



Effectiveness of Technical and Vocational Education and Training (TVET)

Insights from Ethiopia's reform

Atakilt Hagos Baraki

Tilburg University, Tilburg, The Netherlands and Ethiopian Civil Service University, Addis Ababa, Ethiopia, and

Everard van Kemenade

MeduProf-S, Eindhoven, The Netherlands

Abstract

Purpose – This paper provides an overview on the technical and vocational education and training (TVET) program components/mechanisms and their overall effect on learning outcomes in a developing country context.

Design/methodology/approach – Using secondary data, this descriptive case study integrates the realistic evaluation framework of Pawson and Tilley (1997) with Total Quality Management (TQM) frameworks.

Findings – Ethiopia's TVET system adopts/adapts international best practices. Following the implementation of the 2008 TVET strategy, the proportion of formal TVET graduates who were recognized as competent by the assessment and certification system increased from 17.42 percent in 2009/2010 to 40.23 percent in 2011/2012. Nevertheless, there is regional variation.

Research limitations/implications – Outcome-based TVET reforms that are based on TQM frameworks could improve learning outcome achievements in developing countries by enhancing awareness, coordination, integration, flexibility, participation, empowerment, accountability and a quality culture. Nevertheless, this research is limited by lack of longitudinal data on competency test results. There is also a need for further investigation into the practice of TQM and the sources of differences in internal effectiveness across TVET institutions.

Practical implications – Our description of the Ethiopian reform experience, which is based on international best experience, could better inform policy makers and practitioners in TVET elsewhere in Africa.

Originality/value – A realistic evaluation of TVET programs, the articulation of the mechanisms, especially based on TQM, that affect TVET effectiveness would add some insight into the literature. The evidence we have provided from the Ethiopian case is also fresh.

Keywords TVET reform, TVET quality, Total quality management, Internal effectiveness, Realistic evaluation, Developing countries, Ethiopia

Paper type Case study

I. Introduction

Skills development and technical and vocational education and training (TVET) are now becoming increasingly important on the international and national policy agenda. For example, UNESCO advocates TVET, claiming that technical and vocational education that is driven by market demand is more effective in enhancing employment and income for the disadvantaged (Adams, 2011). The *World Development Report 2007* states that making labor, which is the main asset of the poor, productivity is the best way to reduce poverty (World bank, 2006). As a concrete policy responses in favor of TVET, the Dakar Framework for Action set explicit goals pertinent to TVET



(UNESCO, 2000). Generally, there is an expectation that TVET facilitates economic growth and poverty alleviation by serving as a mechanism to prepare people for occupational fields and by enhancing their effective participation in the world of work, (UNESCO, 2001; NUFFIC, 2010). Furthermore, TVET has also gained the attention in Africa as a result of which TVET is part of the education systems (Oketch *et al.*, 2009).

Despite the political attention that is being given to TVET, the literature on TVET lacks agreement on the relevance and effectiveness of TVET in developing countries. On the one extreme is the argument that disfavors TVET. As cited in Oketch (2007), Blaug (1973) argued that vocationalization cannot be a remedy for educated unemployment. Similarly, Selvarantnam (1988) argued against TVET in developing countries. Even recently, Psacharopolos (1997) holds that TVET is deemed to failure in developing countries. On the other extreme are arguments that justify TVET as something relevant to and effective in developing countries. Lee (1998), Lewis (2009), and Oketch (2007) are some of the examples in this category.

In Africa, considerable achievements have been registered in enhancing enrollments and completion rates in general education (Tarabini, 2010). However, youth unemployment is still very high and those who make a living in the informal sector live at the margin. Therefore, the need for skills development for socio-economic development and poverty alleviation is not to be ignored.

TVET research to date has tended to focus on whether or not TVET in developing countries is relevant and/or effective without adequately indicating what mechanisms working under what context lead to an effective TVET. In this respect, Pawson and Tilley (1997, p. 72) hold that “when an evaluator tells us that a program is a success; s/he should be demonstrating what it is about the program which works for whom in what conditions.” Nevertheless, TVET research conducted so far is not in this direction.

It is evident that such research would face scarcity of well-organized cross-country databases and a consequent shortage of publications in this area. This justifies the need for case studies on the effectiveness TVET reforms in developing countries.

Taking into account the link between internal and the external objectives of TVET systems (see Fluitman, 1999), this research focusses on the effect of the macro/micro mechanisms of TVET reforms on internal effectiveness (an internal objective) by taking Ethiopia as a case. Following Lauglo (2009), we understand internal effectiveness as referring more to what is learned in TVET, or to the learning outcome (knowledge, skills and/or competences) achievements (UNESCO, 2010).

This paper seeks to contribute to the ongoing debate regarding the effectiveness of TVET in developing countries by adopting the realistic evaluation approach (a context-mechanisms-outcome model) of Pawson and Tilley (1997) into quality management in TVET. It also paves the way for an in-depth assessment of total quality management (TQM) at TVET-institution level.

TQM is seen as one of the most crucial drivers for the success of the TVET quality. There can be a national policy (macro mechanism) but the difference of success or non-success is made at organizational level. TQM can provide the conditions wherein TVET can flourish. We here present the conceptual framework and the place of TQM therein. Furthermore we describe the first part of the study that focusses on the question to what extent the macro-mechanisms have been successful. In the follow up of the research, good and bad performing TVET-organizations will be compared on their TQM matureness. That might give answer to the question to what extent TQM

mature organizations have better results, in this case if TQM mature TVET-institutions in Ethiopia have better learning outcomes than those with less TQM maturity.

