Session 3

What are concepts or conditions of success for a networked VET learning and teaching (oriented on competence, working practice, flexible, etc.) and especially for a networked Further Education system in VET?

Following the theoretical approaches of sessions 1 and 2, session 3 presents ideas and models for Further Education concepts that were tested in practice. They come from nine African universities and one German university. The authors provide supportive and obstructive factors for competence-oriented Further Education in VET.

The keynote for session 3 is on *Short cycle Higher Education programmes for Further Education of VET practice skills trainers*. **Piet Lem** from **The Netherlands** discusses alternative methods of Further Education for VET teachers.

In her presentation on *Understanding the English subject offered in the South African Technical Vocational Education and Training Colleges and its implications for the curriculum delivery,* **Mary Madileng** from **South Africa** outlines the importance and difficulties of designing a VET curriculum for English as a subject.

The relevance of partnership and links between university and TVET is the topic of **Esayas Alemayehu's** essay *A Review on TVET Programmes in* ***Ethiopia****: An Experience in Biomedical Technician Education*.

Daniel Dinis da Costa from **Mozambique** identified the mitigation of influential factors in running VET education in his work *From "the Chicken to the Egg" Technical-Vocational and Informal Training Story to Industry's Manpower, What Comes first? A Philosophical Study.*

How can competence-based assessment work in the African context? asked **Ethel Kyobe** from **Uganda** in her presentation *The concept of Competence Based Assessment in Vocational Education and Training.*

Christoph Bohne from **Germany** writes in *Shaping and Networking with Digital Media in Further Education: Strategic and Conceptional Considerations* about the importance of digital media in VET.

The article by **Nothemba Joyce Nduna** from **South Africa** – *Promoting effective WIL and RPL practices in the TVET Sector through Research* stresses the integration of research in VET education.

In *Learning and Exchange Platforms – An approach to professionalizing,* **Silke Partner** propounds that vocational educators should be trained through project-based learning. Partner stresses the importance of a multilevel national dialogue with all interest groups in **Namibia.**

In *Teachers Understanding of Entrepreneurship Education in Malawi*, **Feggie Mphasi** reports on her research into entrepreneurship at secondary schools. She concludes that entrepreneurship should be given more space in schools and on the curriculum, while teachers should be better prepared for this issue.

Gabriel Konayuma describes in *Design of current TVET system in Zambia* the structure of TVET in **Zambia**, emphasising the importance of Further Education in VET. This is the only way to guarantee the necessary quality in TVET training.

In *Competency Based Education and Training for the Training of Trainers,* **Lance Hauuanga** comments on competency-based education and training for trainers in **Namibia**. He sees TVET as an engine for transforming the Namibian economy. According to Hauuanga, the competence-oriented training programme and curriculum presented in the article lays the necessary foundation.

Key factors in the further development of VET systems are the professionalisation of vocational educators and curriculum development, says **Eric Wendkouni Sawadogo** in his article *Professionalization of Multipliers and curriculum development in VET system: Results of Survey, Practice and Challenges in Burkina Faso, Senegal and Germany.* Sawadogu tested a new, flexible model in **Burkina Faso** and **Senegal** that also includes the informal sector.

Guiseppe Tacconi and **Adula B. Hunde** study the professionalisation of TVET teachers in **Ethiopia** in their article *Professionalization of VET teachers in Ethiopia – the current practices, challenges and the way forward.* They recommend including internships in companies in the curriculum for VET teachers. The collaboration between universities, colleges and industry could form the basis for such a model.

Short cycle Higher Education programmes for Further Education of VET Practice skills trainers

An attractive alternative for VET trainers

Piet Lem
Fons Dehing
Cornelis van Dorp

Abstract

Although in the Netherlands the bachelor level (EQF-6) is required for teachers at VET schools, part of teaching staff does not meet this qualification, as a significant part of the practical skills training is provided by instructors, senior experienced technicians (EQF 4) without substantial further pedagogical or technical training. This development illustrates the complex dilemma with teaching staff in VET. On the one hand, we have the bachelor teacher who is theoretical educated for the engineering profession and consequently has (too) limited practical skills for the vocation. On the other hand, we have the skilled experienced technician from industry, who is vocationally skilled but has (too) little pedagogical knowledge. Upgrading the instructors in a Further Education programme to the level of teachers is preferable but proves to be difficult as instructors are not always eager or capable to do so.

