beginning and fully utilize the initial and life-long learning

opportunities provided by the TVET system as well as by the labour market.

Competence-Based Assessment System

The strategy envisages that assessment will be conducted externally in all occupational qualifications at all levels of the ETQF in accredited assessment centers by accredited assessors., followed by a certification upon passing the assessment. Towards this end, the FTVETA is expected to: (a) establish a national system for occupational assessment and certification; (b) specify assessment-related rules and procedures; and, (c) monitor and evaluate the system. Regional TVET authorities (agencies) are responsible for ensuring proper implementation of the assessment and certification system and for the establishment of centers of competence in regional states.

Concerning assessment, the tenth CBE principle requires students/trainees be regularly assessed. As mentioned earlier, the national TVET strategy demands the conduct of competence-based assessment and certification. Specifically, the *occupational assessment and certification directive* (MoE, 2010b) requires that the competence requirement of the world of work (i.e., the OS) should be at the center of not only training but also assessment and certification. Evidence also indicates that the TVET system promotes vocational practice (rather than theory-focused tests) as main method of assessment. It is further stated that assessment for levels I and II will be only practice-based while assessment for levels III to V will enrich practical tasks with knowledge-based exercise (MoE, 2010b). In the directive, certification is defined as "a formal process of recognizing that an individual is qualified in terms of the required knowledge, skills and proper work attitudes based on the occupational standards set by industry" (MoE, 2010b, p. 3). This indicates that competence is the main criteria for certification.

Discussions
Overarching/Regulatory Frameworks

The results concerning the overarching/regulatory frameworks provide evidence that indicates that the Ethiopian TVET system incorporates interventions that are suggested in the literature towards an outcome-based education and training system. As reported above, the TVET strategy also states the assumptions behind the proposed interventions.

Concerning qualifications framework, findings indicate that the national TVET strategy envisions the development and incorporation of the ETQF into the TVET system as a means for defining different occupational qualification levels and recognizing the attainment of KSA with respect to the defined qualifications. It is assumed that the ETQF will realize comparability of different qualifications and facilitate vertical and horizontal mobility. Therefore, the purposes of and assumptions behind the envisaged qualifications frameworks are in conformity with the literature (Kerre and Hollander, 2009, Coles and Werquin, 2009).

In the literature, it is stressed that CBET requires integrating the desired competence into the components of the TVET system including curriculum, instruction and assessment and establishing the necessary conditions and opportunities (e.g., supportive learning environments) and organizing everything around the desired competence or outcomes (Spady, 1994). In this regard, it is found that the national TVET strategy envisions that the competence requirements of the world of work (as contained in the OS) will be taken as the bases for curriculum design, instruction-learning, and assessment. In other words, market-driven competencies will become the final benchmark of OS development, curriculum design and TVET delivery and assessment processes. Therefore, the Ethiopian TVET system is in conformity with the literature (Hart, 2009) with respect to occupational standards. As a result, the system is designed in a way that stresses OS as the basis for all aspects of TVET including assessment.

The literature on TVET indicates that TVET as an investment is more expensive than general education. Its management is also more complicated. It is suggested that implementing an outcome-based TVET system requires better financing and a strong management system. Findings of his study show that the Ethiopian TVET strategy envisages better financing of TVET by drawing on resources from various sources. The sources of finance include government budget, donor support, internal revenue generation and private sector financing. Hence, the strategy considers the recommendation in the literature (GTZ, 2006) towards the strengthening of TVET financing. To ensure better management of TVET, the national TVET strategy of Ethiopia also envisages the establishment of national and regional councils and management boards at TVET institution level to ensure better planning, monitoring, support, control and integration.

The TVET literature (MacKenzie and Polvere, 2009) also stresses the importance of accrediting TVET providers/programs as a mechanism for assuring quality. In this study, it is found that the Ethiopian TVET system incorporates the accreditation of TVET institutions/programs on the basis of outcome-based criteria (i.e., based on student/trainee achievement) rather than input-based criteria (i.e., machinery, equipments, etc). Therefore, the design of the TVET system incorporates the interventions that are suggested in the TVET literature. Overall, when evaluated in light of the CBET principles, the design of the TVET system with respect to the overarching/regulatory frameworks is found to be consistent with the first CBET principle because it takes

the development of competence as the main goal of the TVET system.

Curriculum Design

The second element of CBET is curriculum design. In the CBET/TVET literature, it is suggested that curriculum should be designed by taking the OS as a basis (Stanwick, 2009, Spady, 1994, Harris et al., 1995, Mulder, 2004). It is also suggested that curriculum should be designed following the modular approach to ensure flexible delivery of TVET programs and facilitate horizontal and vertical mobility of learners/trainees. Specifically, the second theoretical principles of CBET requires that complex vocational core problems be at all times central to the study programme and are assessed in many different contexts. In addition, the eighth theoretical principle of CBET promotes flexibility of study programs.

The results of this study indicate that the national TVET strategy of Ethiopia requires TVET institutions to design a modular curriculum and prepare TTLM for the occupational fields based on the OS. It is shown that the Ethiopian TVET system promotes curriculum-standard linkage, program flexibility, and life-long learning. Hence, it can be inferred that the Ethiopian TVET system embraces the second and the third, the eighth and the tenth theoretical principles of CBET.