The rest of the paper is structured as follows: the second part presents the conceptual framework; the third part summarized the background (context) to the study; the fourth part describes the research methodology; the fifth part presents and discusses the results; and the sixth part concludes.

II. Conceptual framework

Understanding quality in education

In the literature, quality in education is defined from different perspectives, there is no universally accepted single definition of quality (Harvey and Green, 1993; Kemenade *et al.*, 2008). According to Harvey and Green (1993), education is a process of transforming the participant and, therefore, quality in education refers to the enhancement and empowerment of the participant. As an enhancement of the participant, quality involves value-addition to the participant, which is in terms of knowledge, abilities and skills of students.

Internal effectiveness in TVET

Citing Hides *et al.* (2004), Arjomandi *et al.* (2009) explain that learning outcomes are among the aspects of organizational excellence in Higher education. This excellence that emanates from improvements in learning outcomes is often associated with the term internal effectiveness, which is more about what is learned in TVET (Lauglo, 2009). More specifically, “a training system is effective if it succeeds, according to plan, in imparting skills of a certain quantity and quality” (Fluitman, 1999). In the literature, there is a growing acceptance of results of participants in standardized examinations or competency tests (as assessed by criterion-referenced assessment) as strong quantitative indicators of learning outcome and hence internal effectiveness in education (Uline *et al.*, 1998).

Quality management

This internal effectiveness requires a TQM system both at system/macro level and at institution level. As summarized in Hackman and Wageman (1995), the TQM philosophy is based on four interlocking assumptions about processes, employees, organizations (as systems) and leadership. Generic quality management frameworks such as the EFQM Excellence Model have been adapted to the education sector. For example, the HBO Expert Group adapted the EFQM model into the context of TVET (Kemenade *et al.*, 2009). In this model, internal effectiveness falls under the operational business results. The “enablers” are leadership, policy and strategy, people management, resources management and management of processes.

Research that aimed at identifying the factors that affect learning outcome achievements following the input-process-output model seems to have focussed on factors that are dominantly internal to a TVET institution. In this respect, Renaud (2009) provides a summary of the main findings of empirical studies that examined the degree to which learner outcomes are associated with commonly used indicators or determinants of effectiveness. However, the input-process-output models fail to take into account the macro or program/system-level mechanisms for change that are beyond the scope of a particular TVET institution. Therefore, in this research, we first give emphasis to macro/system-level mechanisms. Table I summarizes our review of the literature on such mechanisms.

Mechanism	Description
TVET qualifications framework	Qualifications framework refers to a system of defining the structure or classification of levels of qualifications (Coles and Werquin, 2009; Mackenzie and Rose-Anne, 2009). The framework influences learning outcome achievements by giving structure, status and recognition to learning as well as by acting as a source of motivation and reward for learners (Hart, 2009)
Occupational or competency standards	The specifications of competence as determined by the industry (Mackenzie and Rose-Anne, 2009), where competence refers to the learning outcomes (i.e. the skills, knowledge and attitudes) that the learner is expected to exhibit (Hart, 2009) Thus, standards influence learning and thus learning outcome achievements
Occupational assessment and certification	Assessment refers to the processes and methods used to assess learning outcome achievements of participants (Mackenzie and Rose-Anne, 2009, p. 60) and are followed by certification (Colardyn, 2009). Assessment and certification as a process affects or shapes the operations and performance of TVET institutions by giving a direct signal and by facilitating the structuring of knowledge (Colardyn, 2009, p. 2783)
Accreditation of TVET institutions	Refers to a process of officially recognizing and approving an institution or a course or training program (Mackenzie and Rose-Anne, 2009). It would require institutions meet certain quality standards or hold them accountable for not meeting those standards. This in turn would increase accountability and effectiveness
TVET research, monitoring and evaluation	TVET research promotes innovation and improvement by shaping perceptions of policy makers and practitioners (Westerhuis, 2008). Monitoring and evaluation also affects internal effectiveness by enhancing accountability and better management of organizational effectiveness
Stakeholders' involvement and partnerships	As pointed out in (Lannert <i>et al.</i> , 1999), this refers to mechanisms of co-ordination at the system level and that of co-operation between TVET institutions and different actors including the NGO, private providers, and community groups. The effectiveness of TVET systems could be improved through participatory policy making, social dialogue and mutual understanding, sharing of responsibilities through cooperation and coordination and the development of accountability
Other regulatory and support mechanisms	Other regulatory and support mechanisms towards TVET effectiveness: Modularization of curriculum: to make education and training accessible, responsive and flexible to the needs of students and industry (Stanwick, 2009). ICT: a support mechanism to make knowledge accessible to all; to provide an opportunity for a flexible and cost-effective delivery (Kotsik <i>et al.</i> , 2009); to link theory with practice; to facilitate assessment; and, to increase motivation towards independent (self) learning (Zarini, 2009). Vocational guidance and counseling Co-operative vocational education/apprenticeship

Source: Summarized by authors based on the literature

Table I.
System/program-level
mechanisms that affect
TVET effectiveness

The conceptual framework that guides our current (system/program-level) and the upcoming (micro/institution-level) research is depicted in Figure 1. It integrates the framework for realistic evaluation developed by Pawson and Tilley (1997), our review of the literature and the TQM framework adopted for TVET by the HBO Expert Group (Kemenade *et al.*, 2009).

