

Session 2

Establishment of a VET system with focus on Further Education – presentation of ideas on the motivation and establishment of a Further Education system (FES), especially in universities in Sub-Sahara Africa.

While session 1 discusses the basics of VET and Further Education, session 2 deals with how to establish Further Education structures by presenting visions and ideas on their implementation and formation. Different approaches are analysed from a VET perspective to develop them for practical purposes. The focus is specifically on efforts from Sub-Saharan countries.

The session opens with a keynote on work-process oriented teaching and learning by **Ralph Dreher**. His article *TT-TVET in Sub-Sahara Area: A proposal for work-process-oriented Teacher Training in the field of Vocational Education and Training* is based on experiences in **German** VET.

The article by **Zhao Zhiqun** from **China**, *Construction of professional tasks-based Curriculum for applied Further Study Programme at Bachelor level – example Nursing Distance Education*, reports on an adult-education project in the field of nursing. The focus is on the design of the curriculum, the acquisition of competencies for teachers and aspects of self-regulated learning.

J. Kamwi Subasubani points out in his article *Situation and Development of VET and VET Science in Namibia* that **Namibia** faces similar challenges to many other countries in Sub-Saharan Africa. The competencies of many trainers are not sufficient to attain a high level of employability. The article proposes solutions for technical, pedagogical and didactical education.

Ewnetu Hailu Tamene's article *TVET-University Nexus: room for synergy* describes how TVET in **Ethiopia** can become the engine of development for the economy and labour market by networking with universities.

The presentation given by **Guiseppe Tacconi** and **Adula B. Hunde**, *Participatory research on teaching practice as basis for Teacher Education and networking between universities and VET schools* focuses on **Italy**. The authors asked: how can research on teaching practice become an effective way to educate teachers and build network between universities and schools.

In his study *The “three branch model“ of Further Education of in-company vocational educators: Linking in-company learning projects, external training in Further Education and university learning*, **Nicolas Schrode** from **Germany** describes a training model that connects learning in companies, regional training centres and universities. The model was tested successfully and provides further impetus, in particular for the design of a flexible Further Education system for vocational educators in Sub-Saharan Africa.

The article of **Peter Kigwilu** from **Kenya**, *TVET Teacher Further Education: Practice, Experiences and Reflections of Stakeholders in Catholic Sponsored Community Colleges in East Africa*, studies teacher Further Education, focusing on transverse competencies like life skills, social skills and communication skills. Kigwilu explains why this profiling was important for the success of the Further Education programme.

Alpheas Shindi's article *Establishment of a VET-system with focus on Further Education – Presentation of ideas* emphasises the centrality of **Namibia**'s own VET and Further Education system. Experiences from international partners may serve as references but the concepts should not be copied.

The study by **Winston Akala**, *The challenge of contextualization and domestication of VET reforms for higher education staff capacity in East Africa*, considers the current state of development in the wake of educational reforms in **Kenya**, **Uganda** and **Tanzania**. According to Akala, the gap between the economy and education still exists. Centres of innovation for technical and Vocational Education at universities could help to overcome existing deficiencies.

TT-TVET in Sub-Saharan Area: A proposal for work-process-oriented Teacher Training in the field of Vocational Education and Training

RALPH DREHER

Characteristics of modern Vocational Education

Work-Process-Orientation

Today, Work-Process-Orientation is the main characteristic of modern Vocational Education. That means that a typical work-process of a specific profession will be identified and used as didactical basis. Therefore, teachers of Vocational Education should be trained to use the methods of vocational science (often adapted by qualitative research methods of social science) to

- identify such work-processes (by using task-analysing) and
- understand the working-steps, use tools, diagnostic schemata etc. (by using the methods of work-process-analysis).

So teachers in the field of Vocational Education must not be only good engineers to understand the theoretical background, they also must be good experts in the gainful employment of their vocational field.

The model of the holistic Action

Using a typical work-Process as didactical base means also, to

- give the Vocational Education a structure of tasks (cf. the “development tasks” of Havighurst) as curriculum structure and
- use the whole “circle of action” as structure for a lesson unit (see fig. 1).

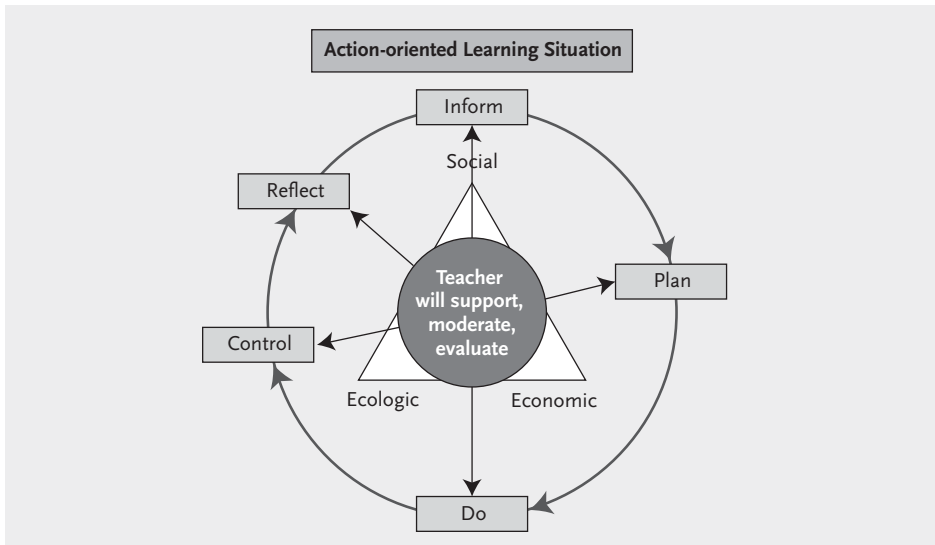


Fig. 1 Circle of Action

Looking at Fig. 1, the students are directly working in this circle, because it is their function during this process to

- understand the task (in the point of “inform”)
- plan a solution by developing types of solutions and to choose their master-solution (during “inform” an “plan”);
- realize their solution and to control the result (as part of “do” and “control”) and
- reflect their result (in “reflection”) by using questions like “What have we done why? With what kind of result?”, “Why we have not seen this or that problem?”, “How can we do it better next time?”, “What have we done right and how can we adapt this to the next task?”.

The main task of the teacher in this Learning-arrangement is not to be the leader of the learning-process. He is now the supporter of this process with the main functions to

- help students by giving them information material (or a chance to serve it from companies, internet etc.),
- moderate their work (often the students are working as team),
- give them a chance to realize their solution (by conditioning a workshop for using by the students) and
- moderate their process of reflecting.

“Competence of Design” as main task of Vocational Education

Looking to the sketched idea above, that students for themselves are steering their process of learning by developing a solution for a profession-typical task AND

the teacher is supporting them, vocational training can become a complete other function. It is not longer the leading idea, that vocational training is main focussed to a “drill and skill”-Training for preparing directly for gainful work, it is also now a process of EDUCATION, because during the students work in the circle of action, they learned a lot about

- information-handling, the real value of an information for the work and the danger of misinformation’s;
- working and discussing together and accepting other opinions during their teamwork;
- understanding, that more solutions are possible and the first solution in most cases are not the perfect solution;
- accepting failure and the value of failure for the own process of development;
- themselves and their views to the others and in the same moment the view of the others to themselves during the process of reflection.

All these qualifications together can be understand as parts of a “Competence of Design”, what means: The person, which is able to

- understand problems (and to difference between important and unimportant problems),
- find – together with others – concrete solutions,
- to realize a solution and
- reflect and to optimize this solution

and which is also able, to design their life by developing their world of labour AND their personal world. So Vocational Education with the main topic in “Developing a design-oriented competence” becomes the effect not only to train for gainful employment, it is also acting in the field of developing personal views, personal action regulation and self and foreign perception. So all these requirements are playing an active role in designing the personal future with sturdily and balanced relationships between myself, my family and friends and my desire for possession. And back to my labour: During my work with my personal possibilities it becomes possible for me, to work for the future of the industry and their products, the future of necessary services and in sum: Becoming a small, but imperative part in the process of growing up a powerful national economy with a friendly society.

By looking to the idea of developing such a “Competence of design” as main topic of a process of Vocational Education, it is very important to understand, that the last step of reflection is the most fruitful phase for this topic.

Consequences for the Teacher-Training

Characteristics of good teacher-work

To realize the idea above by using vocational training as base for a general education, it is the main topic that Teachers for Vocational *Education* Training (TVET) will be trained for planning, making and reflecting such teaching-units or courses.

And the first step to develop such a teacher-education means to have a look to successful teachers and how they will manage their work-process during the steps of creating their lessons, units and courses.

To concrete this idea as preparation for the development of a Teacher-Training for TVET (TT-TVET), the TVD (Institute of Technical Vocational Didactics, www.tvd-edu.com) at the University of Siegen has analysed in a further project especially in the sector of Automotive Service, that eight characteristics are typical for excellent TVET-Work in the field of Vocational Education (see Tab. 1):

Tab. 1 Eight characteristics of good “Automotive Teachers” and their effects (Dreher 2011)

“Automotive Sector”		Teacher training		
		Goals	Effect	
1	Practice- and work-oriented without organizational blindness/myopia	Definition of tasks: Find realistic working tasks	Innovating	Educating
2	Organize (vocationally scientific-oriented) analyses of work-processes			
3	Working didactically synthesizing (instead of reducing)			
4	Designing failure-based tasks in keeping with the learner	Development of tasks: Define workable and internally differentiated working tasks		
5	Preparation of teaching-units down to the last detail	Implementation: Offer coaching for the students; Allow for mistakes and moderate internal reviews of the students groups, offer technical and manual assistance; moderate internal and external processes of reflection	Teaching	Advising
6	Comparative reflection of work-planning and its degree of implementation			
7	Acceptance of the role of a coach who works emphatically and encourages the gaining of knowledge		Assessing	
8	Being open towards the constant further development of one's own classes	Reflection of teaching-units: Work out possibilities for improvement of the lecture plan and execution	Innovating	CEPI – Continuous Education Process Improvement

Looking at Table 1, the results of this survey can be listed by using the five general effects remarking teacher-work:

- Teaching,
- educating,
- advising,
- innovating,
- improving (continually – CEPI).

General conclusions for an aim-oriented Teacher-Training

As general conclusion of the defined characteristics of teacher-work in Table 1 can be formulated, that Teacher-Training especially in the field of Vocational Education must adapt to the model of the complete circle of action (Fig. 1). Because an

excellent TVET is not only a good teacher or educator, he is also a well working adviser, who is continually working by using reflection as base for improving and innovating their work with the students. So TVET also must understand their work as unit of informing (and using further results of reflection), planning, doing, controlling and reflecting. This result is in harmony with the following general statements about modern Teacher-Training:

- “Teachers must learn to teach through doing.” (Mayr 2006)
- “Teachers work requires implied knowledge, generated by experience.” (Neuweg 2002)
- “Teacher-education must integrate practical periods”. (Oser 2003)
- “Place in the center of TVET teacher studies the analysis, design and evaluation of (a) vocational learning, educational and qualification processes, (b) occupational work and processes and (c) technology as an object of work and learning processes [...]” (Bandung-Declaration 2008)
- “The way this works – between both opposite poles of a pure take-over of existing practice or as a creative, constructive development of educational practice reverting to training experiences – is related to the kind of training and its effects.” (Terhart 2002)

Trying to formulate a synopsis of all these ideas above, how excellent Teacher-Working can established, five facts for TT-TVET can derive:

1. Teachers will be formed through their own learning biography whereby they get their own teaching style.
2. Even university teacher education must follow the paradigm of promotion of design-competence, work process orientation and identify through relevant seminar presentation.
3. Academic teacher education needs working-tasks from teacher business, which can be solved and reflected by using scientific methods.

And as consequence of this synopsis, TT-TVET can be organized by using the following rules:

4. The definition of the special working-tasks can be realized by using the methods of “vocational science” (Rauner et.al.) and must be formulated as development tasks. That means, that every task shows a problem inside the work-process of TVET and that the teachers will develop their own personality during finding a solution.
5. The development of a curriculum for TT-TVET can use the idea of a competence-oriented taxonomy like the novice-expert-model created by Dreyfus/ Dreyfus. Looking to this model, the Training of TVET will start with simple tasks with a clear problem and well creating solution. But the tasks will become more and more indifferent (combination of problems, new problems without formulated solutions), so that a personal (!) solution in harmony with the experience of the teacher and his personality will be the solution.

Examples

Example I: (Re-)Training-Concept for Teacher in the field “Automotive Service” (TVD)

Up to 2008, a main task of TVD (further established at University of Wuppertal) is, to develop TT-TVET special for teachers coming outside the central Europe system (www.tvd-edu.com).

That means, that the training must be focussed on the idea of action-oriented learning as requirement for real Vocational Education by initialising the development of design competence. To understand the relationship between this three terms, TVD has developed a two-step-introduction:

First step

The TVET are working in the role of students. They try to find a simple failure. As example: Car will not run, because the fuse for the fuel pump is damage. Discussing about a diagnostic-scheme, they understand, that the main solution will be to create a diagnostic-scheme, which is closer look as logical: A combustion engine (no Diesel) needs air, electric energy, fuel, a working ignition-system and compression pressure to run. Now they must find the main question: What is simple to check, what is difficult: Checking the airfilter and the electrical power is simple (switching the starter), it is also simple to check the fuel pump (looking to the in most cases transparent fuel supply lines). Next step of complication is to check the fuses for the CPU, the Anti-Theft-System and the fuel pump (in case of non-transparent fuel supply-lines). And it is complicate, to check the ignition-system (using special tools, knowing about the danger) and the compression pressure (directly with a compression tester or indirectly looking to the current consumption by using an oscilloscope – also using special tools plus time for remounting and mounting). So the solution may be in details different – but the master-solution has the same structure as described above. That must be a cognisance in the part of the reflection, when the groups of TVET in this session compare their results. In these moments, they understand the didactical concept working with solution open vocational tasks as base-element of the lesson-units. Also, they understand the function of a self-directed informing and planning and the necessary of the part of reflection.

Second Step

As second step, the TT-TVET-Concept of TVD gives the teachers the possibility to develop their own lesson unit with a specific topic – that means a specific work-oriented vocational task in the sector of “automotive service”.

To give teachers the possibility to understand at first the general concept of creating such lesson-units and then to adapt this general knowledge for lesson-units with complex vocational work-tasks, TVD has designed the following steps of general working tasks (like a taxonomy of vocational oriented-tasks in the field of automotive service):

Tab. 2 Modules of TT-TVET for the vocational sector “Automotive Service”

TT-TVET Module	Planning lectures for one of following work-tasks:
Automotive Service	Inspection, exhaust-gas test, control of brake-system and steering-system, change of fluids
Abrasion Repairs	Repair of brake and clutch, renew axle mounting and steering knuckle, renew exhaust pipe
Repair of Engine Mechanic	Failure diagnostic and based on it a valve seat overhaul, renewal of main and connecting rod small end bearing, cylinder measurement and insertion of oversized piston
Repair of Gear Box	Renewal of synchromesh mechanisms; renewal of brake band, multi-plate clutches and free-wheel feature, checking of control valve for module/control pressure, overhaul of power lock differential
Repair of electrical circuits	Fix defects in the lightning set or power supply (generator/alternator battery)
Repair of Control Technology	Failure diagnostic and removal at the engine management, the driving dynamics control and the comfort functions

Example II: Curriculum for Engineering-Education (IPW)

The “Ingenieurpädagogische Wissenschaftsgesellschaft (IPW)” is a German association of engineering educators and was founded in 2012 (www-ipw-edu.org).

The general aim of the society is to establish a module-oriented education for academic teachers in the field of engineering.

The main topic of the IPW can describe as theory-practice-combination, what means: The modules will at first give an overview about special concepts (like laboratory didactics) for teaching engineering science or tasks of teaching (like the development of scientific writing in the field of engineering science). After this, the participants of such a module will use this theory to solve a task of planning, teaching, educating or reflecting. (See Fig. 2):

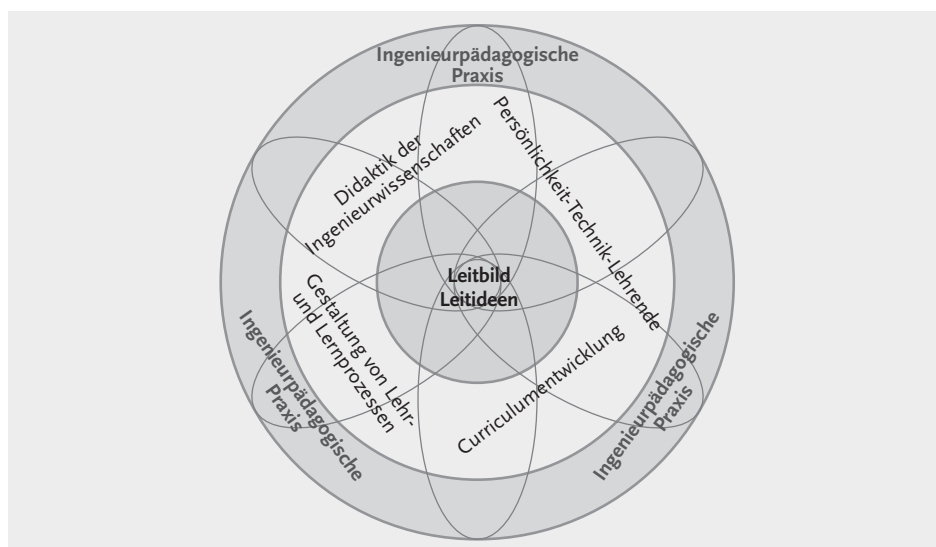


Fig. 2 Structure of the IPW-Curriculum (IPW 2015)

A special remark of this curriculum can be describe as “model-orientation”: Because the IPW-Curriculum is working with the main criteria of sustainability as general aim of education for technicians. That means that in this meaning all kind of technicians will have a strong possibility to design our world. Technicians are still working to solve the problems of clean water, food, energy, and education for all by building up special technical solutions like photovoltaic-fields, simple-working WIFI-networks and so on. But they also decide, what kind of materials they use for their projects – like the “rare earth” for the electronic communication devices without a chance of recycling. So engineers and technicians must learn to get an overview about the social results of their work and the decisions during their work. That is the main educational remark of the IPW-Curriculum – with the general question: How can I as educator integrate this part of education in my lesson-planning, my working with the class and my personal reflection of my educational processes.

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Construction of Professional Tasks Based Curriculum for Applied Further Study Programme at Bachelor Level – take Nursing Distance Education as an example

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BAOZHI SUN

Abstract

This paper describes a curriculum reform project in continuing education programme at undergraduate level to the in-service nurses by means of distance learning in China. Based on the concept of typical professional tasks from Vocational Education, the project aims to cater for the needs and features of adults' learning. Result shows that students enhanced their professional competence through solving the professional tasks during the study. Difficulties in implementation of the new curriculum are capability and experience defect of teachers, low motivation of some students and the acceptance of the curriculum concept by the traditional academic (not professional) community.