Organization of Instruction-Learning

In this study, it is found that the strategy envisages that TVET delivery will be modular and OS-based. The strategy also envisages the integration of CT, ICT and VGC into TVET so that students/trainees achieve better learning outcomes. This study unveils the assumption of the TVET strategy with respect to CT, ICT, and VGC that: (a) CT provides students/trainees with the meaningful learning/training opportunities in the work place; (b) ICT facilitates self-steered and self-paced learning; and, (c) VGC helps students/trainees develop positive attitude towards TVET, make the right career choice, and fully utilize the learning opportunities. Concerning the training/learning method to be adopted, the TVET strategy envisions that TVET provision will be based on learner-centered methods in which the role of the trainer is to coach, consult, audit and assess (MoE, 2010a).

Results of this study also show that the TVET strategy envisages specific interventions (support mechanisms) towards a better organization of instruction-leaning. These include providing trainings to TVET managers and teachers/trainers, and improving facilities in TVET institutions. Furthermore, the strategy envisages that TVET authorities will provide TVET institutions with software and electronic teaching-learning materials, labour market information, regulations (guidelines), OS, and research outputs.

As indicated in the theoretical framework (above), Mulder (2004) provides a description of the organization of instruction-learning process in CBET. It is stressed that apart from classroom-based theoretical leaning activities, CBET requires the provision of learners with various meaningful learning opportunities through projects, practical exercises, internships, site visits, guest lectures and so on. This idea is captured in the third CBET principle, which states that learning activities should take place in different concrete, meaningful vocational situations (Sturing et al., 2011). The fourth theoretical principle of CBET also requires that education and training should integrate knowledge, skills and attitudes (KSA). The six and the seventh CBET principles require that the study programme is structured in such a way that students reflect and increasingly self-steer on their own learning. Furthermore, the ninth principle of CBET also requires that guidance be provided to students and that the guidance is adjusted to the learning needs of the students.

Based on the findings of this study with respect to the organization of instruction-learning, it is therefore evident that the theoretical prescription with respect to the organization of instruction-learning (particularly the third, fourth, sixth and seventh CBET principles) is taken into consideration during the design of the Ethiopian TVET system.

Assessment of Competence and Certification

In the literature (MacKenzie and Polvere, 2009, Colardyn, 2009a, Colardyn, 2009b), it is theorized that an outcome-based education and training system should incorporate a competence-based assessment system. In such a system, the focus is on assessing whether learners have acquired the desired learning outcomes (competences). Specifically, the fifth CBET principle requires that learners be assessed with special emphasis on the competence development of students. In this regard, findings of this study indicate that the Ethiopian TVET strategy envisages introducing an independent competence-based assessment system. The strategy also requires TVET schools/institutions to conduct internal assessments based on OS and delineates the responsibilities of various stakeholders that will be involved in assessment as per the new system. Hence, the design of the Ethiopian TVET system has adopted the conceptualization in the literature concerning competence-based assessment and is in conformity with the fifth CBET principle.

5. Conclusion

This paper describes the interventions and assumptions underlying the design of the Ethiopian TVET system. It

also evaluates the conformance of the interventions and assumptions with theoretical principles of CBET. Based on an analysis of government system documents, this paper presents the major interventions and the assumptions behind the interventions. First, it is found that the design of the Ethiopian TVET system envisages a new overarching/regulatory framework that incorporates the development of a national qualifications framework for TVET, the development of OS, changes in the arrangements for financing and management of TVET, and changes in the accreditation criteria.

Second, it is found that the TVET system envisages the design of modular curriculum by TVET schools/institutions and the provision of necessary support by TVET authorities. By design, the TVET system promotes modularization of curriculum (i.e., the second CBET principle) and requires adherence to the principle of flexibility at system, program and module level and promotes the development of career and   citizenship competence and life-long learning attitude.

Third, the national TVET strategy envisages the reorganization of instruction-learning in a way that puts competence at the heart of delivery. Specifically, it promotes an OS-based delivery of TVET programs by certified teachers/trainers and the integration of CT, ICT and VGC into TVET. In this regard, the system recognize that learning activities should take place in different concrete, meaningful vocational situations; learning and internal assessment should integrate KSA; trainees should be treated as active learners and that teachers/trainers should act as experts as well as coaches; Does the system require the design of curriculum in a manner that increases the magnitude of self–steering by the students/trainees especially as the level of the program increases.

Fourth, the national TVET strategy envisages the incorporation of a system for the conduct of external/independent assessment and certification of competence for all occupational qualifications at all levels. The strategy also delineates roles and responsibilities of the various bodies to be involved in assessment. The system promotes competence-based assessment and vocational practice (rather than theory-focused tests) during assessment. Hence, the design of the TVET system with respect to assessment is in conformity with the tenth CBET principle.

In conclusion, the interventions that are envisaged in the design of the Ethiopian TVET system and the assumptions behind each of the interventions are not in contradiction with various propositions and conceptualizations in the literature towards an outcome-based TVET system. Furthermore, the design of the TVET system is inconformity with the 10 theoretical principles of CBET. Therefore, the design of the Ethiopian TVET system is outcome-based.

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