Our conceptualization is that the initial level of learning outcome achievements before 2008/2009 denoted as R1 was a result of some sort of macro-micro mechanisms

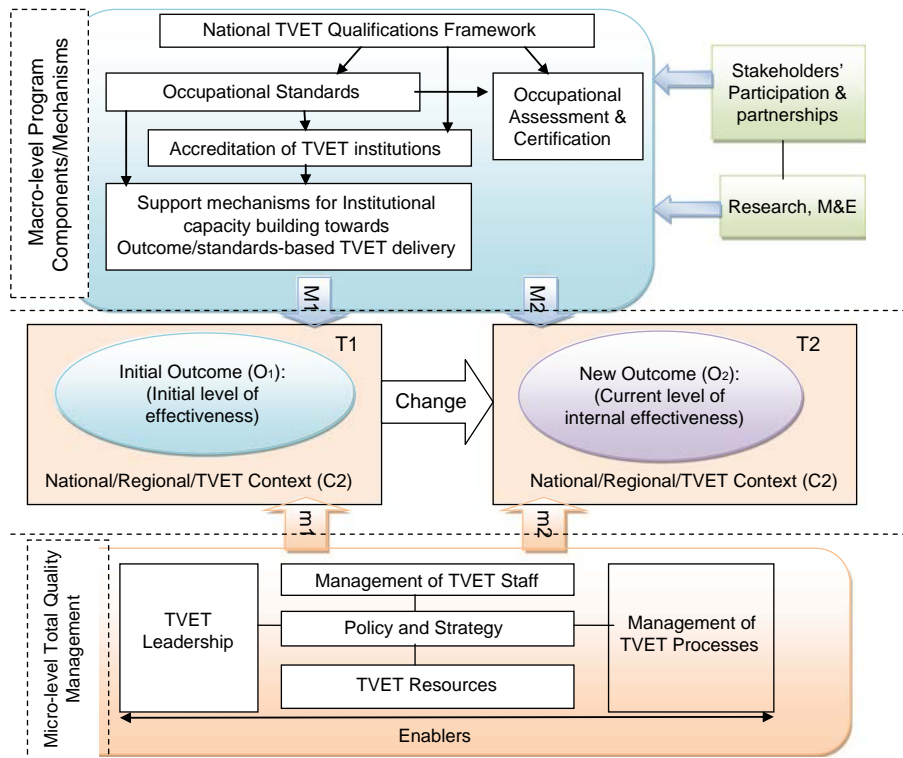


Figure 1.
The conceptual
framework

Source: Depicted by authors based on Pawson and Tilley (1997), the HBO Expert Group (Kemenade *et al.*, 2009) and review of the literature

(denoted by M1 and m1, respectively) that used to operate in the initial context (C1). Then, the new macro and micro mechanisms (denoted as M2 and m2, respectively) would cause some change in outcome (i.e. from R1 to R2).

In this conceptual framework, context refers to the socio-economic and TVET-specific circumstances. Following Pawson and Tilley (1997), we understanding of mechanisms as an account of the make-up, behavior and interrelationships of the processes which are responsible for the outcomes. Following frameworks for quality management adopted for TVET (Kemenade *et al.*, 2009), the internal mechanisms are assumed, in this research, to be associated with TVET leadership; management of TVET staff; policy and strategy; TVET resources; and management of TVET processes.

Whereas the external mechanisms are conceptualized as being related to program components such as TVET qualifications framework; occupational standards; accreditation of TVET institutions; occupational assessment and certification; support mechanisms for institutional capacity building toward outcome/standards-based TVET delivery; TVET research, monitoring and evaluation; and stakeholders' participation and partnerships.

Background to the study: the context. According to the final draft TVET strategy of the African Union (AU, 2007) most of the TVET delivery systems in Africa operate within the context of low level of economic development and growing labor force;

shrinking or stagnant wage employment opportunities; and huge numbers of poorly educated, unskilled and unemployed youth. More than 80 percent of the youth are engaged in the informal sector (Johanson and Adams, 2004). Furthermore, the TVET systems in many African countries are characterized by existence of training programs that lack relevance to the world of work; unregulated TVET delivery; lack of quality assurance through outcome-focused assessment and certification systems; low effectiveness and efficiency of TVET institutions; and regional disparities and gender inequities (AU, 2007). However, there are differences in TVET systems among groups of African countries based on colonial background.

Drawing on the findings of a case study by Atchoarena and Delluc (2002), Oketch *et al.* (2009) states that the TVET system in the French-speaking countries follows the formal-TVET French model. This system has a large amount of general education content and lacks linkage with the specific needs of the informal sector. Referring to the same authors, Oketch *et al.* (2009) further state that the TVET system in the English-speaking countries consists of both formal and informal sector training, in which the vocational aspect tends to dominate the general education content. This model is regarded as a dead-end type of education system as it limits the advancement of TVET graduates into higher level of education (vertical movement) and the progressions between vocational and general courses (horizontal movement).