Keywords

Continuing education, distance learning, professional tasks, curriculum reform, undergraduate programme in Further Education.

Background of the Reform Project

Since 2000, with the introduction of distance learning technology in higher education, an applied further study programme at bachelor level has been conducted by the School of Distance Learning for Medication Education, Peking University (referred as “PUDM”). The students of this programme are on-the-job nurses

with associate college degree (zhuan ke). Initially, PUDM adopted the traditional curriculum mode of nursing education which is prevailing in most Chinese universities, e.g. independent two systems for teaching of theory and skill training. Among them, the theory courses are divided into general courses, basic specialized courses and specialized courses. The features of this curriculum are: (1) emphasis on completeness and systematics of disciplines and focus on reproduction, understanding, verification and memorizing of knowledge; (2) the content of theoretical learning is the result of didactical reduction which without direct connection with work; (3) the practical teaching emphasizes on operational techniques and skills, and there is a lack of learning and reflexing in real work process (Zhao, 2014, p. 192). Problems were proved in the practice of implementing this curriculum: (1) the learning content didn't link directly to real work content; (2) this mode of education didn't go hand in hand with students' future daily work; and (3) their practical capabilities failed to be recognized by their employers at last.

In 2010, PUDM envisioned to construct a more practical and more convenient mode of teaching and learning which caters for distance learning. In partnership with the Institute of Vocational and Adult Education of the Beijing Normal University (BNU), the PUDM initiated a curriculum reform project oriented to the new development of the health care industry according to the traits of adults' part-time learning on the Internet. A scheme of professional competence development from Vocational Education was introduced based on the concept of typical professional tasks (Kleiner et al., 2002). The project aims to find a solution to the questions: how to cater for the needs and features of adults' learning, and how to make use of technological edges of distance learning to improve their holistic professional competence.

Guiding Principles

Compared with students in full-time study programme, adult students in part-time study programme have the traits of utilitarianism-oriented learning motivation, clear self-identification, learning readiness being related to their social roles (Knowles, 1990). Their learning activities are oriented to problem solving in practice rather than for theory study and research. According to the reform concept, the new curriculum should focus on the training objectives of holistic professional competence development, comply with the relevant development rules of professional competence (Dreyfus and Dreyfus, 1986; Rauner, 1999) and establish a course system based on typical professional tasks (Kleiner et al., 2002, p. 23). Emphasis of the new courses is laid on the work process, working content, working conditions and work requirements of the nursing practice (Reinhold et al., 2003). The learning content highlights students' self-directed learning which is based on "Working-learning tasks" and online learning resources. Meanwhile, students can be tutored in their daily practice both by experienced nurses and university teachers. The teaching assessment is based on the assessment content and methods on nursing practice in the clinic.

Process of the Curriculum Development

Conducting Survey and Identifying the Roadmap of the Reform Activities

During 2011–2012, the project group conducted a one-year survey to identify the basic principles and cultivation objectives of the new study programme. (1) According to the literature study and policy analysis, the health care policies and their development orientation became clear. The curriculum reform should be based on work place and work process requirements, meet the national education policies and the development trend of the health care industry. (2) Nurses' professional practice needs holistic capabilities. The objectives of nursing education are to help students acquire the holistic competence for the nursing career, which shall be set as the quality standard of education. (3) According to the survey on work place needs, the fundamental requirements for nursing job are identified. (4) It is needed to collect the information about the current situation of nursing education in China and abroad as well as about the different experience of competence-based curriculum development in Vocational Education and training.

Adopting Suitable Approaches to Identify the Curriculum System

Usually, there are two distinct guiding principles in curriculum design, thereby formed two different course schemes. One is based on the discipline system which focused on its scientificness, completeness and systematicness; the other is based on occupational requirements and focused on the application of knowledge, which lays an emphasis on the requirements of work place. The former faces at least the following problems which are hardly to solve: (1) without treating 'work' as an entity, the corresponding work experience cannot be obtained; (2) teaching-learning process focuses on the knowledge infusing and training of skills while neglecting the values of discovery learning and action learning, so that in the end lead to the highest level of professional cognitive competence cannot be developed; (3) students are facing extreme difficulty in theoretical learning which far away from the work situation and also cannot realize implement the knowledge transfer (Zhao, 2014, p. 192). In general, this mode has been ruled out because it goes against the objective of the curriculum reform in this project.

PUDM has analyzed the work-based curriculum development approach and holds that it is of great importance to the nursing career development (Benner, Tanner and Chesla, 1996; Rauner, 1999). Therefore, the "Professional Tasks Analysis Approach" (translated from Berufliche Aufgaben in German language) has been chosen, whose key lies in the Expert Worker Workshop (EXWOWO) on clinic practice (Klein et al., 2002, p. 20–34).

On January 17th 2013, the PUDM held an Expert Worker Workshop on Clinic Practice. The attendees conducted an analysis about nursing professional tasks. Under the moderator's guidance, experts recalled their history of career development and be categorized several stages (Zhao, 2009). They identified challenging tasks at every various stages and then they classified and named those tasks. Fi-

nally they summarized a framework of 13 professional task for nursing profession (at the bachelor's level), i.e. career awareness, primary clinical nursing, clinical assessment, nursing for common diseases, emergency and intensive nursing, emergency response inside and outside hospital, difficult and complex nursing problems disposal, nursing teaching, organization and management of nursing effort, nursing administration, the doctor-patient relationship coordination, nursing research and monitoring nursing quality. All above lay a basis on the classification and index of study courses at the bachelor level (Xia, Sun and Liu, 2014).

Setting up the Curriculum System, Internal and External Review of the Curriculum

On April 7th 2013, PUDM invited the experts who attended the EXWOWO to finally identify and review the names and content of the identified professional tasks, basically confirmed the curriculum framework of nursing education. Afterwards, the new curriculum was submitted to an external expert commission. They reached a consensus on the reform thought, the procedure and reasonable results of the construction of the curriculum system. They made also comments on the coverage and difficulty of different courses, qualification needs of teaching staff and feasibility of the new curriculum. They suggested that the new curriculum should be tested by a pilot programme firstly.

Perfecting the Curriculum and Determining Operation Teaching Plan

The project group invited clinic experts to further streamline the new scheme and analyze the content of the professional tasks. They discussed every task's background, significance, working process and content, and finally confirmed the teaching plan. In the meantime, the group members consulted experts from other universities and education research institutions and solicited advice on course design, teaching methodology, assessment mode. Meanwhile, all colleagues of the project group drew up a detailed teaching plan on the course "Coordinate the Nurse-Patient Relationship and Tackle Disputes" together as a model for other courses.

The features of the new curriculum can be summarized as: (1) the objective is development of holistic professional competence, where students can obtain the professional cognitive competence, occupation skills and qualification; (2) the learning content is the professional task, which is not (direct) corresponding with discipline knowledge; (3) the learning process is equipped with the work process, where students can conduct learning and thinking in comprehensive actions. Starting from the world of work, the new curriculum helps students to deeply understand the connection between knowledge and work, obtain the work process knowledge and context awareness (Fischer, 2000), it could realize an unification of action, perception and emotion and the return of curriculum from the world of science back to the world of work (Zhao, 2014). From the perspective of learning

theory, new curriculum is based on the theory of constructivism, situated learning and action orientation.

Development of Learning Resources and Teaching Support Environment

Distance education must be supported by online learning platforms. Based on the new curriculum philosophy, big changes take place in the development mode of course resources. The new support platform contributes to teaching design, resource design and learning process, e.g. it adds functions like monitoring when students hand in their homework, determining the proportion of test modes and real-time statistics of Q & A (Wang, 2011). Various departments can share information and coordinate on following up learning process and assessment.

Pilot on the experiment class and continual improvement

The new curriculum was implemented in a small scale firstly. In 2013, a pilot class was set up. Candidates volunteered to apply for the pilot class. They shall be on-the-job nurses who equipped with associate college diplomas of nursing and nurse practitioner certificates. They should be ready for the teaching reform and intensive learning. The pilot class enrolled 32 students in 2013 and 62 in 2014 respectively. The following measures were adopted: (1) elaborating design on the teaching process; (2) choosing qualified teachers, ensuring them to understand the teaching-learning reform concept and master the latest instruction methods; (3) enhancing support and tutoring for students, paying special attention to students' individual differences.

Before the new semester began, the PUDM convened all the teachers to discuss the design of courses and hold meetings of preparing teaching plans, so as to make an effort to ensure the teaching reform. During learning processes, the project group timely followed up the teaching to monitor to spur students' learning. At the end of a semester, the PUDM teachers made summary and reflected their teaching activities. The results show that students have finished learning tasks and enhanced their capability of knowledge acquisition. But they had also difficulties to adapt to the new teaching approach, during the first year. That phenomenon requires more guidance for teachers.

Result and Discussion

The implementation of the new curriculum is not long, the whole effect needs to be comprehensively evaluated. According to tracking survey, as a result of the way of action-oriented approach to learn in real work situation, students have to collect data, make and implement a work plan and evaluate the learning outcome by themselves after get work and learning tasks form teachers. Compared with traditional discipline-based curriculum, students participate in the real work process deeply and solve the complex professional issues, rather than just reading text-

books and discussing about some cases, which plays a positive role in promoting the professional action competence. Random monitoring on a typical day of students' online learning shows that, compared with those from "normal" classes, students from the pilot class have more participation in learning. Most of them study online during 20:00–23:00 and some still do even at 24:00 o'clock. According to the feedback about the first group of graduates, the reformed study programme has been welcomed by employers. Since the good performance and the reputation of graduates, for example, a famous Sino-foreign joint venture upscale hospital from Shanghai even proposes to cultivate a large number of their nurses in cooperation with PUDM.

Our survey found that the competence of teachers is a key factor to the quality of the implementation of the new curriculum. On the one hand, teachers should have the sufficient didactical-methodological competence, can design suitable learning tasks to reflect the real work requirements; on the other hand, the teachers' working experience have a great impact on the study of students, the degree of professionalization of the guide teachers provide directly affect the depth and breadth of student reflection about the practice. It's still difficult to find enough competent teachers.

In the new curriculum, self-directed, (relatively) independent and out-put-oriented learning approach requires that students use expertise and work experience to solve practical problems. This increases learning pressure for some students who have less learning motivation and just want to get diploma. Several students are no longer willing to pay so much to learn after a period of study, who ask to resign from the pilot class and return to learn in the traditional "normal" classroom.

The reform calls for the breakdown of the traditional curriculum mode and the establishment of a new curriculum concept, it is challenged also by two things: (1) there is a great change in the curriculum concept and philosophy of study administration, study service and instruction before and after the implementation of the reform project. All the participants shall change their mind-set, which faced great problems in the practice; (2) facing query from (part-time) lectures, external experts (e.g. professors from traditional scientific disciplines) and students, who needs a lot of explanations.

Practice shows that timely summary is an effective approach for continuous improvement. At the end of every stage of study, teachers shall be convened to summarize and exchange their views on the teaching activities, and seek for further improvement approaches.

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Situation and Development of Vocational Education and Training (VET) and VET Science in Namibia

J. KAMWI SUBASUBANI

Abstract

Ever since independence, Namibia has invested heavily in Education and Training. However, the Education and Training system has remained weak by international standards, and therefore requires significant interventions of which teacher/VET Trainer is central. The provision of Vocational Education and Training (VET) is a challenge, worsened by the inaccurate perception that VET is second-rate alternative to a purely academic education. Thus, there is an urgent need to raise the quality of VET in order to improve the quality of VET graduates who are skilled, employable and ready to contribute to the development agenda. The NTA has identified the major factors that prevents VET from fulfilling its mandate in the developmental agenda, leading to decisive measures been taken, such as: improving the VET Curricula, availing up-to-date training equipment and materials, and most importantly the Training of Trainers (ToT). Different studies have been conducted to establish the competency levels of VET Trainers, and results shown major deficiencies that requires an urgent need for up-skilling and capacity building of trainers. The need to up-skill and capacitate VET trainers has resulted in a ToT system being developed. Immediate actions have been taken and cooperation with support initiatives have been strengthened. The major problem faced by NTA is the development of a sustainable Education and Training system including technical, pedagogical and workplace (industry) exposure of VET trainers. Best practice models have to be established which show strengths, weaknesses and opportunities of the approach.

The objectives of this paper are to explain the current the VET trainer education and training system and to present the ToT system challenges on the way to a full-fledged nationwide system.

Introduction

The lack of a high skilled workforce has been identified as one of the most problematic factors for doing business in Namibia as a result of an educational system in regards to Higher Education and training that is ranked 118 out of 148 countries.¹ These reports are showing an urgent need to raise the quality of vocational training and education and supports the approach of the government to put their focus on this area. The Vocational Education and Training (VET) Act, Act 1 of 2008, mandates the NTA to achieve an effective and sustainable system of skills formation and establish a stable organisation and management system for Vocational Education and Training. The NTA through its Strategic Plan for the period 2015/16 – 2019/20 aims to be the national port of call for Vocational Education and Training skills. Therefore NTA is responsible to regulate and facilitate the sustainable delivery of quality Vocational Education and Training to the benefit of their stakeholders.

There are six key focus areas identified which will drive the Strategic Plan over the next five years towards the realisation of specific and defined strategic objectives:

- Organisational Effectiveness
- Funding
- Regulation
- Training and Related Services Provision
- Administration of the VET Levy
- Stakeholder Engagement and Communication

This document aims at providing a short overview about the response to objective of up-skilling TVET Trainers, commencing with a situational analysis, brief overview of interventions that the NTA had undertaken, and continues to implement, in addressing the competence levels of trainers.

Situational analysis

The results of the 2015 Competence Assessment report, the average competency (pass) rate among VTC trainees and the real or perceived un-employability of public VTCs graduates among other indicators call for an urgent need for Continuous Professional Development (CPD) and the capacity building for VET trainers. The Competence Assessment specifically identified the lack of rightly qualified, skilled and up-to-date VET trainers and thus called for increased investment in the pre/in-service training for all VET Trainers. The above predicament is a result of a number of issues such as the absence of institutions in the country for further technical training beyond the current VET Certificate (Level 3) offered in Vocational Training Centres across the country. Furthermore, limited access to institutions of higher learning that offer VET specific pedagogy and didactics to quali-

1 The Global Competitiveness Report 2013–2014, p. 291.

fied artisans, technicians and engineers who wish to become VET Trainers. Lastly, a limited and outdated industry exposure by in-service VET Trainers, as a result of a less effective relationship between industry and training drastically affect the quality of VET Trainers. In short, Namibia, currently does not have a properly established and integrated education and training system for VET Trainers. In the absence of an established system, what the country has is a fragmented system that sees VTCs, NUST and Industry operate in isolation towards the development of VET Trainers.

Currently Vocational Education and Training (VET) in particular is provided by a wide range of providers:

- Public Vocational Education and Training centres (VTCs)
- Private Vocational Training Providers
- Commercial companies
- Workplace related providers
- Ministries
- State Owned Enterprises (NAMWATER, NAMPOWER)
- NGOs

For the purpose of this paper, focus will be placed on six public VTCs that fall under the direct control of the NTA in terms of funding and management. There are about 151 VET Trainers in these public VTCs.

The Human Resource Department of the NTA indicates the minimum standards of VET Trainer requirements and differentiate them into:

- Pedagogical Qualification: a minimum National Certificate Vocational Education and Training: Trainer (Level 4) or equivalent or comparable qualification. Where the above qualification is not available, a minimum of 5 consecutive years working experience in the specific occupation/trade area with a focus on the areas where training will be offered.
- Technical Qualification: Qualification must be one NQF level higher than the level at which training will be facilitated. It would be advisable to have trainers having a minimum of NQF Level 4 Qualification where applicable.
- Experience: A minimum of three years practical experience within the scope of the discipline in which the training will be offered.

All in all the technical and pedagogical competence of VTC trainers is crucial to the successful implementation of any VET strategy. The NTA tries, therefore, to make concerted efforts, not only to train, but also to re-train those trainers who are in the system.

TOT systematic Approach (TOT Interventions)

Still in the phase of researching and planning, NTA is not waiting for the planning cycle to be completed before embarking on implementation. Aspects such as increasing trainee enrolments; improving trainee outputs; improving the quality of

VET provision; strengthening training providers; revising curricula; and improving skills of trainers, amongst others are proceeded regardless of the planning process. In addition, there is a pressing need for the NTA to expand the provision of VET in the immediate short-term and visibly seen to be making a difference on the ground. Public expectations are high and must be addressed sooner rather than later. The short-term process concludes the effective use of support initiatives, while simultaneously progressing with the development of a TOT system.

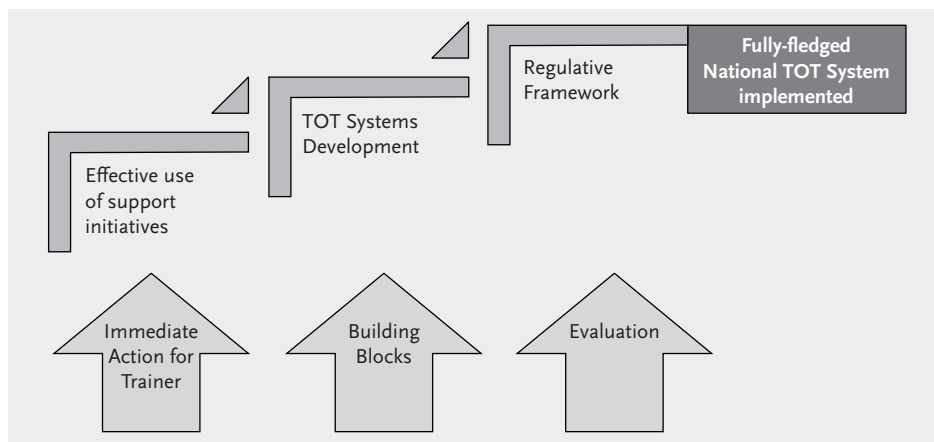


Fig. 1 Namibia TOT System Development Approach

Regarding the alignment of demand and supply based on the Human Resource Development Plan, the NDP4 points out specific strategies which lead the way in developing a TOT-system. The TOT System Development Approach building up on following components:

- Increasing the provision of opportunities for VET and technical education
- Introducing competency-based education and training (CBET)
- Upgrading educator qualifications
- Providing adequate equipment and infrastructure for VET centres

MAIN ISSUES

Developing a systematic approach for the TOT and a continuous development of in-service trainer is in the beginning. There are a lot of issues NTA has to address to, the main issues which are highlighted in the following.