An education level between the teacher (EQF 6) and the skilled technician (EQF 4) could be a feasible solution, not only to upgrade trainers in vocational education to a Higher Education degree and to improve pedagogical and didactical competences, but also to be able to differentiate between educators of different levels of pupils (huge differences in pupil capabilities in vocational education require different educational approaches!).

Both teacher training institutes and VET schools identified the EQF level 5 as an adequate level for Further Education of these instructors. Level 5 course duration typically is 2 years and offers a more feasible solution for both employers and instructors. The teacher training institute for technical teachers at Fontys University

of Applied sciences has developed the course with main characteristics: combined work and study, dual, and competence based. In this paper we report on the background and development of and experiences with this Further Education course for VET-trainers on this EQF level 5.

Problem statement [1]

Like in many European countries, the Dutch labour market requires more technicians while student enrolment in primary and secondary technical vocational education decreases At the same time, the teacher education system has difficulties in responding as the number of new educational staff does not keep pace with the retirement of old staff. In addition, the system demonstrates difficulties in developing improved educational and pedagogical preparation of teaching staff for pupils at the different levels of vocational education who require more specific care.

Although in the Netherlands the bachelor level (EQF-6) is required for teachers at VET schools, part of teaching staff does not meet this qualification, as a significant part of the practical skills training is provided by instructors, senior experienced technicians (EQF 4) without substantial further pedagogical or technical training.

This development illustrates the complex dilemma with teaching staff in VET. On the one hand, we have the bachelor teacher who is theoretical educated for the engineering profession and consequently has (too) limited practical skills for the vocation. On the other hand, we have the skilled experienced technician from industry, who is vocationally skilled but has (too) little pedagogical knowledge.

Upgrading the instructors in a Further Education programme to the level of teachers is preferable but proves to be difficult as instructors are not always eager or capable to do so.

An education level between the teacher (EQF 6) and the skilled technician (EQF 4) could be a feasible solution, not only to upgrade trainers in vocational education to a Higher Education degree and to improve pedagogical and didactical competences, but also to be able to differentiate between educators of different levels of pupils in vocational education.

1 Although the development described in this paper is linked to the Dutch VET situation and to the European Short cycle level-5 developments, it can be relevant for other VET systems too. This paper offers a number of notions for a wider application and discussion: First, the importance of providing appealing programmes (with feasible study horizon, enable career planning, status within the VET-teaching staff) that attract (senior) technicians from industry to become VET educators. Second, the design of training programmes for VET-educators aiming at lifelong learning. Third, differentiation in competencies in VET teaching staff, to establish a full spectrum of competencies for different levels of pupils. Fourth, to develop a clear national (or international) competence framework which provides competence descriptions for VET educators. Such a competence framework can contribute not only to a clear programme (and differentiations of programmes) for training VET-educators but also it contributes to a more relevant programme which includes needs of industry, pupils and educators. Last, but not least, the notion of the absolute required collaboration of VET-training institutions with industry as it can connect both closed worlds. Collaboration can contribute to overcome preservation of institutional independence to achieve a constant consideration of the needs to update programmes to ensure a better response to economic developments and needs.

Differentiation in teaching functions in VET school

In Dutch secondary vocational education, pupils (age 14−18) are prepared for a wide range of occupations. The demand for skilled workers on all levels is expected to increase. To meet pupils differences in developmental capacities, courses prepare four different training levels − equivalent with the EQF −, leading to a specific job qualification. The levels are: 1) assistant training; 2) basic vocational training; 3) professional training, and 4), middle-management training. The courses take up to four years (level 4). The level 1 and 2 pupils are perceived as vulnerable, often special needs pupils, and therefore they require a special pedagogical and educational approach. Groenenberg and Hermanussen (2012), call teaching level 1 and 2 pupils 'a special art'. Consequently, not all of student teachers are capable, willing or ready to work with these groups as the focus is mainly on practice training instead of teaching technical concepts. In secondary vocational education, approximately 50 % of the pupil population is mainly a practice trainer domain group (EQF level 1 and 2) and the remaining 50 % is typically a 'teacher domain' group (EQF level 3 and 4). So, the huge differences in pupil capabilities require different educational approaches! Given the specific characteristics of the pupil population in VET education, the question can be asked if bachelor teachers should be the only applicable staff for all groups of VET pupils. In fact, the value of the instructor in this sense has already been recognized. But also their deficiencies in pedagogical and didactical competencies compared to teachers have been recognized.