Ethiopia shares the African socio-economic context described earlier. It is a fast-growing low-income country with a growing labor force and low employment opportunity in the formal sector. When the 2008 national TVET strategy was introduced, TVET had low relevance to the world of work while the delivery was fragmented, uncoordinated, and unregulated. There was lack of assessment and certification system that recognizes competence achieved through non-formal and informal learning and training. In addition, the TVET system was characterized by poor quality management within and low effectiveness and efficiency of TVET institutions. There were regional disparities and gender inequities across occupations. The TVET system was not initially welcomed due to poor perception of the public and stakeholders about TVET. Consequently, there was limited stakeholder participation, under funding and inadequate resources. Furthermore, TVET was not supported by research, monitoring and evaluation.

Due to its historical detachment from colonial legacies in Africa, Ethiopia has enjoyed the freedom of making use of best international experiences (Kingombe, 2011) rather than adopting the TVET system of former colonizers. Therefore, we expect and hence argue that the TVET system in Ethiopia and its implementation is highly likely to have unique features. For example, unlike the TVET model of the French-speaking African countries, TVET proclamation number 26 stipulates the integration of traditional apprenticeship into the TVET system. Unlike the TVET system in the English-speaking African countries, the TVET strategy of Ethiopia promotes vertical and horizontal mobility and progression (MOE, 2008).

III. Methodology

This study adopts the realistic evaluation approach of Pawson and Tilley (1997) rather than opting to an experimental research design. The “feasibility standards” of Program Evaluation Standards of the Joint Committee on Standards for Educational Evaluation also stress the importance of conducting evaluations in education in a natural, as opposed to laboratory setting (Sanders, 1994).

We have chosen the descriptive case study as a research strategy. In this respect, Yin (1994) states that as descriptive research strategy, case study can be used to describe an intervention or program in the real-life context in which it occurred. We will make use of archival records or secondary data. Particularly, policy/program documents, performance reports and learning outcome achievement results of TVET graduates at national and regional level will be gathered and analyzed. The assessment issues/themes, data type and data sources are elaborated in Table II.

IV. Results and discussion

In this section, we present and discuss the findings with respect to the mechanisms and outcome under the three assessment themes: program design, program implementation and program result.

Program design: system/program-level components/mechanisms

Based on the legal/policy documents and education sector plans of the Ethiopian Government, we summarized the program-level components in Table III.

Our summary of the program components demonstrates a clear shift from supply driven to an outcome-based TVET. Generally, the program components are in line with contemporary concepts and international experience in relation to TVET.

Assessment themes	Operational questions	Description	Data type and source
Program design	What program components/mechanisms are envisaged to improve learning outcomes	Whether or not the TVET strategy has provisions for regulatory and support mechanisms such as TVET qualifications framework, occupational or competency standards, occupational assessment and certification, and so on	Type: secondary data Sources: The National TVET strategy and other policy documents
Program implementation (macro-level overview)	Are the components/mechanisms being implemented?	The extent to which the program-level components/mechanisms are being implemented. Emphasis will be on whether or not a TVET qualifications framework and standards are prepared, a system for assessment and certification exists, etc.	Type: secondary data Sources: Policy/system documents, periodic performance reports, etc.
Program result (internal effectiveness)	Is there an improvement in learning outcomes after 2008?	Percentage of graduates of formal TVET who were found competent in the competency test	Type: secondary data Sources: Competency test results aggregated at national level and region-wise

Table II.
Assessment themes, data type and data sources for this research

Source: Elaborated by authors

Component	Description of what has been envisaged in the component
National TVET qualifications framework	The development of a TVET qualifications Framework that would define the different occupational qualification levels and level descriptors
Occupational standards	The preparation of occupational standards as a basis for TVET delivery and design of competency/trade testing systems and assessments
Occupational assessment and certification	The measurement of output quality of TVET delivery through a process of a standards-based occupational assessment of learner's achieved competence for all defined occupational qualifications at all levels
Support/regulatory mechanisms for standard-based TVET delivery	The delivery of the following support mechanisms to public and private TVET institutions: guides for Modular curriculum design and material preparation; cooperative TVET Delivery and Apprenticeship Training; ICT support to the TVET System to provide technology assisted TVET; guides to Vocational Guidance and Counseling; Human Resource Development for TVET Staff and management; physical inputs, financial incentives, information and research outputs; introducing a quality management system at institution level
Accreditation of TVET institutions and testing centers	A shift from input-based to outcome-based accreditation system by changing accreditation rules and procedures; and requiring the accreditation of TVET institutions, teachers and trade test centers
TVET research, monitoring and evaluation	Building research capacities; labor market monitoring and forecasting; management information system; and monitoring and evaluation of TVET
Stakeholders' involvement and partnership	The creation of conducive environment for stakeholder's participation in various areas including: policy making/reviewing; TVET financing; in the development of occupational standards and occupational assessment; TVET delivery (including apprenticeship training); and participation in governance and management (i.e. be represented in national/regional TVET councils and in the management boards of TVET institutions)

Source: Compiled by authors based on the *National TVET Strategy* (MOE, 2008), TVET Proclamation No. 391/2004 (HOPR, 2004), the 3rd and 4th *Education Sector Development Plans* (MOE, 2005, 2010b)

Table III.
Program/macro-level
mechanisms envisaged
for quality TVET
in Ethiopia

Program implementation

National TVET qualifications framework (NTQF). Based on work place needs, the NTQF (MOE, 2010f) was prepared in march 2010 to provide a nationally consistent recognition of learning outcomes achieved and develop flexible pathways or qualifications levels that facilitate horizontal and vertical mobility. Accordingly, the NTQF has defined five levels (i.e. National TVET certificates I-V) along with the corresponding level descriptors.