VET Trainer Standards

The problem is that the foundation of the pre-service training is already insufficient due to the challenges faced by the current VET system. As a result, the quality of VET Trainers when entering the system is less desirable, thus requiring an effective TOT system to retrain those trainers. It is therefore impeccable to either raise the entire standard of VET sector and strives for excellence from the beginning or TOT will always be a step behind.

Technical up skilling

The capacity building process for VTC trainers always consists of a pedagogical side and technical side. But following an old saying in *"it's easier to teach a plumber to teach than a teacher to do plumbing"*, the main focus should be on technical up-skilling of trainers. Trainers in Namibia ought to be one level higher than what they teach. Therefore it seems to be enough to just upgrade trainers to Level 4, 5 or 6. One problem is that level 4 till 6 enhances no further technical input and is concentrating more on management topics. The crucial problem is that most trainers lack the appropriate technical skills, as the highest Level 3 they attained is the equivalent to the one they teach. Therefore, the CPD Unit has come up with technical up skilling initiatives such as 6–8 weeks short courses where trainers go on contact sessions at schools of higher learning. In the pipeline is the idea to have technical up-skilling held at local VTCs, where experts are brought in to teach the VET trainers?

Pedagogy didactic training

The need for pedagogy and didactic training cannot be overemphasized, because delivery methods of lessons are as critical as the level of knowledge of the subject the VET Trainer has. And, in this case, there are no technical colleges that offer a combination of technical and pedagogical training to pre-service VET Trainers. Therefore, leading to a situation where upon recruitment as VET Trainers, the trainers are technically equipped, but lack the philosophies that involve skills and knowledge transfer. In this regard, the CPD Unit facilitates the partnership between NTA and NUST where pre and in-service trainers undergo a VET Trainer (Pedagogy) training at NUST.

Industry Exposure/Work based training

For meeting industry requirements and standards, training has to keep up with technological change and close ties to industry have to be maintained. Yet public training providers have not been able to sufficiently adapt their services to changes in occupational profiles. The attitudes and qualifications of trainers are often weak and outdated and most trainers lack practical experience. Industry exposure or work based training is a significant element of artisan training programmes at Level 2 and above. Still presently placements are not arranged for a significant number of trainers and trainees currently in the system. The reality in the VET sector shows that work placements are rare and that the quality of the work placement is often low. Particularly rural VTCs struggle with a lack of industry connection as the density of industrial activity is obviously low in these areas. The process of arranging industry attachment for trainees has already been started and will be included in the new qualification ProVET has been working on. As of 2016, the CPD Unit has established partnership with the Namibia Chamber of Commerce and Industry (NCCI) to introduce the concept of Industry Exposure for VET Trainers.

Food for thought

How should a trainer qualification look like?

How can pre-service trainer be better educated?

What is the careers path of a VET trainer?

How can we expose trainer to industry?

Is didactics training the most for now?

How can we strengthen the relationship between industry and public VTCs?

Is another level system necessary for VET Trainers with a Level 3 technical qualification?

Where do we find trainers who are able to retrain in-service trainer?

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In-service teacher training for VET institutions: the challenge of evaluation in Comunitat Valenciana (Spain)

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Abstract

Like other European countries, in Spain, a coherent and systematic process encompassing pre-service education and professional development for VET teachers is still in progress. However, in-service teacher training is a key priority in the agenda to support teacher competencies and to enhance the quality of teaching and learning. But to prove the outcomes of teacher training and to improve professional development programmes, it is necessary to evaluate this training.

The aim of this paper is to present some reflection from practice, on the evaluation of in-service VET teacher training in a region of Spain, Comunitat Valenciana. The article focuses on the evaluation characteristics that appear to be more related to the impact of teacher training on the improvement of teaching processes and results: training needs analysis, evaluation of learning, and its transfer.

In this region, in-service training for VET teachers is a complex system, with three main stakeholders: a) the central, public agency in charge of the Annual Plan for teacher training and certification; b) VET schools, with certain level of autonomy; c) and the Centre for Training, Innovation and Educational Resources (CEFIRE), which is responsible for: training needs analysis; enhancing innovation and research in schools; and evaluating schools' training programmes.

In 2014, members of CEFIRE started a peer learning process to design an integrative evaluation plan for VET teacher training. In this paper, the actual situation of evaluation, as well as the new proposals, are presented and discussed considering current literature and empirical studies on teacher training quality and impact. The results of this learning process constitute the baseline to further develop and im-

plement a coherent evaluation framework for teacher training, and hopefully they can contribute to the discussion on evaluation strategies for similar institutions.

Introduction

In any VET reform or implementation of new policies, the role of VET teachers and their professional development is crucial. Policymakers often expect VET systems to fulfil high and broad expectations, such as meeting industry's skills demand, improving youth employment rates (European Commission, 2015), modernise and industrialise national economies (Grossmann & Naanda, 2006). The role of teachers has become more complex and there is a growing awareness of the teaching profession, as VET institutions respond to change -whether it is a complex reform or the adaptation to changing economic or social conditions- largely depends on teachers' preparation (Buck, 2005).

Within this complexity, pre-service teacher training is not sufficient in order to meet all demands from the labour market, students, policies and changing context. In-service training can be a form of capacity building for VET institutions and a support for VET teachers, as an opportunity to deepen their understanding of their own disciplines; to improve their pedagogical knowledge and strategies; and to help them integrating ICTs in their teaching process (NTA, 2014).

But still, to establish the relationship between in-service teacher training and the enhancing of quality of teaching and overall, of VET institutions, it is necessary to evaluate this training and its effect on teachers' practice. Given the public investment in teacher training, it is also a matter of accountability and transparency of public efforts to inquire on teachers' learning outcomes.

For this reason, some reflections on the evaluation of in-service teacher training in a region of Spain, Comunitat Valenciana, are presented. The paper focuses on the evaluation characteristics that appear to be more related to the impact of teacher training on the improvement of teaching processes and results, which is one of the priority in evaluation to the Valencian educational authority (Orden 65/2012): training needs analysis, evaluation of learning, and its transfer.

Context: in-service training system for VET teachers

Like many other European countries (European Commission, 2010), in Spain, it is currently premature to refer to a VET teacher education and training system since a coherent and systematic process encompassing pre-service training and professional development has not been implemented yet.

However, supporting teacher competencies is a key priority in the agenda. Spanish Ministry of Education (Ministerio de Educación, Cultura y Deporte, 2015) firmly states that initial and Further Education of teachers is one of the main tools to enhance the quality of teaching and learning. A breakthrough in teacher training

system is recommended, as well as a rigorous evaluation of the outcomes of in-service teacher training on academic achievements of students.

In Spain, VET teachers are civil servants, who have to pass a State exam to be employed. As far as their pre-service training, VET teachers have usually a vocational qualification, a variable amount of work experience and a teaching qualification. The formal requirements to become a VET teacher are getting more and more precise regarding the pedagogical qualification; nowadays, to become VET teachers, graduates need to specialise through a master programme. However, for other kinds of VET educators, such as in-company trainers who act as tutors for students in their apprenticeship, there are no national formal requirements or qualification standards. This is a common situation in European countries where VET systems are not based on dual training principle (Keurulainen, 2014). Nonetheless, as long as work-based training and apprenticeship contracts have been implemented (since the law Real Decreto 1529/2012), the role of in-company tutors and trainers in VET dual system is currently an active debate for researchers and practitioners (Bertelsmann, 2015).

Regarding in-service training, it is considered to be a right and an obligation of every teacher (Ley Orgánica 2/2006), and it is in the jurisdiction of the decentralised education authorities in each of the 17 autonomous communities. Comunitat Valenciana is one of these autonomous communities with 323 VET schools and around 86,000 VET students attending (51.3 % at middle-level vocational schooling and 48.7 % at the upper level) (Ministerio de Educación, Cultura y Deporte, 2016, data 2013–14). The Gross Enrolment Ratio is 48.1 % for middle-level VET, and 45.9 % for upper level – both are 9 % higher than the Spanish national GER for the same educational levels –. 3,263 VET teachers were enrolled for the academic year 2013–2014 (without considering teachers of art and sports disciplines).

In Comunitat Valenciana, in-service training for VET teachers is a complex system, with three main stakeholders: a) Teacher Training Service, a central and public agency in charge of the Annual Plan for teacher training as well as its evaluation and certification; b) VET schools, which have certain autonomy and design their own Annual Training Programme, led by a teacher which has the role of “school’s training coordinator”; and c) The Centre for Training, Innovation and Educational Resources (CEFIRE), specific for VET institutions. This centre is responsible for: conducting training needs analysis; enhancing innovation and research in schools, by promoting networking and inter-schools training activities; and evaluating schools’ training programmes. CEFIRE acts as a mediator between education authorities and schools: CEFIRE advisors, who are typically specialised in some of the 25 vocational sectors, work in close cooperation with schools’ training coordinators and leaders.

Reflection from practice: the evaluation of in-service teacher training

This paper is an outcome of a reflective learning process conducted from November 2014 to May 2015. The steering group of this process was composed of four CEFIRE advisors and its director, who started a seminar to design an integrative evaluation plan, capable of assessing a variety of teacher training activities, such as conferences, seminars, and longer training programmes for school leaders; and more specifically, their impact in VET schools. Although it was meant to be an internal peer learning process, the steering group was also assisted by an external researcher and counsellor on training evaluation.

The theoretical framework of the seminar was the holistic evaluation model by Pineda (2010), which considers six evaluation levels: trainees' satisfaction, trainees' learning, training pedagogical quality, transfer of learning, training impact and return on investment of training. Each of these levels was analysed and discussed – ROI level was not included in this seminar but will be approached in the future. The active participation of CEFIRE advisors allowed debating on the possibilities and challenges for evaluation in this specific context; the final result was a document that is the starting point for the development of an integrated evaluation model of in-service training for VET teachers.

In this paper, some of the seminar analyses and conclusions are presented, specifically on three aspects that appeared to be crucial to enhance training effectiveness. The current evaluation practices will be presented, as well as the proposals made by the steering group for the next academic year.

Training needs analysis

Although it is not an explicit evaluation level by itself, training needs analysis can be considered as the first step of evaluation; as well as a pivotal moment to plan training activities that suit teachers' and schools' priorities, demands, and capabilities.

Nowadays, CEFIRE designs its training activities considering the guidelines delivered by the Teacher Training Services and general educational policies. On the other hand, CEFIRE advisors administer an anonymous survey to teachers, with the aim of identifying their perceived needs and proposals. The response rate for this survey though has been decreasing during the last years, concerning scientific and Technical Training. Consequently, the advisors often have to use their own perceptions, experience, and knowledge when assessing teachers' training needs. Moreover, this questionnaire does not allow detecting training deficits if teachers are not aware of them.

In order to overcome the existing problems, the following measures are proposed. In the first place, it should be teachers' obligation to respond to the survey on training needs. Every year the internal training coordinators of each VET school

convene a meeting with the entire teaching staff, so it is suggested that these coordinators supervise the collection of this information from teachers, and make this information accessible to the CEFIRE.

Moreover, to improve the response rate, the steering group suggested making the questionnaire not anonymous, or anonymous but codified; in a way that the schools' training coordinators can remind to fill the survey to those teachers who have not done it yet; but CEFIRE advisors cannot access teachers' personal data.

Other changes that will be implemented in this survey aim to assure the alignment of the training activities proposed by teachers with their VET teaching specialties. In this sense, teachers will be asked to:

- Link their proposals for training activities they would like to attend, to some of the professionals modules they are teaching;
- Express a reason why they would like to participate in such training activities, whether personal reasons or professional ones;
- Write down some of their professional activities where they plan to apply the new learning.

On the other hand, the new survey will also include the competence-based approach for teacher training. Thus, teachers will be asked to illustrate the training content they need to work on, and link them to teaching transversal competences: intra and interpersonal; didactic, organisational and managerial; management of the common life; teamwork and innovation; and linguistic, communicative and digital.

Finally, during the counselling process with the steering group, the awareness of the importance of teachers' personal motivation arose. This consideration, together with the fact that sometimes teachers seem to sign up for training activities without a real professional interest in the contents – which can cause drop-outs or lack of training outcomes –, led to consider including in the enrolment form a motivation scale and an open-ended question about the reasons to participate. In such a way, trainees may think more carefully whether the specific training activity suits their professional needs and their VET-school reality. This information can be useful for CEFIRE advisors, who can use it in case they have to select applicants.

Evaluation of learning

It is noteworthy to mention that, in Spanish context, the in-service training system is a quite close concept to the “Further Education” of German or Norwegian traditions (Mirsa, 2011). Indeed, it is not only meant to be a way to keep up-to-date and there are mechanisms to formally acknowledge and validate teacher learning, in order to get promoted or access further training (Orden 65/2012).

However, in Comunitat Valenciana, current regulation on training certifications only requires trainees to participate actively in the training activity, to attend a minimum of 85 % of its sessions, and to conduct the compulsory training tasks,

in order to get a positive assessment. According to these legal requirements, it currently is common neither to evaluate trainees' learning nor to follow common evaluation criteria. The strong conclusion of the steering group is that this level should be evaluated and that different stakeholders' evaluations should be triangulated. Three agents were suggested as evaluators: trainers, trainees, and CEFIRE advisors.

As far as the trainers' evaluation is concerned, they will be asked to create a short test as part of the main content of the training activity. This test (possibly along with a more general test, designed by the advisor) will be administered to the trainees before and after the training activities, in order to get a simple but clear evidence of learning progress.

Furthermore, this measure will be complemented by some more subjective evaluations by trainers, trainees, and advisor, who will complete the same check-list on their perceived achievement of the specific training goals.

Evaluation of training transfer

Transfer, as the "degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job" (Baldwin & Ford, 1988, p. 63), is one of the most interesting aspects to evaluate in order to prove the outcomes of a training activity, and to be accountable for the public effort on teachers' professional development. This is a very complex level to evaluate, though since the transfer process involves different mediator elements, and it should be analysed over time.

During the seminar, two different approaches to evaluating transfer were discussed: direct and indirect evaluation (Pineda-Herrero, Quesada-Pallarès & Ciraso-Calí, 2015). These two approaches are understood as complementary, and a combination of both is proposed.

Direct evaluation of transfer consists of measuring transfer degree through specific techniques and instruments. In this case, perceived transfer will be evaluated by trainees 3 to 6 months after the training activity with a questionnaire. This tool will be specific for each training activity as trainees will have to give transfer evidence regarding each of the training goals as well as an overall transfer degree, and their own perception about the contribution of the training activity to the prior situation of their VET school, or their professional tasks.

The steering group also discussed measuring transfer objectively (Wang, 2002) using systematic observations at VET schools. This strategy is considered to be beyond CEFIRE competence; however, it may be considered by the schools' training coordinators as part of their own internal evaluation.

As complementary to direct evaluation of transfer, indirect approach (Pineda-Herrero, Quesada-Pallarès & Ciraso-Calí, 2015) focuses on generating a model of those factors that may determine transfer, so an intervention to enhance transfer can be designed. This approach is generally less time consuming and does not require

specific tools for each training activities; on the other hand, it provides less detailed information, but which is more easily compared or generalised. During the academic year 2016–17, a model to evaluate the transfer of learning factors in a school setting will be used for training offered by CEFIRE. This model (Cirasó-Calí, Rebollar-Sánchez & Quesada-Pallarès, 2016) fed on a consistent fieldwork and literature review on factors of transfer: from the starting point of Baldwin and Ford (1988) dimensions, to the new contributions on motivation to transfer (Gegenfurtner, 2013), transfer-oriented training design (Quesada-Pallarès & Ciraso-Calí, 2013); and the specific factors for educational settings such as school and teachers' attitudes towards change and innovations (Tejada & Giménez, 2007; De Miguel et al., 1996; De la Torre, 1994); school organisation and climate (ICE, n.d.); training design and management (Pineda et al., 2007); and impact (OECD, 2013). This model underwent a validation through confirmatory factor analysis and modelling techniques, and this administration to a representative sample of VET teachers will allow us to establish which the most significant factors of transfer, for their specific training and context, are.

Conclusions and discussion

Evaluation of in-service training is still a challenge in many contexts and institutions; and considering the complexity of teachers' settings and the multiple tensions and imperatives VET teachers are expected to meet (Wärvik, 2013), this is an even more delicate issue.

In Comunitat Valenciana, much work still has to be done in order to establish a coherent evaluation framework for teacher training activities; but this reflection process set the baseline to further develop it. Although CEFIRE members' initial interest was the impact of training, to approach the evaluation as a global process allowed highlighting the relationships among different phases of evaluation. For instance, the importance of training needs analysis for future transfer is acknowledged, and the element of commitment to transfer (Quesada-Pallarès, 2014) is introduced. However, a more in-depth work needs to be realised, in order to design all the evaluation tools and take into account other perspectives, including the involvement of VET students in determining transfer and impact of teachers' learning, and a more elaborate needs analysis in terms of skills gap and resources analysis. Nevertheless, CEFIRE members proposed the presented evaluation strategies according to their particular situation and taking into account the priorities and resources of their institution. Ultimately, any evaluation model needs to be contextualised and designed from a reality-based critical observation, rather than replicated.

A solid evaluation system contributes not only to enhance the quality of training and to start the upward spiral of planning, implementation, evaluation and reflection (Buck, 2005); but also, it can help institutions and training authorities to prove their achievements, justify their plans and measures, which can ultimately improve those governance issues that have been emphasized in Sub-Saharan Africa

VET systems (Salim et al., 2005; Grossman & Naanda, 2006). Hopefully, other organisations can benefit from this learning experience and design their own evaluation framework, considering their specific needs, concerns and potentialities.

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Participatory research on teaching practice as basis for teacher education and networking between universities and VET schools

GIUSEPPE TACCONI
ADULA BEKELE HUNDE

Abstract

This article focuses on illustrating the transformative nature of participatory research and the subsequent benefit it has in networking universities and VET (Vocational Education and Training) schools. The article was produced based on one of the authors wide qualitative research work on the educational practices of about hundred VET schools Mathematics and Italian language teachers. The teachers were selected to participate in the research from thirty-two VET schools found in eight different administrative Italian Regions. The project was conducted with the assumption that research should lead to transformation rather than just to an increase in knowledge. And this can be done by generating theory about teaching practices from the personal and practical knowledge of teachers. Therefore the research intended to make shareable a rich set of working tools participant teachers had used and found effective. Data were collected through individual and group interviews, and analyzed using a mix of grounded theory, phenomenological method, and narrative inquiry. The practitioners were involved in all stages of the research process as active collaborators and experienced the possibility to develop professional knowledge reflecting together about their practice. So, this research allowed to get over the traditional view that recognizes theory as the only legitimate source of professional knowledge and to go beyond the traditional separation – and sometimes mistrust – between researchers and teachers. Having tried to foreground the specificity of teachers' practical wisdom in the Italian VET context, the research itself became a chance to build network, mutual trust and partnership between University and schools. Recognizing practice as the source of a legitimate form of knowledge, participants acknowledged the research process as a meaningful opportunity of personal and professional development. Therefore, participatory

research is found to be a relevant tool for accompanying teachers in the development of new insights and shared styles of teaching. Besides, it can also play a vital role in establishing healthy relationships between universities and VET schools.

Keywords

Teaching practice, teacher education, qualitative research, Italian VET System.

Teaching in VET schools in Italy. An already undertaken research about teachers practice

The last few decades have witnessed the emergence of a new field in empirical educational research, both in Italian (Damiano, 2006; Fabbri, 1998; Grassilli & Fabbri, 2003; Laneve, 2006; Mortari, 2009, 2003) and international literature (Day et al., 2006; Perrenoud, 2001; Blanchard-Laville & Fablet, 2000; Clandinin, et. al., 1997; Zambrano Leal, 2007). These studies have started to question a traditional view that recognizes theoretical knowledge as the only legitimate source of professional knowledge and tried to foreground the specificity of teachers' competence and practical wisdom. Consequently, practice has been acknowledged as the source of a specific, legitimate form of knowledge that is, however, always in danger of not being told or passed on. The "new instructional research" (Damiano, 2006) got to a genuine turning point, by focusing on practice and by criticizing the traditional 'divorce' between the researcher's theory-based knowledge and the teacher's experience-based wisdom. Other empirical studies on this subject (Mortari, 2010; 2013) have fostered awareness that teachers' practice-grounded and often tacit, unarticulated knowledge is essential to research on teaching. In spite of the growing awareness on these issues, calls for empirical studies, which recognize the value of teachers' practices in VET (Vocational Education and Training) system, remained largely unanswered in Italy. Therefore a research project, driven by the main author of this paper in the last years, intended to explore educational practices in initial VET context, while putting the participant practitioners at the center of the research action, as protagonists and source of knowledge (Tacconi, 2011), and involving researchers and practitioners effectively in a process of verbalizing the in their work embodied practical wisdom. The didactics this study intended to focus on are "at work" (these are the terms "al lavoro" used in the title of the book outlining its findings) in different ways: as instructional method that enhances work experience, as source of authentic learning, as action represented while it is happening, "at work" precisely, and as practice that by definition is always unfinished, in progress, and for this reason always improvable.

The Italian VET system as research context

All participants in the above mentioned study were teachers of Italian Regional VET centers. In the past years, the Italian education and training system has

undergone a deep reform. According to the amended Constitution, the national Government and the Regional Authorities shall collaborate to develop a unitary VET system. The VET system in Italy is very articulated (Tacconi, 2015a). The National government is responsible for technical and vocational schools (5 years after the students have completed the 8 years of the first cycle). The Regional authorities are responsible for another typology of course, the initial Vocational Education and Training (3 or 4 years after the first cycle) providing specific vocational skills. These courses cover almost all sectors of the economy, and lead to the award of a vocational qualification certificate recognized at national and European level (level 3 or 4 in the European Qualifications Framework). Both channels (state-run technical and vocational schools and regional VET centers) are linked with Higher Education, higher technical education and training, and the world of work.

The aims

Based on the above mentioned previous research work (Tacconi, 2011), conducted with the assumption that research should lead to transformation (Mezirow, 1991) rather than just to an increase in knowledge, the present paper intends to illustrate the power of participatory research in generating and transforming teaching knowledge and skills. The previous work intended to devise and make shareable grounded-based theories, which are useful for practitioners. The paper underlines that this kind of research can promote beneficial changes in the practices it studies and, encouraging both teachers and researchers in the development of new insights, can lead them to rethink also their mutual positioning in the process of doing research. The paper is also meant to unpack the benefit this kind of research can have in networking universities and Vet schools.

Theoretical and methodological framework

The world of practice is complex and researchers who want to focus on it as the object of their investigation face a bold task (Dahlberg et al., 2002). From an epistemic perspective, the problem in the research was to identify the most suitable method for investigating teaching practices. The positivistic paradigm in human sciences has long prevailed, but, in the last few decades, other paradigms have been developed (Guba & Lincoln, 1985; Mortari, 2007) and the use of qualitative approaches has increased.

As a result, the research was developed on the basis of the following methodological tenets:

- a phenomenological philosophy of research, which essentially means being faithful to the phenomenon. In order to follow this phenomenological principle, it was necessary to choose a method of investigation, whose ultimate goal was to understand experience in the way practitioners have understood and lived with (Smith, 2004);

- an ecological and participatory approach to research, which means that the investigation has to be carried out with the participants, rather than on them, and in the contexts where they are acting. Therefore, this project was developed by involving actively the protagonists of VET practices in the Centers where they were working and by appreciating their practices (Elliott, 1999);
- qualitative methods, including a mix of grounded theory, phenomenological method, narrative inquiry, and other research strategies, which are methodologically congruent with one another, were used to explore the phenomena under investigation and to generate a new practice based teaching theory from VET teachers.

Reflecting upon these heuristic and epistemological aspects of doing research is very important, not only for the researchers but also for the practitioners. Reflection represents a pivotal element not only in the present-day research landscape (Mortari, 2009)¹, but also in the field of teacher education where transformative learning is highly needed (Schön, 1987; Lampert, 2009).

Data collection and analysis

The mentioned research work (Tacconi, 2011) was conducted by collecting in-depth face-to-face, 60 to 90 minute individual interviews (n = 27) and small-group interviews (n = 9, involving a total of 108 participants) from Italian and Mathematics VET teachers about their teaching practices and how they were reflecting on their own experience. Teachers who volunteered to take part were selected from 32 VET Centers which are part of the Cnos-Fap Federation² and are located in 8 different Italian Regions. They were chosen among those whom principals and colleagues recommended and reported as being excellent teachers. They were invited to report in detail examples, cases, episodes and anecdotes from their real daily experience in which learners were engaged in learning situations. In the small-group interviews they were also invited to complete member checks, as well as to create further narratives. At the end of each small group interview, the author asked participants to explain what they thought about the conversation.

All interviews were audio-taped and transcribed verbatim. Data analysis was conducted by the constant comparison process described by Mortari (2007), who proposes a hybrid of grounded theory (Glaser & Strauss, 1967) and phenomenological method, but also through the production of narratives (Clandinin & Connelly, 2000). The phenomenology suggests the fundamental attitude of the researcher. In the phase of data collection, but also in the phase of data analysis, it helped to listen attentively to the participants, to read and re-read the texts of the transcriptions in search of a deep understanding of the phenomena.

1 Only by cultivating their inner gaze, will researchers be capable of developing an outward gaze that allows them to understand the experience of others.

2 See the Cnos-fap web site: www.cnos-fap.it.

The analysis was conducted according to the grounded theory (i.e. identifying relevant narrative units, coding them, clustering the labels, letting gradually categories and links emerge out of them, in a recursive process). It helped to identify a list of core themes and examples of stories which could explain them. Only stories indeed can give back the complexity of the teaching practice and the resourcefulness, inspiration, intelligence and concreteness of the practitioners.

One of the important steps utilized by the “mother research”, which is also worth mentioning here, was the validation of the analysis of the stories by participants. Member check was done during intensive group meetings with the purpose of reflecting on and discussing the emerging categories in order to assure that the researcher’s interpretations were remaining adherent to the meaning of the participants’ descriptions, but also to explore the impact of the process on the practitioners’ way to reflect on their own practice.

In order to reach the aims of the present study, the transcriptions of the group meetings were re-analyzed according to the same approach. In addition, written feedbacks of the participants and of the readers of the published study were collected and analyzed.

Findings

The main study came up with some findings, mostly in the form of a reservoir of experiences connected in a new practice-based theory, that may well guide teachers’ practice in both subject areas under study, Italian and Mathematics, but also in the more general field of VET, and in the field of development of a teaching attitude (Tacconi, 2011)³. The crucial importance of some directions in the VET practice emerged from the developed theory. They are the following:

- being aware of the learners;
- taking care of the relationships with learners and colleagues;
- arranging authentic learning situations;
- focusing teaching/learning practices on learners’ experience and above all on their work experience;
- setting assessment and evaluation as appreciation of learners’ achievements.

The key-attitude emerged from the above mentioned directions is the stubbornness with which teachers are oriented to look for a personal response and motive of each of their students.

The new analysis of the collected feedbacks showed that the research was able to improve the understanding of the nature and features of expert teachers’ practical knowledge and of the way one can “transfer” it to other teachers in a community of practice (Wenger, 1998). Indeed participants recognized that the research created a true community of practice among them. Often in the process of the small-group

3 For the extended description of the model that emerged from the data, with the participants’ quotes from the interviews, see Tacconi, 2011.

interviews, the stories of one teacher stimulated also other teachers to narrate and to share experiences.

Something similar happened also later to the participating teachers who, having developed a real sense of belonging to a community, remained in contact with each other and continued to enjoy sharing stories, asking to their federation to provide them with an online space for sharing⁴.

Also other VET teachers who read and discussed the published work or some parts of it during in-service training courses recognized some traits of their own experience (their own voice) in it and felt encouraged to reflect on it and to share their own experiences with their colleagues. Above all, they met a form of knowledge they could consider not as abstract knowledge (or as a principle that “should” be applied) but as experiential (“extracted”) knowledge that motivates them to think about their practice, to interrogate it, and to experiment solutions which other teachers had found helpful in similar situations.

The research has also allowed to get over the traditional separation between university and schools or VET centers and the mistrust between researchers and teachers. The research itself became a chance to build dialog, mutual trust and partnership: the author worked with the raw material of the participants’ experience, and the reflective process implemented by the research itself was recognized by all participants as an effective and meaningful opportunity of personal and professional growth and development. Many of them stated that sharing stories helped them to give value to what they learnt from their experience, but also to think sometimes differently about their own practice and to enlarge the mental space of what they thought as possible and practicable in their teaching experience.

Conclusion

The article succinctly showed that the previous qualitative research generated practice-based teaching knowledge that is close to real practice whereby practitioners could easily draw lessons for their own experiences. Understanding of learners, creating positive rapport with learners and colleagues, letting students learn through doing authentic activities, taping up learning practices upon the prior experiences of learners and using assessment and evaluation as a mean of recognizing achievements were elements emerged from the true and lived experiences of practitioners as relevant tools for facilitating students’ learning. These practices are well documented in the book derived from the qualitative research (Tacconi, 2011).

The focus of this article was to underline that the same approaches followed by doing qualitative research are also suitable to drive professional learning processes that can be perceived as meaningful and stimulating. These approaches were namely: diving in the contexts of practice (*naturalistic inquiry*), appreciation (also in

4 This space is available through the following link on the Cnos-fap website: www.cnos-fap.it/page/cfp-si-rinnova.

the sense of feeling gratitude) of the subjects and their practices as sources of relevant knowledge (*appreciative inquiry*, Elliott, 1999), social welcoming approach (*participative inquiry*), careful organization of setting and attentive and non-judgmental listening (*phenomenological approach*, which also requires a careful listening to oneself and a continuous reflective wakefulness), attention to create a useful knowledge, preference for narrative (*narrative inquiry*, Clandinin, 2006), construction of embodied thoughts, local theories, and concepts which are rooted in concrete situations (*grounded theory*, Glaser, & Strauss, 1967). Such approaches have therefore both heuristic and formative character.

In this kind of research, researchers and practitioners, including universities and VET schools, need each other and are called to build up a mutual alliance (Damiano, 2006). Researchers need the practitioners' experiences to construct a relevant knowledge, and practitioners need researchers to give symbolic form to their lived experiences. In this process both researchers and practitioners can learn a lot dialogically, teachers do not feel to be considered empty vessels, but sources of knowledge, and begin to see themselves as researchers. In this sense, the involvement in a research process can be seen as one of the best ways for fostering teacher education and training.

Starting from this research project, a network between the University of Verona and the Cnos-fap Federation has been built. Both institutions are part of the newly formed Center for action research on Vocational Education and Training (www.car-vet.org). They collaborate in other research projects (Tacconi, 2015b) and in managing the section of the Federation website that documents the common endeavor in the field of VET-teacher education (<http://www.cnos-fap.it/page/cfp-si-rinnova>) and makes possible to share tools, lesson plans and other materials VET teachers develop to facilitate students' learning.

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TVET-University Nexus: Room for Synergy

EWNETU HAILU TAMENE

Abstract

Ethiopia has made strides from 'nothing to something' in the area of Technical and Vocational Education and Training (TVET) teachers/trainers, within the last two decades, although there is still a long way to go. As the system is changed from supply oriented to outcome based, systematic further education and training (FET) of TVET trainers through which they become abreast with fast growing technology and needs of the world of work is getting essential position and is the central concern of this article. It calls for consideration and detailed exploration of the potential synergy between TVET and Universities based on Jimma experiences of 'VET-Net'; networking with five TVET cluster centers in South Western Ethiopia from Nov. 2012–March 2014. The data is collected through in depth interviews; short skills gap training, focus group discussions and visits to four cluster centers. Findings of the study are: the absence of systematic on the job further education and training of trainers; fear of theory driven teaching and learning approach in the university versus dire need to work with universities: on technology transfer, short skills gap training, experience sharing, efficient use of resources were found to be untapped part of both institutions potential for synergy. Operationalised and contextual interactive collaboration is recommended.

Background

Ethiopia shows commitment to participate in the competitive global market economy. Putting Technical Vocational Education and Training (TVET) at the centre of education aimed at marketable and entrepreneurial skills as a part of comprehensive human resource development programme. The term TVET used in this paper follows the definition used by Ethiopian Ministry of Education as 'overreaching term that describes all modes of formal, non-formal and informal training below Higher Education provided by public and nonpublic providers and companies (MoE,2008). The Government put effort to the sector with the promulgation of the new education and training policy of 1994, and successive implementation

strategies: Education Sector Development Programmes (ESDP 1–5). The effort made to change the sector from traditional supply oriented TVET to outcome based system through successive reforms (MoE, 2006, 2008, 2010) evidenced a big stride to modern TVET best practices. Hence the TVET sub-sector currently reached the level of accommodating about 80 % of the 10th grade leavers, sharing with teachers training colleges. The transition rate to TVET reached 45 % of students completing Grade 10 in 2013/14, (MoE, 2015). Table 1 shows the trend in enrollment, trainers and institutions of TVET in Ethiopia over the last fifteen years.

Tab. 1 Number of teachers and students in TVET schools in Ethiopia

Year	Enrollment	Teachers	Institutions	Remark
1999/00 (1992 Eth.C*)	3,427	523	25	
2005/06 (1998 Eth.C)	123,557	6,134	264	
2010/11 (2003 Eth.C)	371,347	12,990	505	
2013/14 (2007 Eth.C)	238,049	12,779	437	The decrease is due to under reported data (MoE, 2015: 67)

* Ethiopian calendar

Source: *Education Statistics Annual Abstract, MoE 2000, 2006, 2011 and 2015 (compiled by author)*

With regard to the progress made Kingombe (2012) writes, the Ethiopian approach to TVET reform and TVET are in line with international best practice. The recent growth in TVET enrollment and provision has been achieved by a substantial development of public spending and increased TVET provision by private institutions.

In Ethiopia, after the TVET reforms in 2008, teachers/trainers are classified into three levels: A-level trainer, who has a Masters degree; B-level teacher/trainer, who has an undergraduate degree in required field of study and C-level teacher/trainers. These, C-level, trainers are who complete TVET Level 4 and have their competence assessed, have an option of receiving additional pedagogical training. In principle after receiving training they are qualified to teach TVET levels 1 and 2. These trainers after having been qualified as a level C instructor can go on to the special teacher training institutes for 3 to 4 years to become B-level instructors. The question is how regular teachers and trainers are given training to update/upgrade their skills.

In Ethiopia context, it is TVET and University institutions that formally produce work force for world of work. These Institutions are expected to produce most of the skilled and competent workforce from lower to higher level of specialty. Universities produce higher level experts with Bachelor, Masters and PhD degree, while TVET produce low to middle level: Level one to level five based on the occupational standard (MoE, 2012); primarily aiming at the need of world of work in the in the country. This shared major goal shows that both institutions have one destination however follow route. It is this shared vision which in this article termed as TVET-University nexus.

Structurally TVET resides as an activity of education however, it is disconnected from formal primary, secondary or tertiary education. TVET exists only after the completion of general secondary education and its students are those who are unable to continue their study at senior secondary/preparatory education as the result of EGSECE (fig1). There is also possibility to join TVET after failing to continue tertiary education as the result of EHEECE, fig1. It is this attribute that leave TVET students and the college as peripheral and optional school.

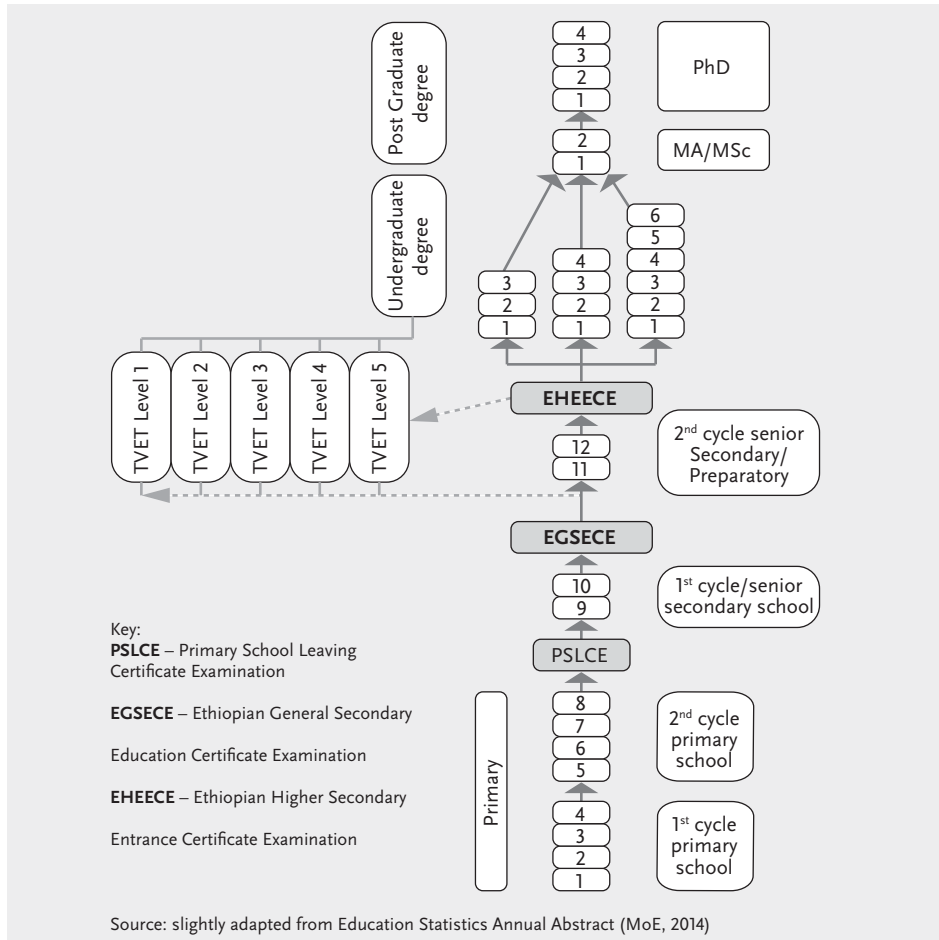


Fig. 1 Structure of formal education system in Ethiopia

Figure 1 indicates the structure of formal education available in Ethiopia, including the examinations that influence education options, particularly at the completion of general secondary education.