Occupational standards. To guide the preparation of occupational standards, the *Ethiopian Occupational Standards Development Guideline* (MOE, 2009a, 2012a) was developed first in July 2009 and then upgraded in January 2012. As of September 2012, and based on the needs of the world of work, occupational standards have been developed to 388 occupational titles in agriculture; culture, sports and tourism; economic infrastructure; health; industry development; and labor affairs and social service.

Occupational assessment and certification. The *Occupational Assessment and Certification Directive* (MOE, 2010i) is issued and being implemented to regulate the

entire assessment and certification system. Following the directive, the *Assessor's Manual* (MOE, 2010g); the *Candidate's Manual* (MOE, 2010h); the *Manual for Assessment Center*; and the *Manual for Center of Competence* (MOE, 2010j).

Other support mechanisms. Table IV summarizes the implementation status of the other support mechanisms.

TVET research, monitoring and evaluation. One of the mechanisms under this component relates to the system for researching, assessing, interpreting and presenting labor market information. For this purpose the *Labour Market Information System for TVET Providers Manual* (MOE, 2010e) is designed. On top of the national

Other support mechanisms	Implementation status
For development of modular curriculum	The <i>TVET Curriculum Development Manual</i> (MOE, 2012c) and the <i>Training, Teaching and Learning Materials Development Manual</i> (MOE, 2012b) have been developed and issued in January 2012 and in March 2012, respectively
For co-operative and in-company training	To enhance TVET quality, the <i>Co-Operative and In-Company Training Handbook</i> (MOE, 2010a) has been developed in March 2010 for enterprises and public, private and NGO TVET institutions. It states the perceived benefits to and responsibilities of enterprises, trainees, and TVET institutions along with the requirements, steps and procedures to conduct the programs. As indicated in performance report (in Amharic language) of the Federal TVET Agency for 2010/2011 (FTVETA, 2012), the overall/national coverage co-operative training in 2011/2012 is 60.4 percent, covering a total of 327,308 trainees, with regional disparity
For efficiency and effectiveness in TVET	A separate guideline to enhance the efficiency and effectiveness of TVET is developed in March 2010 (MOE, 2010c). The manual provides a guide to TVET institutions to make their own efforts to enhance internal effectiveness by: introducing institutional development and strategic planning; designing own curriculum/revising existing one; introducing e-learning and blended learning approach; introducing labour market signaling; creating arrangements for cooperative training with the nearby enterprises/MSEs; ensuring a timely and efficient procurement system; investment in staff development and continuous capacity building activity for the management staff
For TVET governance	TVET institutions are being managed by TVET boards. According to the 2004 performance report (in Amharic language), management boards are established for all TVET institutions
For human resource development	The <i>Leaders' and Teachers' Qualifications Framework</i> (MOE, 2009b) is prepared in November 2009 to ensure that TVET Teachers have a distinct qualification and recognition and to enhance the quality of TVET delivery. In the year 2011/2012, about 1,216 TVET teachers/trainers joined local and foreign universities for further (long-term) education and training to qualify either for B-level or A-level teachers/trainers. In the same year, a short-term training on teaching/training methodology was given to 3,408 C-level teachers/trainers drawn from all regions. Currently (in 2011/2012), there are a total of 11,342 teachers/trainers throughout the country
For vocational guidance and counseling	The manual for <i>Vocational Guidance and Counseling for TVET Institutions and Polytechnics</i> was developed (MOE, 2010k) and made operational

Table IV.
Implementation status of
other support mechanisms
for institutional
capacity building

Source: Composed by authors based on secondary data sources

and regional TVET councils, 18 “operation committees” were established in the year 2011/2012 in different sectors to plan capacity building in micro and small enterprises, to monitor its implementation, and to report to the steering committee that consists of top leaders in the respective sectors.

Stakeholders’ involvement and partnerships. In addition to the representation of stakeholders in the national and regional TVET councils, the Technical Advisory Panel (TAP) and the Technical Experts Panel (TEP) were established as mechanisms to ensure stakeholders involvement and partnerships. The role of members of these bodies is not only to provide technical and expert advice on occupational standardization, training and assessment standards but also to establish the standards. To realize this, the *Establishment and Operation of Technical Advisory Panel and Technical Experts Panel Manual* was prepared in March 2010 (MOE, 2010c). These panels are operating as per the manual.

In summary, the underlying mechanisms that are meant to contribute to improvements in internal effectiveness and, hence, learning outcome achievements are transparency of standards, rules and procedures, the enhancement of awareness; the enhancement of coordination among different providers and the integration among the needs of the world of work and TVET; and the flexibility in TVET delivery and the envisaged mobility. Other mechanisms include participation of various stakeholders; empowerment in terms of governance and management; expected learning outcomes and other legal requirements; and the enhancement of a sense of accountability a quality culture.

Program result: learning outcome achievements

Competency test results for formal, informal and non-formal TVET. In Ethiopia, a system for outcome-based occupational assessment and certification was missing until 2008. Even in 2009, occupational assessment was implemented only in Addis Ababa City Administration, the Amhara Regional State, and the Harari Regional State (combined with the Dire Dawa City Administration).