The concern of this paper is therefore to discuss potential synergy between TVET and University focusing on Further Education and Training (FET) of TVET teachers/trainers as part of lifelong learning. As the system is already changed from

supply oriented to outcome based then moving toward market oriented provision, systematic FET of TVET teachers/trainers through which they become abreast with fast growing technology and needs of the world of work is essential. Because the quality is then controlled by an 'invisible hand', market. It calls for consideration and detailed exploration of potential synergy between TVET and University based on Jimma University-TVET network; based on experiences of 'VET-Net'; networking with five TVET cluster centers in South Western Ethiopia from Nov. 2012–March 2014.

Rationale

In response to the need of economic development and demographic pressure many countries including Ethiopian place TVET as one of the top priorities of development agenda. However, the shortage of competent teachers/instructors is among obstacles in TVET expansion to a level the economy requires in Ethiopia. This remains important because, of the rapid technological change influences the world of work and determines the features of TVET education, as a result the knowledge and skills of TVET teachers/trainers become outdated soon. Training and re-training of TVET teachers/trainers who are already on the job, is one of the mechanisms to maintain quality (Working group, 2012) and also help to maintain competent teachers/trainers in the system.

On the other hand lack of systematic and continuous Further Education and training of TVET teachers/trainers (MoE, 2008) results not only in shortages of competent TVET teachers but also encourages turnover. Even though there are efforts, to train some teachers/trainers abroad and some in the country with various programmes, as majority of teachers/trainers have no access to Further Education and training the turnover for Further Education training was high. The lack of Further Education and training opportunity was overriding because of search for better salary, better working environment, issue of reputation and misconceptions about TVET mentioned as push factors. Consequently, the subsector suffers from lack of competent skilled teachers/trainers (MoE, 2008) the graduate lacks competence and required skill to secure job, (Birhane, 2012). My observation reveals, due to the shortage of 'A'-level and 'B'-level trainers, most of the training in sub-urban and rural areas is covered by 'C'-level trainers.

Discussion and Findings

The main objective of this paper was to explore possible synergy between TVET and University and draw attention for detailed exploration of the potential synergy. Accordingly, absence of systematic Further Education and training (FET), lack of work place learning model, lack of TVET and University link are important findings discussed next.

Absence of systematic Further Education and Training (FET)

It is found that there is no systematic Further Education and training for TVET teachers/trainers in which they keep updated with the fast growing need of world of work. This gap according to some of the participants, worsen turnover of competent teachers/trainers in looking for Further Education and training in the universities and or other organizations. It is one of the main challenges for the quality of training in TVET colleges.

At normal course, as time passes, what people do and how they do things changes following technology and societal change (Arnold& Patzold, 2008). However, the 21st century presents a radically different economy and society, which is likely to have profound implications on TVET (Majumdar, 2013). This capitalises the importance of well-trained TVET teachers/trainers for the movement from economic growth to human development; a bridge has to be built through the teachers. “The most important ‘agent of change’ in ‘knowledge society’ is the teacher” (Majumdar, 2013).

This stresses the concern of the system in which teachers/trainers are exposed to continuous learning and keep abreast with the fast growing technology. In line with this argument the Ethiopian TVET reform strategy acknowledges the importance developing systematic Further Education and training schemes to continuously upgrade the competences of existing TVET teachers/instructors and to facilitate life-long learning and qualification. The reform strategy states that *TVET colleges will be the center of lifelong learning* (MoE, 2008).

One of the important ways to accommodate unique feature of TVET education and maintain a qualified teacher is through Further Education and training. The emphasis on continuously providing relevant and up-to-date technical knowledge and skills is because of the TVET education unique features that knowledge and skills became obsolete quickly following the rapid change of technology mentioned above. Though Further Education and training can take different ways such as off the job and on the job, for practical and technical reasons, in the situation under discussion, I favour on the job, action oriented work place learning.

For the work place learning creates learning communities, for trainers and trainee learning together; for it create natural communication between trainee and trainer. It also gives opportunities for learners to come up with new ideas from real life and discuss with trainers as well as within the group. This facilitates learning for both trainer and trainee, encourage creativity and innovation, as it brings reality to the learning area. As the main purpose of TVET is to make people self-employed and to be a vehicle of transition from school to the world of work (Hollander and Mar, 2009), it encourages self-confidence.

Lack of Work place learning

The further learning opportunity that is available for few teachers/trainers to improve their skills and professions is the formal college based training that detached

them from the work place. There is not work place learning system. Bound & Garrick (2000), define workplace learning as a site of learning with two purposes: the development of an organisation through contributing to production, effectiveness and innovation; the second is the development of individuals through contributing to knowledge, skills and the capacity to further their own learning both as employees and citizens in the wider society. In looking to the future they argue that work place learning is not only about immediate competences rather preparing for the future. They argue as:

Workplace learning is concerned not only with immediate work competencies, but about future competencies. It is about investment in the general capabilities of employees as well as the specific and technical. And it is about the utilisation of their knowledge and capabilities wherever they might be needed in place and time (Bound & Garrick, 2000).

In this context TVET colleges are work and learning places. With the fast growing technology and strong skill based competition of world of work, workplace learning become a means by which short term and strategic goals are attained (Silverman, 2003). The concern for work place learning is to enable workers, teachers/trainers to organise social and technological resources to fit to the dynamic demand from trainees and from the world of work.

Need for TVET-University link (VET-Net¹experience)

It was evidenced that there was and is full interest to collaborate on the areas of common interest to both institutions; the problem was the question of 'how' to go beyond traditional memorandum of understanding. Leaders of both sub-sectors were very cautious for fear of theory driven university approach on one hand, and frequent change in TVET policy on the other hand. Above all there is 'perceived boundary' between the institutions following different learning pathways leading to one destination. Being cautious not to bear unproductive pressure to each other is right, but *we need to be sure that the fence we build is to protect 'evil' and not to prevent 'virtue'*.

Vocational Education and Training Network of Professionals of Sub-Saharan Africa (VET-Net), initiated by Rostock University, has been working since 2006 with Technical Education and Pedagogical University of Mozambique/ESTEC (Escola Superior da Universidade Technica Pedagogical – Technical College of the University of Education). This project came to Ethiopia, Jimma University by the communication of Prof. Lennartz, who was Scientific Director of Institute of Technology of Jimma University and Prof. Eicker initiator and leader of the project. The idea of the project was to train and support Further Education and training of TVET teachers/trainers by the collaboration between TVET and University. It was welcomed to the university, between College of Education and Institute of Technology; followed the signing of the Memorandum of Understanding between Rostock and Jimma University in which I served as coordinator of the project.

1 Vocational Education and Training network in Sub-Saharan Africa. <http://www.vet-net.info/en/>

Then we² adapted the international VET-Net, in line with policy context and established networks between Jimma University and five TVET colleges, cluster centers, in the Southwestern Ethiopia. These cluster centers are comparatively well-organised and chosen by Government to provide technical and professional support for other surrounding TVET institutes and Small Micro Enterprises (SME). These existing cluster centers were used as ‘competence centers’ to assess training needs and facilitate visits and experience sharing in communication with cooperation centre. Jimma University served as the cooperation centre among these competence centers.

We facilitated short-term skills gap training; organised materials and workshop visits based on the request from competence centres. This was convenient as it was part of their responsibility, and often times they shared costs of training.

At the start, immediate needs were identified and prioritised; duties and responsibilities of both institutions agreed on. Some of the areas immediately acted up on were short term skills gap training like basic autoCAD application, problem based action oriented research, basics of vocational pedagogy, and visits to workshops and access to selected prototypes. Concepts and practices of technology transfer. Though this project cannot claim a lot of change, it effectively indicated that there are untapped potentially synergy between TVET and Universities with strong Education and Technology background.

Conclusion

In conclusion TVET and University share common vision that entails to create competent and self-reliant citizens to contribute to the economic and social development of the country; this improves the livelihood of all Ethiopian. It is imperative to explore all possibility for the synergy TVET-University link can find ways in which TVET teachers/trainers keep updated on the on the job training model without being detached from their workplace. Ministry of education in general and local administration, as they are responsible for TVET intuitions and University leaders should facilitate operationalized contextual collaboration.

As both institutions strive to produce competent work force for the world of work, to fully effect poverty reduction and strides to a middle income country in 2025, synergy can be considered additional energy. VET-Net experience shows that TVET and Universities have a lot to do together that can be right response to the quality, right response for shortage of resources, human and physical, and other related issues that hamper the development. Above all TVET in Ethiopia in general, is barely researched, compared to other sub-sectors; hence there is a need for attention from both institutions. Universities have to give TVET separate thematic emphasis and invest small research funds they have on it, and furthermore, Government has to give more encouragement to the TVET sector.

2 My colleague, Dr. Eng. Esayas Alemayehu, from Institute of Technology and I, from College of Education and Behavioral Sciences of Jimma University

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The “three branch model” of Further Education of in-company Vocational Educators: Linking in-company Learning Projects, external training in Further Education and University Learning

NICOLAS F. SCHRODE

Abstract

This article describes a new model of qualification of in-company vocational educators which was constructed by linking three different existing qualification paths in Germany: in-company learning, external training in Further Education and University learning. It is called *Triales Modell* (three branch model of Further Education).

Before outlining the model, this paper first introduces some facts about the group of in-company vocational educators and points out their main previous and existing training opportunities in Further Education. It especially mentions two new opportunities: The *Gepr. Aus- und Weiterbildungspädagoge* (Professional of Human Resource Services Management) and the *Gepr. Berufspädagoge* (Professional of Vocational Training) which are trainings that take up specific pedagogical needs. On the basis of research findings, the paper proposes the thesis that in addition to that there is still a need of more and other skills than these two qualifications could offer: Scientific competences that can be acquired at universities. Referring on that backgrounds, the author describes the new model. In linking the mentioned qualification paths the *Triale Modell* makes it possible to integrate the strengths of the different places of learning like practical relevance and theoretical foundation. Its construction shortens learning times, avoids having to learn the same things twice and creates new possibilities of permeability between vocational and academic education. For vocational educators it offers a chance for professionalization.

VET in Germany from a qualification perspective

The education and Further Education of vocational educators in Germany relates to several segments of Vocational Education and Training (VET): On the one hand there is a need of trainers for full-time vocational schools, on the other hand for the training in the dual system, which is divided in two places of learning: in-company training and vocational school. The following paper refers to in-company vocational educators and presents an innovative model for their Further Education which was developed and tested by the Alanus University and its partners. However, a similar model is also conceivable for vocational teachers and trainers in other training institutions.

Even the question of the quantity of the group of in-company vocational educators in Germany is quite complex. On basis of the official statistics, 652.617 persons were listed as in-company vocational trainers (cf. BIBB 2016, 224). But already the Employment Survey of 1998/1999 found out that around 5,8 million persons were involved in varying proportions with the “training of apprentices” – 17% of all employees (see Bahl 2012, pp. 6–7). Six percent of these people were working as in-company educators as their full-time task, 14% are self-employed and instruct trainees and 80% are part-time Vocational Trainers.

In-company vocational educators have a broad and diverse spectrum of tasks. Their *general* task is to supervise, instruct and accompany trainees in acquiring vocational competence [cf. Vocational Training Act Section 1 (3)]. Often they are also engaged in the training of employees. Their environment is constantly changing, because technical developments like digitalization proceed rapidly as well as social changes like an increasing heterogeneity of trainees. This changing environment exacerbates the uncertainty that exists in educational situations anyway: In the words of Stichweh in educational situations, professionals are challenged to convey together their theoretical-systematic knowledge and their experiential knowledge under conditions of uncertainty and compulsion to act (cf. Stichweh 1994), which means to match abstraction with experience and problem analysis with problem solving in an adequate way.

The Trade Law Amendment of 1897, but also the introduction of the Regulation on the suitability of trainers, the “Ausbilder-Eignungsverordnung” (AEVO) in 1972 aimed primarily at ensuring the minimum requirements for the trainer activity. The AEVO can be seen as a measure of quality assurance, not as an educational qualification. Hence it cannot meet the demand for pedagogical competencies by far (cf. Brater/Wagner 2008; Brater 2011).

Such educational requirements are (cf. Brater/Wagner 2008, 8):

- Vocational Educational skills, which encompasses competence in the use of a wide range of professional pedagogical methods (sovereignty of methods) and for the competence to design and control training processes in the core,
- competence in pedagogy and psychology of youth, understood as the ability to accompany trainees through the entire training process including crises and problems as well as the ability to individualize learning processes,

- counseling skills that include everything that the full-time vocational educators need for selection, acquisition, monitoring, leadership and guidance of the part-time vocational educators,
- management skills, such as education marketing, candidate selection, education controlling, acquisition of orders or calculation.

On the basis of the findings of comprehensive studies (ibid.; Bauer et. al. 2008), two new vocational training courses with state-certified degrees have been developed: the “Gepr. Aus- und Weiterbildungspädagoge” (Professional of Human Resource Services Management) and the “Gepr. Berufspädagoge” (Professional of Vocational Training). Both degrees address besides in-company vocational educators, experts in human resource management (HRM) and coaches on the free market. The degrees are given by the Chamber of Industry and Commerce and are located on European Qualification Frame (EQF) level 6 and 7 and thus correspond to the Bachelor and Master level of University education. Didactic principles are a strong practical orientation and a project design. With the implementation of these new possibilities for the first time ever in Germany, a real profession (*Beruf*) for trainers emerged at the horizon of possibilities and with it the chance to establish an own professional identity.

But not only this professional chance and the EQF level of these qualifications, but also research findings suggested to add an academic qualification. So Schrode et. al. (2012) found out that many technical requirements of in-company vocational educators at middle management level are covered in these two Chamber degrees, but that further competences are required which are not included in them, e.g.:

- Special thinking and working methods like the ability to look at concepts and theories as well as on the own work from different angles and so coming to new judgements; to analyze the own thinking and ones working methods critically, to reflect the own practice and check and evaluate it systematically. But also to be able to read and understand scientific studies, models and concepts and transfer them adequately into the own practice.
- Specific attitudes: to approach things questioningly and searchingly, to interpret and understand open and imponderable situations; to take critical distance to things and to oneself.

So for VET trainers who are not only doing shop floor training activities but also are involved in counseling and in developing new concepts, we found a need of further skills and competencies – this group does not just need a lot of experience based knowledge but also the ability to deepen, analyze, reflect and continuously renew it. With these abilities, vocational educators can advance VET autonomously, be innovators. Such claims can be found in scientific competence.

However, it would be ineffective and costly to disregard the existing qualification pathways and to move it completely to University. Rather, a supplement appears to be a viable option, which can be found in a sensitive combination of different existing forms of education and their places of learning.

The “Triale Modell” (three branch model) of the *Master of In-Company Vocational Education/Adult Education*

On the basis of these findings, the Alanus University, the Alanus Werkhaus Center for Further Education and the Association for Research & Development in Vocational Training and Occupations (GAB München) developed the “Triale Modell” for in-company vocational educators, trainers/coaches in Further Education and HRM experts (first description of the idea: cf. Eicker/Reibstein 2007). The project group was funded by the Ministry of Education and Research, which financed the development of a three-branch model for VET educators in three model regions (Rostock, Bremen, Alfter/Bonn, Schwäbisch Gmünd). It was supported by big companies. The theoretical bases are theories that describe professionalization by the combination of different forms of knowledge (cf. especially Meyer 2000, Pfeiffer 2012, Meyer 2012).

Until then, there was a possibility for in-company vocational educators to acquire the AEVO after the own VET-degree and then start the education of trainees. With three years of experience, one could add the Professional of Human Resource Services Management, with five years of experience or after finishing this step, one could start the training for the Professional of Vocational Training. Only after completion of such a chain, one could take the step to a university (except of those with the degree “Abitur”, which can go directly to university, but are rare in this group). However, this qualification path took at least six to eight years in total and was therefore unattractive for in-company vocational educators that were working.

The idea of the “Triale Modell” (three branch model) is to link the VET-work, the educators do in their companies in the form of learning projects, with external training in Further Education (Professional of Vocational Training – Chamber of Industry and Commerce degree) and university learning (Master degree) (see Figure 1). By doing so, it is also possible to link the specific different valuable principles and contents of learning at these three places. (see Table 1)

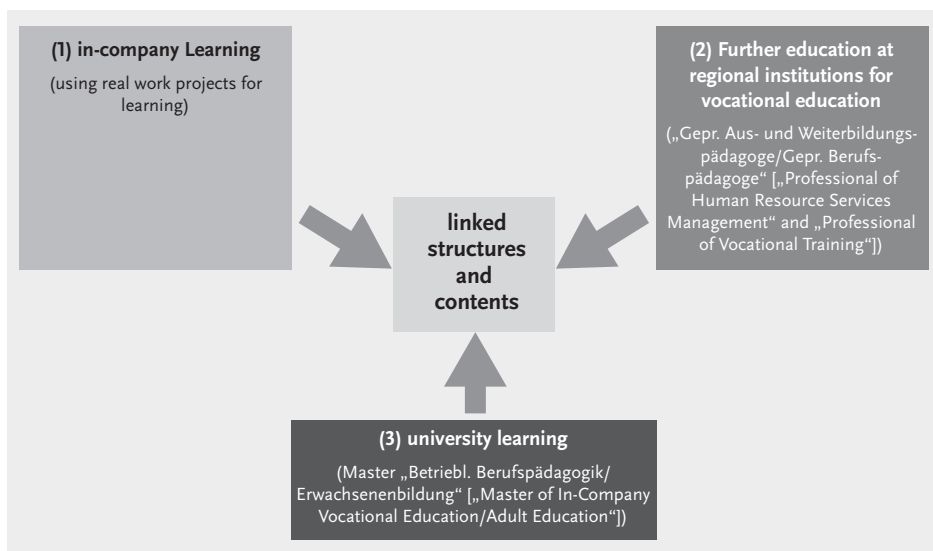


Fig. 1 “Triales Modell” – integration of places and contents of learning

Tab. 1 Principles and contents at the different places of learning of “Triales Modell”

(1) Learning at work (in-company learning projects)	(2) Learning in courses of regional institutions for Vocational Education	(3) Learning at the university
<ul style="list-style-type: none"> • <i>context:</i> real and responsible working-tasks in institutions for VET, adult education or HRM projects are selected on the basis of individual learning needs • <i>forms of learning/teaching:</i> regular tasks are prepared to become an individual in-company learning project by analyzing the opportunities for learning of competences in each task theoretical learning is integrated (and finds its way in from the (2) and (3)) = informal learning/learning by doing, discovering learning, learning on the own responsibility Learning-facilitation by colleagues/ other trained trainers (system of GAB München) The <i>curriculum</i> is given by/made from everyday real work situations of in-company vocational educators • <i>Examples for projects:</i> “development of a quality management system for the company training” or the “introduction of instruments of competence assessment for trainees” – all complex real tasks in the field are possible 	<ul style="list-style-type: none"> • <i>context:</i> off the job, but connected to (1) by projects (on-the-job-projects as the “backbone” of the training in courses) principle: Participants experience as learners what they should do as trainers (action-orientated teaching) • <i>forms of learning/teaching:</i> experimental games, role-playing games, practical experiments, group work, etc. many opportunities for accompanied practical exercises and experiences trainers/teachers as facilitators of learning (what they themselves had to learn before) • <i>main contents of the curriculum:</i> (based on the findings of Bauer et. al. 2008) training methods and different didactic orientations; on the job learning and teaching; how to identify learning needs; facilitation of learning (broad programme); coming along with problematic trainees, recruiting and quality assurance (control in dialogue); how to plan, calculate and realize training measures; designing and carrying out tests and examination/competence assessments; organization development, leadership 	<ul style="list-style-type: none"> • <i>context:</i> off the job, but connected to (1) and (2) all previous experience and learning is acknowledged • <i>forms of learning/teaching ...</i> ...follow the same didactical principles as in (1) and (2): learning on the own authority, work in groups, discovering learning, action-oriented learning, real projects integrated ...) – not only frontal teaching! lecturers as facilitators (especially prepared for that task) High importance of application, but very important task: to convey the scientific approach, dealing with theories, the multiple perspectives of science and scientific methods Many opportunities for active handling the scientific material and reconsidering the own views • <i>main contents of the curriculum:</i> (based on the findings of Schrode et. al. 2012) theories of learning and teaching, educational psychology, pedagogy, sociology, educational system, world of work, motivation, learning and development in youth and

(1) Learning at work (in-company learning projects)	(2) Learning in courses of regional institutions for Vocational Education	(3) Learning at the university
(learning today has become too important to be left to institutions)	and management of VET and educational institutions	adulthood, history of education and professional training, vocational training of persons with handicaps or learning difficulties, heterogeneous and multicultural learning groups, German and European politics for VET, theory of science and methods of action research (learning how to make practically oriented and evaluation research projects), Scientific transfer- and application projects in their companies

The model generates the possibility to satisfy the needs identified by enabling a continuous, but less time-consuming education chain ranging from the lowest to the highest level (Figure 2/Table 2).

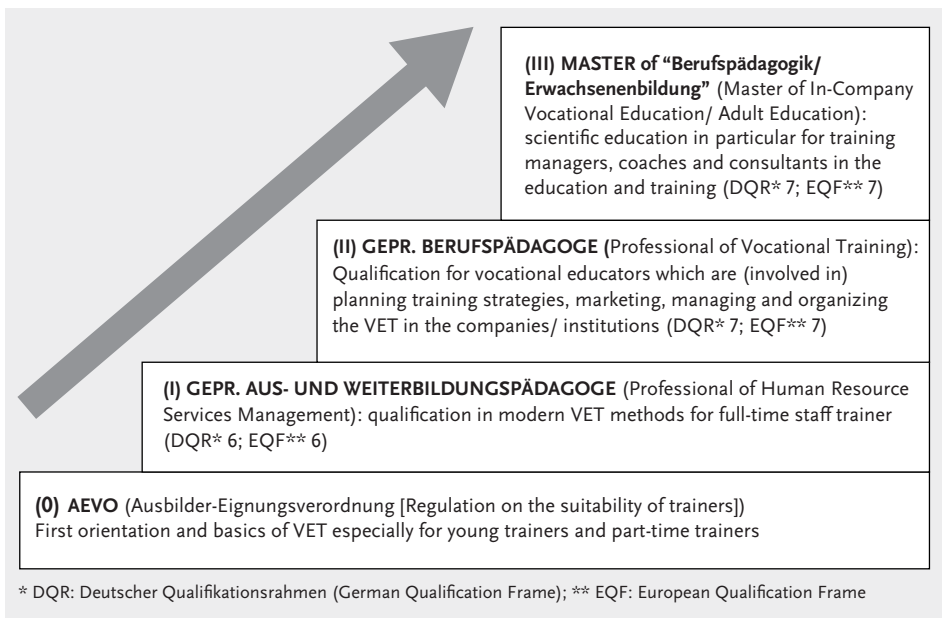


Fig. 2 Continuous training in a lifelong learning context for VET-trainer ("Trialer Berufspädagoge")

Like Table 1 shows, a main issue of the model is to profit from the strengths of the different places of learning. So the idea behind in-company learning projects (1) is to bridge knowledge, skills and reflection in action (in workplace learning): In the own work, problems arise for which's solving new methods (2) and theoretical knowledge (3) and/or reflection in groups (2 & 3) will give hints or ideas for new successful ways of acting. Conversely, findings made by working (1) can be supplemented by theoretical knowledge (3) or group reflection (2 & 3). Especially against the background that dealing with the atypical has become normality in modern work – especially in pedagogical work – it seems to become increasingly

important to acquire the ability to intrapersonal match objectifiable knowledge (for example scientific backgrounds) and subjective skills (like practical knowledge, but also a kind of ‘feeling’ or ‘sense’ based on informal knowledge, developed in and for one’s work) adequately and reflected (cf. Buschmeyer et. al., forthcoming). That is the theoretical idea behind the described combination which aims the acquisition of a holistic competence for professionalized practical action.

For VET trainers this means e.g. to know pedagogical and didactical theories as well as to master tools to arrange learning situations and develop pedagogical sense. The professional competence can only be acquired by solving real complex work tasks by using these knowledge(s) and skills.

In short it means: learning of theoretical backgrounds, special ways of thinking and specific attitudes at the university, learning vocational training tools and methods at regional institutions for Vocational Education and acquiring experiential knowledge and *the ability to interlink those components* in real work. This allows the chance to combine practical knowledge with theoretical knowledge, to critically question the current practice, to use new methods and to improve one’s professional action.

Depending on the individual entry requirements, there are four part-time variants to realize the model: 1. interconnected (“verzahnt”), 2. integrated, 3. consecutively, 4. à la carte (see Table 2).

Tab. 2 The different variants of the “Triales Modell”, their target groups and benefits

variant	(1) interconnected	(2) integrated	(3) consecutively	• à la carte (in testing*)
target group	Simultaneous qualification as <i>Professional of Human Resource Services Management</i> and <i>Master of In-Company Vocational Education/Adult Education</i> (and optional: <i>Professional of Vocational Training</i> additionally) Both are parallel tuned in content and time (after 1 ¹ / ₂ years: <i>Professional of Human Resource Services</i> Chamber exam and after 2 ¹ / ₂ – 3 further years <i>Professional of Vocational Training</i> (Chamber exam) and the <i>Master</i> (University exam))	For participants that already successfully passed the exam of <i>Professional of Human Resource Services</i> or another qualification on DQR level 6 and have minimum five years of practical experience as VE-trainer or an equivalent activity (e.g. in in-company Further Education or personnel development) or a <i>Bachelor</i> degree with minimum five years of practical experience as VE-trainer or an equivalent activity	For participants that already successfully passed the exam of <i>Professional of Vocational Training</i> or another qualification on DQR level 7 with minimum five years of practical experience as VE-trainer or an equivalent activity.	For experienced practitioners from VET who wish to acquire specific contents of the Masters Course and for visiting individual modules of the Master's programme (short cycle programme) The modules are certified and can be counted later on a Master degree, if one decides to study a Master programme.
benefits	This variant optimizes the total education chain (from the qualification of <i>Professional of Human Resource Services</i> to <i>Master</i> degree) and saves time.	This variant builds on the <i>Professional of Human Resource Services</i> and allows a simultaneous acquisition of the qualification <i>Professional of Vocational Training</i> and the master degree.	This variant is based on the successful completion of the <i>Professional of Vocational Training</i> (or equivalent qualifications) and supplements this with scientific content, leading to the master degree.	This variant is highly flexible. Participants can freely choose according to their needs and create their own “study menu”.

* funded by the German Federal Ministry of Education and Research (BMBF) within the funding programme “Advancement through Education: Open Universities”; cf. Brater et. al. (2014)

The overarching benefits are:

for in-company vocational educators:

- It is possible for them to acquire Higher Education, even without the classic General University Entrance Qualification (“Abitur”)
- The model is designed part time (so there is no need to leave their job to study)
- It recognizes prior learning experiences of VET educators
- The integrated projects are from the real work of the VET educators; the acquired knowledge can therefore flow directly into the work (aspect of innovation/professionalization of the own work),
- In combining the different forms of knowledge and skills in action (performance) and by reflecting that it is possible for them to acquire professional competence
- The ways 1 and 2 bring significant time savings and contents do not have to be learned several times anymore
- Overall, a chance for professionalization incl. a corresponding (academic) status

for the companies:

- They benefit from the practical orientation of the training, on the other hand scientific methods find their way into operational practice (change for innovations)

for the Education System in Germany:

- Previously strictly separate areas finally find together (learning in company, at inter-company training programmes in Further Education and university = “trial”). This aspect connects to the discourse of “permeability between VET and academic education” (cf. CEDEFOP 2012).

Besides the linking of the (previously separated) learning environments and graduations, a particular approach of the Alanus University is integrated in the regional configuration of the three branch model: artistic training (exercises and projects in painting, drawing, sculpturing, drama, dancing and music). The assumption here is that art is particularly suited to learn being able to deal with uncertain, complex, open situations and form competencies like reacting spontaneously, to improvise, doing crisis management, to learn sensitivity, empathy and creativity. Successful VET today is not only a question of skills and qualifications, but much more a question of personality. And art is a proven way to aid the process of personality development (cf. instead of many contributions: Brater/Wagner 2010).

(Reflection of) preliminary conditions of success and lessons learnt

The model describes a way of education of VET trainers that seems particularly promising when various institutions of learning and learning places exist and

when the qualification paths and existing qualifications are heterogeneous. If one wishes to transmit such a model in other countries, it might be helpful to take the following experience note:

In particular, the implementation of such a model requires the willingness of all actors to work together. For example, the universities need the will to establish systems for the recognition of prior learning in non-academic fields (including workplace learning) and quality-assured systems for competence assessment and the certification of competencies. The exact design requires an overall intensive communication on the forms, tasks and roles of and in cooperation and the opportunities and restrictions of the involved institutions and actors. Therefore, the testing of these and similar models in Germany was done in regional networks, thus intensive communication and co-working was possible. For the idea of how to establish such networks in Sub-Sahara Africa, see the article of Haseloff in this anthology.

Other lessons learnt of the testing of the model at the Alanus University were that

- the educational outcomes of the own Vocational Education of the participants were high enough to complete an ambitious scientific study courses and to acquire the Master degree
- many regulations and bureaucracy made and make it difficult to link the three branches
- different interests lead to difficulties (university: rather orientation on graduation, regional institutions: rather orientation on economic aspects)
- the practical projects are highly dependent on the policy and strategy in the company
- the Further Education training at the regional institutions must be as innovative and practice-based like provided in the model
- the linking of the learning places can be made possible in the free cooperation of the partners curricular – but it has to be completed it is in the mind of the participants
- different political responsibilities must find a matching.

A difficulty therefore arose from the federal structure of education in Germany. In some federal states of Germany, educational laws allow to access Master Courses, in other federal states this is not possible without acquiring a Bachelor degree first – like it is the case in North Rhine-Westphalia (NRW). First, a gap has been used to allow the access also without a Bachelor degree: with a Bachelor equivalent abroad at the Danube University Krems, it was still possible to access the Master Course. But this gap was filled by amending the law on Higher Education in NRW however. So the continuous path in NRW now requires a Bachelor degree (in a project, the Alanus University is now working on a relevant Bachelor programmes). So while the project was supported and welcomed by the federal government (Bundesregierung), the political action at the federal state (Bundesland) led to problems. Such experiences show the difficulty to implement such models in a complex situation with many stakeholders.

Summary

VET trainers today need different forms of knowledge and skills that could be acquired at different learning places. So they could highly benefit from their systematical integration. Linking models in Further Education, like the one described here, offer systems that allow participants to organize their training activities very flexible and in personalized fit. Participants of such forms of Further Education can acquire professional competence including competence of self-directed (but supported!) learning.

The three-branch-model described here is to give inspirations on how such models can look like and how the strengths and advantages of the different places of learning can be used effectively.

The brief sketch of conditions of success and lessons learnt wants to raise awareness of the complex co-interrelationships and to identify challenges that are not initially in view. The challenges are different in any country, but may occur on similar levels. It appears crucial to involve all stakeholders in 'networked' cooperation.

VET trainers have a major influence on the vocational competence and the forming of personalities of the youth. That is why economy, policy and science have to cooperate on an equal footing to overcome existing obstacles and to ensure a high-class qualification.

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TVET Teacher Further Education: Practice, Experiences and Reflections of Stakeholders in Catholic Sponsored Community Colleges in East Africa

PETER CHANGILWA KIGWILU

Abstract

A major concern for the industry has been the mismatch between education and skills needed in the job market. In specific, transversal skills have been cited as either inadequate or lacking in the TVET training programmes, a gap that the Catholic sponsored community colleges sought to fill by developing a training programme for TVET teachers. This is a three-year diploma in education programme incorporating transversal skills (Life skills, ICT skills and Entrepreneurship skills) for practicing TVET teachers run in collaboration with Marist International University College. The participants are drawn from community colleges (and other TVET institutions) in Kenya, Uganda, Tanzania and Zanzibar. Adopting the phenomenology research design, the study sampled 30 participants; 8 graduates of the programme, 3 directors, 5 alumni and 14 students of community colleges. A Focus Group Discussion (FGD) was conducted among the students while other participants were interviewed. Pertinent documents to the programme were also analyzed. Using primary and secondary data, the study analyzed the profile of teachers, Further Education model used, experiences of stakeholders, and challenges encountered, with a view to drawing lessons for replication in other TVET institutions. The findings showed that success of Further Education programme depends on adequate profiling of students and alignment of the programme to the participants' needs. None-the-less, Further Education programmes that integrate transversal skills in their curricula and enhance quality teaching result in more favorable outcomes. Finally, robust measures ought to be taken to mitigate the inherent challenges in Further Education mode of training.

Keywords

Community colleges, Entrepreneurial skills, ICT skills, Further Education, Life skills, Transversal skills, TVET

Introduction

The community college concept of education seeks to empower the underprivileged through appropriate skills development that lead to gainful employment in local industry and the community. As a movement that began in USA, the concept was introduced in East Africa in 2006, drawing resemblance to the Indian community colleges, but uniquely aligned to the local realities. The community colleges offer transversal skills (life skills) alongside the technical and vocational courses. The courses, which are basically artisan and craft courses, are identified through a community needs assessment (CORAT, 2011; EACCS, 2006). While some community colleges are funded by the local community, others have external sponsors including Churches and NGOs. This study focuses on those established under a joint initiative of the Catholic Church and Stitching Porticus Foundation, an NGO.

In 2009, the East African Community Colleges Secretariat (EACCS) developed a Diploma in Education programme for training TVET teachers drawn from the community colleges. The programme was launched in 2010 at Marist International University College (MIUC), upon its approval by Senate of The Catholic University of Eastern Africa (CUEA) in 2009. The objectives of the programme were to: (a) provide a sound understanding of life skills education, particularly in relation to current realities in East Africa; (b) empower the teachers to become skilled teachers and educators of life skills; and (c) give them an academic foundation for further studies in the field of teacher education. The expectation was that the graduates of the programme would subsequently prepare their students for self or other employment, everyday living and pursue higher education.

Problem Statement

TVET is considered the engine for propelling economic and technological development in many developing countries. Furthermore, the emerging workplace demands a new set of transversal skills (life skills, ICT skills and, entrepreneurial skills) for employees (Kigwilu, 2016; Bwanali, 2016). This demands of teacher education institutions to incorporate transversal skills in their curricula. However, little has been done to embed transversal skills in most programmes. Moreover, most TVET institutions rely on apprenticeship model of teacher education whereby their students become TVET teachers, devoid of desired pedagogical skills (Changilwa, 2015).

Globally, there is a rising need of teachers with robust pedagogical and transversal skills. Indeed, studies affirm that TVET teachers are inadequately prepared to

discharge the task of curriculum implementation (Hooker et al., 2011; Farstad, 2002; Indoshi, 2010; Wagah, 2010; Agak, 2010; Sharma, 2008; Fietz, 2007; Reglin, 2007; Mouillour, 2007; UNESCO, 2010; Mupinga, 2006; Busby, 2006; Ngatia, 2006; Ferej, 2012; Kitainge, 2012; Ooko, 2012; Simiyu, 2009). It is against this backdrop that this study sought to establish the gains emanating from the TVET teacher education programme offered at MIUC. In particular, the study sought to:

- (i) Profile the teacher participants of the programme
- (ii) Describe the education model used in training the teachers
- (iii) Analyze the experiences of implementers and beneficiaries of the programme
- (iv) Discuss the challenges encountered in implementation and their mitigation thereof
- (v) Draw lessons for replication in other TVET institutions.

Methodology

Phenomenology research design guided the study. The study sampled 30 participants; 8 graduates of the programme, 3 directors, 5 alumni and 14 students of community colleges. A Focus Group Discussion (FGD) guide was administered to students while other participants were interviewed. Furthermore, document analyses of evaluation reports of the programme and administrative documents relating to the programme were conducted.

Findings

Profile of Programme Participants

The type of Further Education offered largely depends on the level of preparation teachers receive prior to their entering the profession. This yields four categories of teachers; unqualified teachers, teachers for upgrading, teachers assuming new roles, and teachers for refresher courses. Unqualified teacher is one who has not attended any formal teacher education programme. Teacher for upgrading refers to a trained teacher with lower professional qualification, say diploma qualification, and aspiring to attain a higher professional qualification, say degree qualification. A teacher assuming new roles refers to an already practicing teacher who trains in a discipline or subject that is different from what s/he studied during the initial teacher education programme, and this training leads to a shift in responsibility such as from teaching roles to administrative roles. Finally, a teacher for refresher courses refers to a practicing teacher who undertakes short courses in his/her field of specialization to improve his/her pedagogical knowledge and skills in that field. Table 1 shows that the programme targeted a mix of unqualified teachers, teachers assuming new roles and teachers for refresher courses since none of them had been trained in transversal skills. In addition, the selection of teachers ensured gender parity for all the cohorts.