The data displayed on Table V show that between 2009 and 2012, the number of people who were assessed increased from 9,296 to 184,034 persons (1,980 percent). The proportion of those who were found competent showed fluctuation. In the last two assessment periods, the percentage of those who were found competent increased from 21.8 to 28 percent.

Competency test results for formal-TVET graduates. In the short-run, the effect of the TVET reform is expected to be on the formal TVET system. Accordingly, we find a different picture regarding the effectiveness of TVET in the formal sector. Thus, the following data shows the competency level of graduates from the formal TVET.

Assessment period	Total assessed		Total competent		Competent (%)
	Number	% change	Number	% change	
From start to June 2009	9,296	–	2,408	–	25.9
July 2009-Feb 2010	26,958	190	8,515	253.61	31.6
July 2010-June 2011	133,178	394	28,990	240.46	21.8
July 2011-June 2012	184,034	39.19	51,442	77.45	28.0

Source: Composed by authors based on data from the Federal TVET agency

Table V.
Competency test results
of candidates from
formal, non-formal and
informal TVET

Even though we do not have enough data points to draw a line graph and observe the trends, Table VI provides some new evidences about formal TVET in Ethiopia. First, the aggregate (national-level) proportion of those formal-TVET graduates who were recognized by the assessment and certification system as competent has increased from 17.42 percent in 2009/2010 to 40.23 percent in 2011/2012, showing a growth rate of 133.9 percent. Second, there is regional disparity in learning outcome achievements. Generally, the proportion of TVET graduates who are acknowledged as competent ranges from 49.89 (in Tigray Region) to 19.51 percent (in Dire Dawa City). This indicates that there is a difference in the internal effectiveness among TVET institutions. This implication should be plausible as regional difference cannot happen unless there is a difference across TVET institutions.

V. Conclusions

Findings of this research indicate that the TVET system in Ethiopia is in line with international best practices and the contemporary theoretical discourse. The key components that an outcome-based TVET requires toward quality TVET are there as part of macro-level components of the program. The new TVET program promoted TVET quality through its components: the TVET qualifications framework; occupational standards; occupational assessment and certification; accreditation of TVET institutions and testing centers; TVET research monitoring and evaluation; stakeholders' participation and partnerships; and other support/regulatory mechanisms for standard-based TVET delivery.

The implementation of the program components (from a macro-perspective) is moving in line with what has been envisaged during program design. The necessary regulatory and support mechanisms have been put in place. The extent to which these mechanisms are bringing the desired change over time is yet to be seen in time. Given the limited data, the Ethiopian case provides an indication that when an outcome-based TVET program that is designed in line with international best experiences and that takes into account the context is put in place, it could improve learning outcome achievements by enhancing awareness, coordination, integration, flexibility, participation, empowerment, accountability and a quality culture. In the follow up of this research the differences in results between TVET-institutions will be related to their maturity in TQM, giving answer to the question what internal

Region/ City adm.	July 2009-Feb 2010			June 2011-June 2012		
	Assessed	Competent	%	Assessed	Competent	%
Addis Ababa	2,176	379	17.42	3,503	1,017	29.03
Amhara	8,704	1,516	17.42	13,496	6,655	49.31
Tigray	1,307	276	21.12	7,785	3,884	49.89
Oromiya	4,352	758	17.42	18,893	7,312	38.70
SNNP	869	103	11.85	7,509	2,084	27.75
Somali	n/a	n/a	—	806	263	32.63
Harari/Dire Dawa	17,408	3,032	17.42	1,492	301	20.17
Total	34,816	6,064	17.42	53,484	21,516	40.23

Table VI.
Competency test results of
formal TVET graduates

Source: Composed by authors based on data from the Federal TVET agency

quality management leads to what level of internal effectiveness (outcome)? The operational questions are:

- (1) What differences in practices of managing the “TQM-enablers” exist among high-performing, middle-performing and low-performing TVET institutions, respectively?
- (2) Is there a clear linkage between practices of managing the “TQM-enablers” and internal effectiveness indexes across the three groups of TVET institutions?
- (3) If there is such a linkage, what kind of practice of managing the TQM-enablers lead to what level of internal effectiveness?