Tab. 1 Profile of the Teachers

Teacher Profile	Distribution by cohort											
	First intake (2009)			Second intake (2010)			Third intake (2011)			Cumulative		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pre-training qualifications												
Technical Teacher Education	0	0	0	1	0	1	0	0	0	1	0	1
Other qualifications	11	12	23	7	5	12	4	3	7	22	20	42
No post school education	2	0	2	1	4	5	2	3	5	5	7	12
Total	13	12	25	9	9	18	6	6	12	28	27	55
Nationality												
Kenya	6	7	13	3	2	5	2	3	5	11	12	23
Uganda	5	3	8	4	4	8	2	2	4	11	9	20
Tanzania	2	2	4	2	3	5	2	1	3	6	6	12
Total	13	12	25	9	9	18	6	6	12	28	27	55

TVET Teacher Education Model

The model for training the TVET teachers was an input-output process. This process begins with inputs (students, teaching and learning resources) into the system, which undergo some refining (teaching and learning process) and are then channeled out as outputs (graduates). For this project, the process began with embedment of the transversal skills into the teacher education curriculum. Based on this embedment, appropriate teaching and learning approaches were employed whose effectiveness was assessed both formative and summative resulting in desired programme outcomes. Formative assessment refers to the ongoing assessment of student learning to provide feedback to instructors and students useful for improving teaching and learning. It is usually assessed through such ways as continuous assessment tests, quizzes, assignments, observations and reflection journals. On the other hand, summative assessments are conducted at the end of a programme of project to assess the final product of the programme through final examinations, projects and course evaluations. The input-output model is presented in Figure 1 and each component of the model is subsequently discussed.

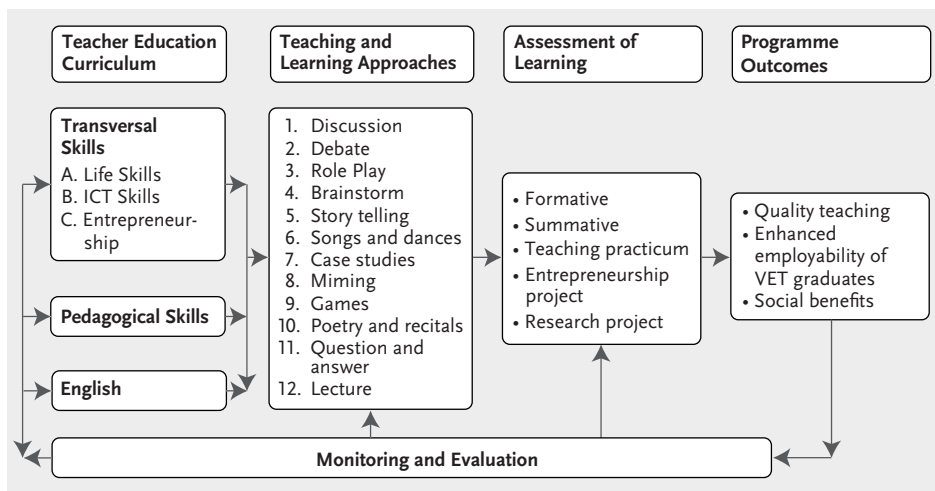


Fig. 1 The TVET Teacher Education Model

Teacher Education Curriculum

The programme was designed to last a minimum of three years (6 semesters) for Form four (or equivalent) graduates and two years for students with relevant post-secondary training. The programme comprised three Common courses, 13 Pedagogical skills courses, 14 Transversal skills courses and seven English courses culminating in an aggregate of 36 courses. Each course covered three credits. The life skills courses were taught by qualified lecturers who had been trained in India.

Of the two main approaches used in embedding transversal skills into training programmes, that is, the integrated approach and stand-alone approach, the programme adopted the latter. The integrated approach fuses the subject explicitly with other subjects across the curriculum or delivers specific topics and content through carrier subjects (Dawe, 2002). As such, it makes learning relevant hence increasing motivation to learn (Shuman et. al., 2005). Although some literature discourses recommend the integration of transversal skills within the curriculum (de la Harpe et al., 2000; Knight, 2002; Yorke, 2002), the approach is associated with diminution of the academic standards (Gunn, 2010; Bell, 2010; Kafmann, 2010). Moreover, the approach seems to insinuate that soft skills are much more difficult to be transferred in practice than hard skills (Laker, 2011; Powell, 2011; Resnick, 1987; Billet, 1998).

In contrast, in a stand-alone approach, the subject is taught as a stand-alone in the existing curriculum (UNICEF, 2012). Globally, there have been shifts from the integrated approach to the stand-alone approach in embedment of subjects especially transversal skills (UNICEF, 2006; KIE, 2008; Chamba, 2009). On the flip-side, the stand-alone approach seems to be less successful than approaches in which desired skills are infused into discipline-specific courses alongside traditional academic content (Lai, 2011).

Teaching and Learning Approaches

There are basically two approaches to teaching or learning; expository, where the teacher exposes knowledge to the learners and heuristic, where learners are encouraged to find information on their own. The programme teaching strategies were grounded in heuristic approaches. These included but were not limited to discussion, debate, role play, brainstorming, story-telling, songs and dances, case studies, miming, games, poetry and recitals, question and answer and project work.

Studies show that interactive learning strategies have more positive effects than didactic approaches (Anderson, 2008; Moore, 2008; Giles et al., 2008; James, 2011; van der Kreeft et al., 2009). Using these methods, teachers assume the role of facilitators of learning, acting as role models to the students. The implication is that teachers must themselves be equipped with (or willing to develop) and demonstrate the same range of effective skills as expected of their students.

Assessment, Monitoring and Evaluation

Transversal skills are assessed continuously using non-traditional assessment techniques such as checklists, peer assessment, teacher observations, presentations and assessment rubrics. This entails both formative and summative assessment. Although the assessment of learning in the programme incorporated the aforesaid techniques, assessment rubrics were minimally used. In addition, client satisfaction surveys were conducted at the end of the teaching practicum. In the surveys, the co-supervisors, who were staff at the teaching practicum sites, provided descriptive analyses of the student teachers in so far as exhibition of transversal skills was concerned. These assessments were eventually summed into four modes and weighted as follows: Continuous assessment (20%), assignments/group work (20%), oral presentations (10%) and end-of-semester examinations (50%).

The programme was monitored and evaluated both internally and externally. Internal evaluators comprised faculty, student advisors and mentors. They monitored the day-to-day implementation of the programme, identified and corrected weaknesses in the implementation process. External evaluation was conducted by CO-RAT in 2011, ICDRE in 2012 and KARDS in 2013. The evaluations yielded useful data that was used to improve the implementation of the programme.

Programme Outcomes

So far, three cohorts have successfully completed the programme. In total, 56 students graduated; first cohort of 25 graduated in October 2012, the second cohort of 16 graduated in 2013 and the third cohort of 13 graduated in 2014. In addition, two self-sponsored students graduated in 2015.

The programme graduates work in their respective community colleges and their productivity has been phenomenal. Testimonies from their institutions applaud the pedagogical prowess they demonstrate, the effectiveness they execute in their

teaching and administrative tasks and the transformative touch they give to their students. The foregoing explicates these gains.

In order to understand how the programme had impacted its graduates' pedagogical delivery, both the graduates and their directors were interviewed. The directors attested the centrality of the programme in improving the teaching effectiveness of the graduates. For instance, one director emphatically stated: "My teachers are now very good in imparting life skills to the students. Previously, students disliked the subject but they now like the subject"

Likewise, the CORAT (2011) documents a community college student who demonstrated exceptional performance in her internship. When interviewed, she said that the quality teaching and learning coupled with the ICT skills and life skills acquired enabled her to perform better during internship. The students narrated "...At first I feared. But when I realized that I was even performing better I became more interested in my job. When they saw the way I was working, they kept asking me where I was training and what we were being taught" (p. 11).

Similarly, all the interviewed programme graduates believed that they had received quality training that enabled them to prepare their students adequately for formal employment or starting own business. One of the graduate teachers narrated: "Even though some of our students do not get employed easily, they start their own businesses. One student who finished attachment is underway registering his business. Another was employed in a big hotel! Others got employed in different three star hotels and they occasionally come back to say thank you for the life skills" The same view was echoed by alumni who had been taught by the programme graduates. One of them said: "Life skills education improved my personality. During my job interview, the employer had confidence in me- the way I probably carried myself in the interview ... If it were not for life skills, I wouldn't have a positive attitude to raise my self-esteem".

These findings corroborate CORAT (2011) findings that community college alumni portrayed high self-esteem, had positive attitude towards others, related and communicated effectively. The report further noted that entrepreneurial skills enabled alumni to initiate self-employment projects. An alumna as captured in the CORAT (2011) report said that "with these skills, students can move themselves out of the terrible disease of poverty. For example, one of the girls asked for a loan to start poultry farming upcountry. Within three months she recouped seventy five percent and came to pay back... She has since paid the entire loan" (p. 26).

The social benefits of the programme as shared by students in the FGD included improved interpersonal relations, high self-esteem and self-acceptance, and reduced involvement in social evils such as substance abuse. This is attested to by the excerpts from a director of one community college who said that "With change of behavior from substance abuse to responsible people, students are happy and confident. They experience great healing and self-acceptance ... They are sensitive to the needs of others and come back to us with gifts. They recognize the teachers in public transport and pay their bus fares. This is very touching! I feel like a mother who sees the success of her children as they grow up!" (CORAT, 2011, p. 24).

CORAT (2011) further documents evidence that the programme impacted student behaviour to embrace non-violent conflict resolution mechanisms as a result of acquiring the transversal skills. The report quotes a director who said: “ ... having acquired communication skills, our students can now express their grievances to the authorities without being violent” (p. 17). This suggests that the programme had resulted in desired character formation in students.

Reflections

The reflections about the teacher education programme are summed up in the challenges that were experienced and how they were mitigated and the lessons drawn out of these experiences. This is discussed in the subsequent sections.

Challenges and Remedies

The programme faced a myriad of challenges. First, the Teachers Service Commission (TSC) in Kenya does not recognize Life Skills as a teaching subject. Consequently, it cannot employ graduates of the programme. This led to low uptake of the programme. Second, the different entry behaviors (qualifications) of the teachers affected pedagogical approaches used. Third, the mode of learning (school holidays) strained the teachers who already had work exigencies at their respective workstations. Some would not complete off-campus assignments on time. Fourth, the long periods of non-contact with lecturers (about three months) every semester interrupted seamless learning, thereby affecting student academic achievement.

To mitigate the aforesaid challenges, the more knowledgeable students were co-opted as resource persons so that they would feel useful. In addition, lecturers toned their language to the abilities of the least academically endowed students to ensure none was left behind during instruction. Strict adherence to policies on submission of assignments, term papers and other learning tasks ensured timely submission of assignments. In addition, stakeholders embarked on the pursuit for recognition of life skills by the respective governments as a teaching subject. Currently, Kenya’s education system is under review and life skills features as a central theme to be embraced in this new education system.

Lessons Learnt

Some of the lessons learnt from this programme include:

- (i) Further Education is essential for enhancement of quality teaching in TVET institutions.
- (ii) Further Education programmes anchored in pedagogical and other non-technical skills are effective in augmenting the subsequent provision of technical skills to TVET students.
- (iii) Practical assessment of knowledge and skills should be at the heart of assessment in Further Education.

- (iv) Follow-ups of what Further Education trainees do in their work stations through visits, seminars and debriefing sessions is an effective assessment technique for measuring transversal skills.
- (v) None of the embedment approaches of transversal skills is absolutely superior; a hybrid of the two would suffice.
- (vi) Spot checks on application of knowledge and skills acquired in Further Education provide information on gaps to loop in thereby strengthening the programme.
- (vii) Mode of delivery for Further Education should balance school demands and work exigencies of the targeted group.
- (viii) Training of trainers for transversal skills (particularly life skills) is not a field for everyone but rather for only those trained and qualified in teaching the subject.

Conclusions

The following conclusions were drawn from the study findings:

- (i) Profiling of students targeted for Further Education is critical for the success of the programme.
- (ii) Embedment of transversal skills in the programme was effective in attainment of the programme objectives.
- (ii) The programme enhanced quality teaching that resulted in channeling of more productive students into the society with enhanced employability, entrepreneurial abilities and social capital gains.
- (iv) Although there were challenges inherent in the mode of learning adopted by the programme, appropriate measures were adopted to address the challenges.

Recommendations

The study makes the following recommendations:

- (i) Further Education for TVET teachers should embrace strategies that cater for individual differences due to the heterogeneous composition of the target groups.
- (ii) Transversal skills should be embedded in all TVET programmes to equip teachers with adequate skills of molding holistic students who can tackle the social and economic challenges in the society.
- (iii) Further Education for TVET teachers should incorporate pedagogical skills as majority of them have not trained as teachers.
- (iv) Duration and modes of learning for Further Education programmes should be aligned to the individual needs of the target groups. This calls for more consultation and involvement of all stakeholders in planning process.

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Establishment of a VET-system with focus on Further Education – Presentation of ideas on the motivation and establishment of a Further Education system, especially in universities in Sub-Saharan Africa

ALPHEAS SHINDI

Introduction

Vocational Education and Training has been a topical issue, not only in Sub-Saharan Africa but also in a number of developed and developing countries. This assumption is based on the interest of vocational education training providers and some universities from these countries in presenting and attending Vocational Education and Training (VET) workshops, seminars and fairs. The conference themes and the discussions which ensue, reflect that VET is defined differently from country to country and therefore the VET policies and their implementation are different from country to country. A few examples of these fora are the IVETA (International Vocational Education and Training Association) and the International Congress on Vocational and Professional Education and Training, just to name a few. As for IVETA, it is a network of vocational educators. The network includes vocational skills training organizations, business and industrial firms, and other individuals and groups interested or involved in Vocational Education and Training worldwide. IVETA is dedicated to the advancement and improvement of high-quality Vocational Education and Training throughout the world. IVETA is working to create a new era in communication among vocational educators globe. As for the International Congress on Vocational and Professional Education and Training, it is a congress devoted exclusively to Vocational Education and Training. The main focus is on image building, bilateral exchanges between the private sector and policymakers and the presentation of good practice in host companies

and Vocational Education and Training schools. This backdrop of discussion, presentation and exhibition platform influences and paves the way to a number of VET innovations and agendas.

VET in Sub-Saharan Africa is generally perceived to be for higher education and training while VET programmes are for vocational training colleges and polytechnics. These institutions i.e. vocational training colleges and polytechnics, usually have lower admission requirements than universities. Most vocational training institutions have no links between VET courses and university education. VET in most Sub-Sahara African countries is therefore viewed as a carrier path for those who do not qualify to go to universities. In the last decade a number of polytechnics in Sub-Sahara Africa have changed from polytechnics to technical universities or universities of technology e.g. in Kenya, South Africa, Zimbabwe and Namibia just to name a few.

The last decade has also seen a lot of VET reform in Sub-Saharan Africa. This reform has been influenced countries including and not limited to United Kingdom, Scotland, Germany, Australia, New Zealand and South Africa. Some of the ingredients to facilitate reform have been the introduction of qualification frameworks, industry engagement on training matters, collection of training levy from the industry, refinement of training delivery, assessment and certification as well as introduction of competence based education and training.

VET in Namibia

In Namibia, Vocational Education and Training is considered as one of the priorities for the Namibia government. As a vehicle to articulate VET, Competence Based Education and Training (CBET) was identified and implemented. CBET is hot on the agenda of most Sub-Saharan African countries, though modes of implementation vary from country to country. The key principles of CBET are that the training should be based on competencies and these competencies are specified in the unit standards or occupational standards. Windhoek Vocational Training Centre (WVTC) piloted the development of CBET materials and established a CBET Implementation Unit, in 2001. The selected occupations were Joinery and Cabinet Making and as well as Automechanics. Other Vocational Training Centres e.g. Valombola VTC, Okakarara VTC, Rundu VTC and Zambezi VTC joined the band wagon much later. As more VTC joined, so did the community development centres (COSDECs).

In May 2008 the Namibian government promulgated the Vocational Education Training Act (Act No. 1 of 2008). The provision of the Act is to establish the Namibia Training Authority (NTA), the Board of the NTA and the National Training Fund (NTF):

- to regulate the provision of Vocational Education and Training; to provide for the funding of Vocational Education and Training;
- to provide for the imposition of Vocational Education and Training levy;

- to provide for the appointment of inspectors and designation of quality system auditors;
- and to provide for incidental matters.

The establishment of the NTA birthed interest in having more training providers willing to offer unit standards based qualifications evolve. The present focus of most VET training providers is offering training from level 1 to 5 on the Namibia Qualification Framework (NQF) while levels 6 to 10 are left to universities and other institutions for higher learning. Articulation arrangements are on paper but not practiced, as universities and institutions of higher learning stick to their strict admission arrangements, giving no room for graduates of VTCs who not meet their minimum academic requirements.

Competence Based Education and Training in Namibia

Namibia embarked on Competence Based Education and Training in 2001 through a GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH) sponsored programme at WVTC. GTZ – Namibia at that time identified CBET as one of the Mega Trends in Technical WVTC set up a department specifically for the introduction, implementation and evaluation of CBET. The department was called CBET Implementation Unit (CIU). CIU followed the procedures of CBET i.e. from generating job profiles up to development of curricula and assessment instruments. GTZ-Namibia supported WVTC through contracting consultants with regional and international experience on CBET.

In January 2003 WVTC trained DACUM (**D**evelop **A** **C**urriculum) facilitators to help in the development of job profiles. DACUM is one of the methods used in the development of job profiles. This method is quite popular in Sub-Saharan Africa. Its principles are anchored on using industry job incumbents to develop their job profiles. This job profiles describe the work carried out by job incumbents in a form of a matrix of duties and tasks. After the DACUM facilitator training, some of the facilitators were contracted to develop job profiles. The job profiles developed by these facilitators were as follows:

- Bricklaying and Plastering
- Joinery and Cabinet Making
- Automechanics
- Welding and Fabrication

Upon completion of the job profiles, CIU started developing unit standards for Automechanics and for Joinery and Cabinet Making. The unit standards were from level 1 on to level 3. This meant that there was a void on the levels for the two occupations to articulate to Polytechnic's entry requirements, as most Polytechnic's courses at that time were starting at level 5 on the NQF. In September 2004, GTZ pulled-out its support to the VET sector and WVTC could not sustain CIU. In October 2004 a project called Programme Management Unit for the Establishment of the Namibia Training Authority (PMU-NTA) was formed. It

was in the Ministry of Education reporting directly to the Director, Directorate of Vocational Education and Training. WVTC then handed all the materials developed by CIU to PMU-NTA.

When PMU-NTA took over the draft unit standards, they developed the related qualifications and submitted them to the Namibia Qualifications Authority (NQA) for registration on the NQF. The next stage was to develop curricula and assessment tools. This next stage called the PMU-NTA to go on a capacity development drive to train curriculum developers, module writers and test instrument writers. Along the same timelines, PMU-NTA contracted a South African company to train and certificate assessors and moderators. Polytechnic was also approached to assist in conduction the instructor training programme. As these development activities were taking place, PMU-NTA identified training providers interested in offering the CBET courses. The results were overwhelming, as both private and public training providers were interested in offering these CBET courses.

The overwhelming glut of request to offer CBET courses caused the PMU-NTA to indiscriminately recruit prospective institutions without checking on capacity and capability of these training providers, as well as the capacity of PMU-NTA to deliver the required quality training materials and quality assessment tools and instruments. The negative effects were felt in the second and third year after delivering the first level programmes. Issues of poor quality training materials, poor assessment instruments and procedures started to surface. The pass rate of the student on the CBET courses was not very encouraging and this was a major concern. Some trainees cited that the CBET courses were inferior and the previous modular courses there were being offered before and as a result this was affecting their Further Education and training with other higher institutions of learning. There was a big furore from trainees in a number of VTCs as they requested to have the CBET courses stopped and discontinued. Following this mass demonstration, some VTCs discontinued offering CBET courses.

These disturbances called for CBET implementation to be investigated. The investigation pointed out those major irregularities. In 2008 the NTA was established. In 2010, the NTA hosted a CBET review workshop to discuss the CBET Implementation problems and possible solutions and their side effects. The workshop resolutions shaped NTA's strategy to refine CBET implementation. NTA went back to the drawing board and implemented some of the workshop resolutions. This process bought NTA sometime in redressing its stakeholders' plight. In 2010 trainees came up with more demonstrations and disgruntlements. This prompted the NTA to conduct a study of how CBET was being offered and possible solutions to the problems dogging the NTA. The study was commissioned in 2014 and concluded in 2015. The key findings from the findings are as follows:

- While the NTA will be responsible for the quality assurance of all qualifications, the development and maintenance of vocational qualifications will largely be outsourced to specialist qualification developers working in collaboration with the relevant Industry Skills Committee.

- All vocational qualifications will include a compulsory set of technical, occupation-specific unit standards in Mathematics, English and Science. All qualifications at NQF levels 3 and 4 will also include an optional strand comprising unit standards in generic Mathematics, Science and English that align with the NIED programmes at Years 11 and 12.
- All new qualifications will be accompanied by two key supporting documents. These are a list of the essential resources and equipment required to deliver the qualification and a model-training programme for off-the-job training providers, such as Vocational Training Centres (VTCs) and community training centres, such as COSDECS, which shows how the qualification and associated unit standards may be translated into off the job, competency based training programmes, which include a period of job attachment, where relevant.
- The NTA will no longer produce or distribute support materials and the sourcing and/or production of support materials, including training manuals, internal assessment tools and curriculum, should be the responsibility of the training providers. Providers may choose to develop their own products or work in collaboration with other providers.
- The NTA will provide a ‘minimum support package’ for all vocational qualifications registered on the NQF. The ‘minimum support package’ comprises a list of training resources, including instructional material and essential equipment, to support the delivery of the qualification and a model-training programme that sets out how the qualification may be delivered in an off-the-job training context, including a period of job attachment.
- Under the proposed arrangements, assessment will be progressively devolved to NQA accredited training providers with the NTA being responsible for quality assuring these providers and developing the relevant national assessment tools.
- NTA Assessment and Certification Division will take responsibility for assessment, quality assurance and the provision of assessment services, including RPL, which will be offered through the NQA accredited training providers. In some cases, these providers may simply deal with their own trainees, whereas in others they may operate as assessment centres providing assessment services to a range of clients, including other training providers.
- The new assessment arrangements will include a system of graded assessment that will recognise higher levels of candidate performance.

It is expected that with this new dispensation, CBET implementation will be harmonised and university and other institutions of Further Education and training will be able to take-up trainees from VTCs, COSDECs and other training providers offering Technical and Vocational Training (TVET) training programmes below level 5 on the NQF.

Higher and Further Education

In Namibia in general there seem to be a perception that higher education is only offered at universities. As a result this notion has polarized the school leavers to consider university education as a first choice and TVET as a second or third choice. This perception is also shared with the parents and unfortunately some industries. For as long as this thinking reign in the minds of the youth, the attitude of trainees in VTCs, COSDECs and other technical training institutions would be difficult to mould. Some trainees belittle these training institutions, considering themselves as transiting and awaiting for admission to universities. It does not matter how much it is preached to the trainee that at the end of the training they will be employed or will start their own company and contribute to the economy, the trainee would be adamant and continue focussing on the university.

Universities on the other hand are not creating pathways for VTCs, COSDECs and other technical training institutions graduates to be admitted for Further Education. Engineering courses can be a glaring example where principles in the first year of university are the same principles in level 2 or level 3 in TVET programmes. Surely it does not make sense to labour a trainee, now student, to repeat what he/she would have done and passed. Recognition of prior learning (RPL) or exemptions should certainly be considered.

It is always interesting to see technocrats point fingers at each other and play a blame game when it comes to issues mentioned above on articulation. VTCs blame the universities that they do not provide pathways for their graduates while the universities say the VTCs graduates are weak in mathematics, science and other subject or modules. In this “tug of war” it is the trainee who is disadvantaged. It is advisable to create collaborations and synergies right from the development of curriculum. A project called Promotion of Vocational Education and Training (ProVET) assisting the NTA in a number of initiatives has been working with Polytechnic now NUST on development of unit standards and qualifications. This has worked very well and notable giant steps have been noted in two occupations namely Solar Installation and Maintenance as Well as VET Trainer and VET Training Manager. This cooperation is still going to continue in curriculum development and assessment instrument development. Unfortunately, there were no such success stories in Health and Safety, Firefighting and Rescue Operations. In these occupations, the relevant faculties insisted that the education and training is different and should remain separate.

Recommendations

A VET system cannot function well when one or more of its components is missing or not operational. The components of a VET system includes and is not limited to:

- Basic education (Primary and Secondary)
- Pathways (From VTC to work or to Polytechnic; From Polytechnic to work or to university)
- Tertiary education (Apprenticeships and Traineeships) and articulation arrangements
- Job attachments
- Industry engagements
- Conduct research in:
 - Labour market e.g. “skills for jobs”
 - Tracer studies of students and trainees
 - Training delivery, assessment and certification as well as quality assurance arrangements
 - Regional or Sub-Saharan qualification framework

A well-functioning VET system is not a one size fits all, it is contextual. It varies from country to country and also from institution to institution. Therefore there is need to:

- Continue dialogues and share success stories
- Copy, paste and adjust
- Develop and implement policies in VET
- Evaluate implementation and continuously improve
- Establish networks and twinning between institutions in Sub-Saharan.

The Challenge of Contextualization and Domestication of VET Reforms for Higher Education Staff Capacity in East Africa

WINSTON JUMBA AKALA

Summary

This paper examines the misty state of VET reforms in East Africa comparing how the perspectives of contextualization and domestication in Kenya, Uganda and Tanzania have impacted on Higher Education policy and practice in the region. Vocational and Technical Training are not a new phenomenon in East Africa. They had been a valued way of life for the African indigenous communities for many centuries until the advent of formal Western education. When colonial administration took charge in Africa in the second half of the 19th century, the modes of Vocational education and Training were thus significantly disrupted and/or modified. Technical and Vocational/industrial skills became associated with race by classifying them as suitable for African communities. All these are among factors that still ripple in today's effort to reform VET in East Africa. The East African countries of Kenya, Uganda and Tanzania have endeavoured to contextualize and domesticate the various aspects of curriculum as a strategy to reform VET. The inter-University Council for East Africa (IUCEA) was therefore founded in the year 1999 by the three countries to coordinate and regulate Higher Education in the region to ensure not only the quality but also to advance Vocational education and Training capacity at this level. However, in spite of there being a clear structure for collaboration in Higher Education for East Africa, IUCEA has concentrated largely on academic research and quality assurance with scarce attention to reinvigoration of VET in Higher Education. Accordingly, there is need to re-conceptualize and rejuvenate VET programmes in East Africa. This paper proposes continuous research and needs assessment among other measures to inform policy formulation and development of practical guides on how to enhance higher Vocational education and Training. This will help to fortify the already flourishing institutes and colleges with specific curricula for many crafts ranging from metal work, electronics, electricity, mechanics,

plumbing, carpentry, tailoring, and catering, among others. The significant challenge is nevertheless the funding and ailing nature of middle level Technical and Vocational Training institutions. This situation poses the challenge of quality and how higher Vocational and Technical Training can be anchored. This paper concludes that significant focus and emphasis on domestication and contextualization of VET in East Africa is likely to unlock the potential of this type of education in re-engineering homegrown industrialization in the region.

Introduction

Vocational and Technical Training are not a new phenomenon in East Africa and Africa as a whole. The apprenticeship model of VET is as old in Africa as the African communities themselves. It involved learning different crafts and skills on the job. Accordingly its entrenchment and contextualization to the uniquely different cultures and realities gave birth to conflict relating to appropriateness of crafts, pedagogies, and management. It split cultures between nation states that proceeded to pursue their own – often different – educational and political ideologies, disrupting indigenous VET systems. Furthermore, Technical and Vocational/industrial skills became associated with race by classifying them as suitable for African communities. Consequently, this school of thought advanced by the Phelps Stokes Commission in 1924, and implemented in Africa led to negative attitude towards VET. All these are among factors still ripple in today's effort to reform VET in East Africa.

Consequently this paper navigates the misty state of VET reforms in East Africa comparing how the perspectives of contextualization and domestication in Kenya, Uganda and Tanzania have impacted on Higher Education policy and practice in the region. The East African countries have made some steps to entrench the various aspects of VET in their curricula as a strategy to reform VET at the university level. The outcomes have been a bag of mixed and sometimes confusing policies and curricula. This paper comparatively and critically explores the ways VET policies, their implementation and the struggle to contextualize and domesticate have influenced the development of VET policy in East Africa, especially at the tertiary and university levels.

Technical and Vocational Education and Training (TVET) in Kenya

In Kenya, the Ministry of Education Science and Technology has three distinct sectors with clearly designated functions: Basic Education, Vocational and Technical Training, and Higher Education. Each of these sectors is headed by a permanent secretary referred to as *Principal Secretary*. The Vocational and Technical Training sector is clearly detached from the Higher Education aspect already indi-

cating that there is disconnect between the two sectors. Accordingly, the nexus between the two sectors is yet to be seriously fathomed and initiated in Kenya.

Currently, the universities set their own criteria regarding which Vocational and Technical Training qualification they would admit to Higher Education. Most of them are then admitted to Technical University of Kenya, Technical University of Mombasa, Masinde Muliro University of Science and Technology, Dedan Kimathi University of Science and Technology, and University of Nairobi. Here, they study academic courses such as Engineering (including Mechanical, civil, electrical, and electronic), building and construction, water, and mining technology, as well as chemical and petrochemical Engineering. The most spectacular aspects in these programmes are as follows:

- The programmes are extremely academic
- They are taught and supervised largely by faculty who have a strong tradition in the academic genre or track of education
- Since the Technical universities in Kenya are relatively young, 90 % of faculty in them come from a purely academic tradition
- The students from the Technical track learn together with those from the academic track in an integrated fashion; in spite of their distinctly different backgrounds.

Furthermore, some of the Vocational and Technical institutes offering certificate and diploma programmes in Kenya are not accredited by the Technical and Vocational Education and Training Authority (TVETA). As a result, the qualifications from these institutions are not recognized by universities that register VET graduates in largely academic programmes. For instance, in the year 2013, TVETA closed eight Technical institutions in Nairobi because they failed to meet the standards set by the TVET Act 2013. What is intriguing though is that TVETA as a regulatory body for VET in Kenya does not have any mandate to regulate university education! This function is independently carried out by the Commission for University education, which is extremely academic in its approach.

As a result, Vocational and Technical Training is neither the tradition nor the practice in what have been christened Technical universities in Kenya. The curricula in these universities have been largely borrowed from the incubating universities. For instance, the Technical University of Kenya, which until 2012 was a constituent college of the University of Nairobi, has borrowed significantly from the academic curricula run by the university.

As a matter of fact, these universities ferociously pursue the academic tradition bequeathed by their mother universities. The net effect is that there has not been any interest to innovatively develop new curricula to emerge with new Vocational and Technical oriented degree programmes at the Technical Universities. Furthermore, the Master and doctoral programmes at the universities are extremely academic leaving limited space and interest to capacity building for staff teaching in areas of Vocational and Technical Training.

Business, Technical and Vocational Education and Training (BTVET) in Uganda

In the Republic of Uganda, the Ministry of Education and sports is divided into six autonomous institutions one of which is the Directorate of Industrial Training. This arm of the ministry manages Vocational education and Training which offers a total of 35 Training programmes leading to production of artisans in the 35 different areas. None of the listed VET specialty areas is implemented at the higher university level from the VET perspective. As a matter of fact, the graduates from these programmes are not admissible to mainstream engineering or other professional areas of Training because these positions are filled by the applicants directly emerging from schools that run academic curricula.

Uganda's education structure comprises of 7 years at primary school level, 6 years at secondary level (divided into 4 years ordinary level and 2 years advanced level), and 3–5 years of tertiary and/or university education. There is also a three year VET programme rolled out in 2014 that caters for students who terminate their education at the ordinary secondary level. The VET programmes are handled under the sector referred to as Business, Technical and Vocational Education and Training (BTVET) which regulates VET activities and institutions at all levels of the education system. However, a scrutiny of the actual colleges and institutes regulated by this entity reveals that the mandate does not cover university level education, which is handled by the Uganda National Council of Higher Education (UNCH).

Vocational Education and Training (VET) in Tanzania

In Tanzania, Vocational education and Training is regulated by the Vocational Education and Training Authority (VETA) founded by an Act of Parliament No. 1 of 1994. VETA is charged with broad responsibility of coordinating, regulating, financing, promoting and providing Vocational education and Training in Tanzania (VETA 2016). VETA runs 27 Training centres and institutes in different parts of Tanzania and coordinates more than 600 private VET colleges and institutes countrywide. The institutions provide courses such as tailoring, masonry, carpentry, catering, plumbing, art and design, among others. VETA also carries out regular baseline and needs assessment surveys to determine the market situations in order to inform VET curricula and policy. For instance a special VETA report on achievements during President Jakaya Kikwete's regime reveals:

“To enhance employability of VET graduates, VETA continued to provide quality Training focusing on the demand of the labour market. The Tracer Study conducted by VETA in 2010 established that 66.1% of VET graduates were employed, whereby 43% of them had wage employment, 50% were self employed while 7% were employed without pay.” (<http://www.veta.go.tz/index.php/en#>)

A significant chunk of these achievements was achieved with additional support from GTZ, which made contribution to similar programmes in Kenya and

Uganda. However, in spite of the great strides made in VET programmes, VETA neither regulates nor coordinates higher Vocational and Technical Education rendering capacity building for teaching at the various institutes difficult.

Implications for Higher and Further Education in East Africa

The inter-University Council for East Africa (IUCEA) was founded in the year 1999. Among its objectives was the need to facilitate establishment and maintenance of internationally comparable education standards in East Africa so as to promote the region's competitiveness in Higher Education. However, in spite of there being the a clear structure for collaboration in Higher Education for East Africa, IUCEA has concentrated largely on academic research and quality assurance with scarce attention to reinvigoration of VET in Higher Education. As a result, the following realities now dominate the situation in Higher Education:

- Prevalent apathy towards Vocational and Technical education abounds which dates back to colonial era when Technical and Vocational skills were taught only to Africans. During that time, academic and professional fields were reserved strictly for the people of European and Indian decent (Sifuna & Otiende 1992). As a result, it is believed that students who fail to secure admission directly to university academic curricula are the ones required to join VET programmes. This has an underlying implication that they are not suitable for the rigors of university education.
- There is limited evidence of clear policy on development of VET in the East African countries. Even within each country, issues relating to VET are managed by several autonomous sectors whose policies sometimes conflict, especially those governing tertiary and Higher Education.
- Country-based initiatives remain largely academic with limited evidence of innovative VET curricula and practice.
- A look at the curricula covered in VET/TVET programmes reveals that there has hardly been any attempt to contextualize crafts and technologies to the Eastern Africa resource base and needs. Only in very limited circumstances one finds architectural designs and artistic impressions that are founded with the African realm. What remains unclear is whether the insatiable appetites for exotic perspectives is responsible for limited interest in domesticated and contextualized versions.
- The curricula also barely domesticate VET by developing and emphasizing the valuable indigenous technologies as reflected in the diverse cultures of Eastern Africa. The only situation where indigenous technologies can be observed is in Technical and architectural drawings that result in construction of buildings with some semblance of African culture.
- Distinct sectors handling Technical and Vocational Training at the tertiary levels operate autonomously granting terminal diplomas and higher diplomas

without any collaborative strategy with universities on how to provide further Higher Education in a commensurate VET approach.

Way forward in re-engineering VET in East Africa

In order to move to new heights in developing VET, there is need to re-conceptualize and rejuvenate VET programmes in East Africa. A baseline study in East Africa and perhaps the entire African continent is necessary in order to determine the status of VET with a view to developing policy framework to guide the following:

- Development of curricula for Further Education in the different special areas of VET
- Determining the nexus between modern VET content and methodologies on one hand and indigenous African lifelong learning skills and technologies on the other (Nyerere 1967; Akala 2006).
- Contextualization of technologies to local needs and realities. This can be achieved by ensuring that the technologies with strong western background are juxtaposed with indigenous African craft technologies with a view to creating hybridity. Perhaps this would then attract local African interest.
- There is need to review the mandates of the different sectors in the Ministries of Education in East Africa to emphasize closer interaction and sharing to ensure that cross-cutting educational issues especially between the middle level VET colleges and institutes are adequately represented in a VET track at the universities.
- Create model Technical and Vocational Education Training centres of excellence at universities with a view to turning them into centres of innovation in VET.

Conclusions

Already quite a lot has been done in developing VET at the middle college level in East Africa. A colossal number of institutes and colleges already exist with specific curricula for many crafts ranging from metal work, electronics, electricity, mechanics, plumbing, carpentry, tailoring, and catering, among others. However, the achievement of VET initiatives and programmes at middle level Technical Training and polytechnic institutions in East Africa will certainly remain a mirage as long as ingenuity, contextualization and domestication remain alien. Innovative strategies targeting the development of curricula that focus the need for Further Education on one hand and collaboration especially with Technical universities in the region are likely to change this trend and reinvigorate the quality of higher and Further Education in the various VET specialties. One innovative strategy that bears the potential to change trends is needs assessment and capacity building for the predominantly academic faculty at the various universities to enable them to review their curricula to accurately focus the Higher Education needs of the graduates from Technical Training institutes and Vocational Training colleges in East Africa.

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