References

- Adams, A.V. (2011), “The role of skills development in overcoming social disadvantage”, Background paper prepared for the education for all global monitoring report 2012, paper commissioned for the EFA Global Monitoring Report 2012.
- Arjomandi, M., Kestell, C. and Grimshaw, P. (2009), “An EFQM excellence model for higher education quality”, assessment 20th Australasian Association for Engineering Education Conference, University of Adelaide, Adelaide, December 6-9.
- AU (2007), *Strategy to Revitalize Technical and Vocational Education and Training (TVET) in Africa: Final Draft*, Department of Human Resource Science and Technology, Division of Human Resource and Youth, African Union, Addis Ababa.
- Atchoarena, D. and Delluc, A. (2002) *Revisiting Technical and Vocational Education in Sub-Saharan Africa: an Update on Trends, Innovations and Challenges*, UNESCO-IIEP, Paris.
- Blaug, M. (1973) *Education and the Employment Problem in Developing Countries*, ILO, Geneva.
- Colardyn, D. (2009), “The certification of competencies”, in Maclean, D.W.R. (Ed.), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media BV, pp. 2777-2792.
- Coles, M. and Werquin, P. (2009), “The influence of qualifications frameworks on the infrastructure of VET”, in Maclean, D.W.R. (Ed.), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 439-452.
- Fluitman, F. (1999), “The roots and nature of reforms in vocational education and training: an analytical framework and some examples”, *Prospects*, Vol. 29 No. 1, pp. 55-65.
- FTVETA (2012), *TVET Sector Performance Report for 2011/12*, Federal TVET Agency, Addis Ababa.
- Hackman, J.R. and Wageman, R. (1995), “Total quality management: empirical, conceptual, and practical issues”, *Administrative Science Quarterly*, Vol. 40 No. 2, pp. 309-342.
- Hart, J. (2009), “Developing a national system of vocational qualifications”, in Maclean, D.W.R. (Ed.), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 2881-2898.
- Harvey, L. and Green, D. (1993), “Defining quality”, *Assessment & Evaluation in Higher Education*, Vol. 18 No. 1, pp. 9-34.
- HOPR (2004), “Technical and Vocational Education and Training Proclamation No. 391/2004. 10th year, No. 26”, Federal Negarit Gazta of the Federal Democratic Republic of Ethiopia House of Peoples Representatives (HoPR), Addis Ababa.
- Hides, M.T., Davis, J., and Jackson, S. (2004) “Implementation of EFQM excellence model self-assessment in the UK higher education sector – lessons learned from other sectors”, *The TQM Magazine*, pp 194-201.

- Johanson, R.K. and Adams, A.V. (2004), *Skills Development in Sub-Saharan Africa*, The World Bank, Washington, DC.
- Kemenade, E.V., Pupius, M. and Hardjono, T.W. (2008), "More value to defining quality", *Quality in Higher Education*, Vol. 14 No. 2, pp. 175-185.
- Kemenade, E.V., Kuiper, M.H., Onzenoort, J.V., Schaik, M.V. and Biesta, E. (Eds) (2009), *Method for Improving the Quality of VET based on the EFQM Model: First Version*, The HBO Expert Group, Groningen, Eindhoven, pp. 1-95.
- Kingombe, C. (2011), "Lessons for developing countries from experience with technical and vocational education and training: paper for the International Growth Centre – Sierra Leone country programme", Working Paper No. 11/1017, International Growth Center (IGC), London, January.
- Kotsik, B., Tokareva, N., Boutin, F. and Chinien, C. (2009), "ICT application in TVET", in Maclean, D.W.R. (Ed.), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 1879-1894.
- Lannert, J., Munbodh, S. and Verma, M.C. (1999), "Getting Stakeholders Involved: Partnership at work in three countries from Africa, Asia and Eastern Europe", in Atchoarena, D. (Ed.), UNESCO/IIEP, Paris.
- Lauglo, J. (2009), "Research for TVET policy development", in Maclean, R. and Wilson, D. (Eds), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media BV, pp. 891-904.
- Lee, K.W. (1998), "An alternative technical education system: a case study of Mexico", *International Journal of Educational Development*, Vol. 18 No. 4, pp. 305-317.
- Lewis, T. (2009), "Towards reclaiming the high ground in the discourse on vocationalism in developing countries", *International Journal of Educational Development*, Vol. 29 No. 6, pp. 558-564.
- Mackenzie, J. and Rose-Anne, P. (2009), "TVET glossary: some key terms", in Maclean, D.W. (Ed.), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 59-76.
- MOE (2005), "Education sector development program III (ESDP-III): 2005/2006-2010/2011 (1998 EFY-2002 EFY)", in M.O.E. (Ed.), *Federal Democratic Republic of Ethiopia*, Ministry of Education, Addis Ababa.
- MOE (2008), *National Technical and Vocational Education and Training (TVET) Strategy*, Federal Ministry of Education, Addis Ababa.
- MOE (2009a), *Ethiopian Occupational Standards Development Guideline*, Ministry of Education, Addis Ababa.
- MOE (2009b), *TVET Leaders' and Teachers' Qualifications Framework*, Ministry of Education, Addis Ababa.
- MOE (2010a), *Co-Operative and In-Company Training Handbook*, FDRE Ministry of Education, Addis Ababa.
- MOE (2010b), *Education Sector Development Program IV (ESDP IV) 2010/2011-2014/2015*, Federal Ministry of Education, Addis Ababa, pp. 1-143.
- MOE (2010c), *Establishment and Operation of Technical Advisory Panel and Technical Experts Panel Manual*, FDRE Ministry of Education, Addis Ababa.
- MOE (2010e), *Labour Market Information System for TVET Providers: Manual*, FDRE Ministry of Education, Addis Ababa.
- MOE (2010f), *National TVET Qualifications Framework*, Ministry of Education, Addis Ababa.
- MOE (2010g), *Occupational Assessment and Certification: Assessor's Manual Federal Democratic Republic of Ethiopia*, Ministry of Education, Addis Ababa.

-
- MOE (2010h), *Occupational Assessment and Certification: Candidate's Manual*. Federal Democratic Republic of Ethiopia, Ministry of Education, Addis Ababa.
- MOE (2010i), *Occupational Assessment and Certification: Directive*, Federal Democratic Republic of Ethiopia, Ministry of Education, Addis Ababa.
- MOE (2010j), *Occupational Assessment and Certification: Manual for Center of Competence*, Federal Democratic Republic of Ethiopia, Ministry of Education, Addis Ababa.
- MOE (2010k), *Vocational Guidance and Counseling for TVET Institutions and Polytechnics: Manual*, FDRE Ministry of Education.
- MOE (2012a), *Occupational Standards Development Guideline*, Ministry of Education, Addis Ababa.
- MOE (2012b), *Training, Teaching and Learning Materials Development Manual*, Federal Democratic Republic of Ethiopia, Ministry of Education, Addis Ababa.
- MOE (2012c), *TVET Curriculum Development Manual*, Federal Democratic Republic of Ethiopia, Ministry of Education, Addis Ababa.
- NUFFIC (2010), *NICHE strategy on Technical and Vocational Education and Training (TVET)*, Netherlands Organization for International Cooperation in Higher Education.
- Oketch, M.O. (2007), "To vocationalise or not to vocationalise? Perspectives on current trends and issues in Technical and Vocational Education and Training (TVET) in Africa", *International Journal of Educational Development*, Vol. 27 No. 2, pp. 220-234.
- Oketch, M.O., Green, A. and Preston, J. (2009), "Trends and issues in TVET across the globe", in Maclean, R. and Wilson, D. (Eds), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 2081-2093.
- Pawson, R. and Tilley, N. (1997), *Realistic Evaluation*, SAGE Publications Limited, London.
- Psacharopoulos, G. (1997), "Vocational education and training today: challenges and responses", *Journal of Vocational Education and Training*, Vol. 49 No. 3, pp. 385-393.
- Renaud, R.D. (2009), "Measuring educational quality in TVET", in Maclean, R. and Wilson, D.N. (Eds), *International Handbook of Education for the Changing World of Work*, Springer, pp. 1563-1575.
- Sanders, J.R. (1994), *The Program Evaluation Standards: How to Assess Evaluations of Educational Programs*, 2nd ed., Sage Publications Inc, Thousand Oaks, CA, London and New Delhi.
- Selvarantnam, V. (1988), "Limits to vocationally-oriented education in the Third World", *International Journal of Educational Development*, Vol. 8 No. 2, pp. 129-143.
- Stanwick, J. (2009), "Modularization and modular delivery of TVET", in Maclean, R. and Wilson, D. (Eds), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 2793-2809.
- Tarabini, A. (2010), "Education and poverty in the global development agenda: emergence, evolution and consolidation", *International Journal of Educational Development*, Vol. 30 No. 2, pp. 204-212.
- Uline, S.L., Miller, D.M. and Tschannen-Moran, M. (1998), "School effectiveness: the underlying dimensions", *Educational Administration Quarterly*, Vol. 34 No. 4, pp. 462-483.
- UNESCO (2000), "The Dakar framework for action-education for all: meeting our collective commitments", World Education Forum, Dakar, 26-28 April.
- UNESCO (2001), "31st Session, Volume 1: resolutions", Records of the General Conference, Paris, October 15-November 3.
- UNESCO (2010), *Guidelines for TVET Policy Review: Draft*, UNESCO, Addis Ababa.
- Westerhuis, A. (2008), "VET research in relation to VET policy, planning and practice", in Rauner, F. and Maclean, R. (Eds), *Handbook of TVET Research*, Springer Science + Business Media B.V, pp. 93-156.

- World Bank (2006), *World Development Report 2007: Development and the Next Generation*, The World Bank, Washington, DC.
- Yin, R.K. (1994), *Case Study Research: Design and Methods*, SAGE Publications, Thousand Oaks, CA, London and New Delhi.
- Zarini, M. (2009), "Switched on: international approaches to skills development through ICTs", in Maclean, D.W.R. (Ed.), *International Handbook of Education for the Changing World of Work*, Springer Science + Business Media B.V, pp. 1935-1946.

Further reading

MOE (2010d), *Improving Effectiveness and Efficiency in TVET: Manual*, FDRE Ministry of Education.

About the authors

Atakilt Hagos Baraki is a lecturer of Economics at the Ethiopian Civil Service University (ECSU) and a PhD student at Tilburg University, The Netherlands. He earned his BA in Economics from ECSU and MA in Development studies specializing in Economics of Development from International Institute of Social Studies (ISS) of Erasmus University. In the past ten years, he has been engaged in research, teaching, training and consultancy activities. He is co-author of the book entitled *The Design and Implementation of Business Process Reengineering in the Ethiopian Public Sector: the Case of Four Organizations*. He is also the author of the book entitled *External Debt and Economic Growth in Sub-Saharan Africa: A Cross Country Panel Data Analysis*. Atakilt Hagos Baraki is the corresponding author and can be contacted at: A.H.Baraki@tilburguniversity.edu

Everard van Kemenade is Quality Manager at MeduProf-S, Eindhoven, The Netherlands. He earned his PhD in business management at the Rotterdam School of Management (Erasmus University). He has experience and expertise in consultancy in external quality management and internal quality management all over the world, including JCI accreditation in different countries including Romania, Czech Republic, Syria, India and Vietnam. Everard has written many articles in magazines like *Total Quality Management Journal*, *Quality in Higher Education*, *Quality Progress*, *KIZ* (Quality in Healthcare) and *TH&MA*; as well as several books and chapters on quality management. He has been editor of the method for improving the quality of higher education based on the EFQM-model, which is available in English and seven other languages.