Recently, employers in education and the government have agreed on widening the spectrum of teaching professions beyond the current dichotomy of instructors and teachers. The Associate degree level (EQF 5) became available as intermediate teaching qualification: the practice trainer. The practice trainer for the lower level vocational students is characterized by strong pedagogical competences and with an understanding of, and an open mind to, the needs of these pupils. The practice trainer is a technically and pedagogically skilled and devoted educator who can make a difference. Moreover, the development and implementation of Associate degree programmes improve the flexibility of the Higher Educational system in supporting Further Education in VET and lifelong learning in Higher Education.

Towards an associate degree programme (EQF-level 5) for practice trainers

In 2013 after a pilot period of 5 years, the EQF level 5, the so called 'associate degree' became part of Dutch Higher Education system facilitating teacher training institutes to develop a Higher Education programme for training of practice trainers in VET schools. On the national level, the learning outcomes of the associate degree in education have been defined as a subset of the learning outcomes of teachers.

Already for many years, the technical teacher training institute of Fontys University of Applied Sciences has been collaborating with VET schools (senior secondary vocational education) in the Further Education of instructors. The development of an associate degree programme was a natural next step. The instructors programme is pedagogically and didactically focussed. The instructors are not technically further trained as they mainly perform as instructors with groups of pupils in practice training situations in close collaboration with and under supervision of the teacher (Lem, P., Laar, R. van de & M. van de Ven, 2008). Although of great value, these instructors are not officially certified, and the status within the teaching staff in many cases is not very high; they are often considered as 'helper'. The reality, however, is that the instructor has a lot more responsibilities than just 'helping' the teacher. They focus on developing, preparing and carrying out educational programmes in practice situations, on and off the job. In many cases they have a great responsibility in teaching practice skills and in pedagogical guidance. So, the instructors experience a large degree of uncertainty about their role and tasks. According to Adams (2013), this confounds the professional identity of these educators and affects the recognition that instructors are afforded for their role. Role recognition appears to be key to building professional identity. The development of a clearer professional identity is essential if educational preparation is to be tailored more specifically to the needs of those undertaking a practice trainer role.

In contrast of the instructor programme, the associate degree programme for practice trainers aims at both pedagogical and technical further training. In addition to this higher level, the programme also aims at improving the positioning of the practice trainers in schools. Clarification of the roles and tasks of the practice trainer contributes to a necessary mind shift (Figure 1): 'thinking out of the hierarchical box' towards a perspective of an education team with relevant educators, all with their own specialties and all together focused on the development of the pupil.

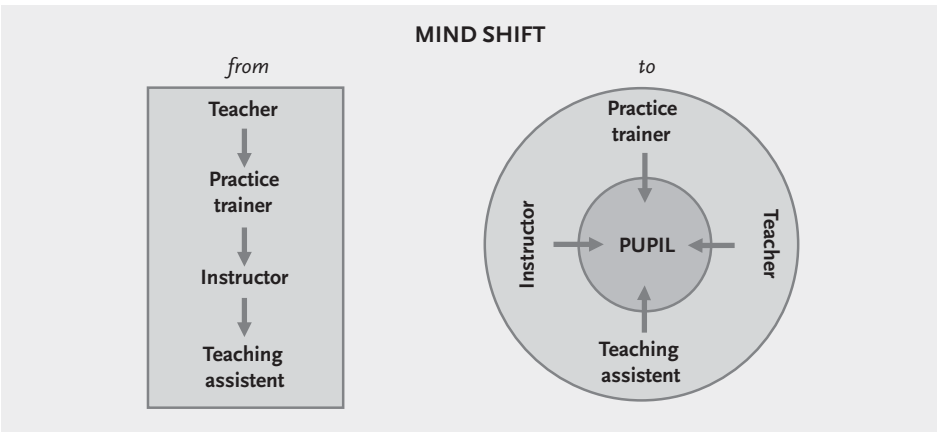

Fig. 1 A mind shift in professional identity

For the Further Education in VET, this new associate degree programme (Ad.) offers an achievable study horizon in the sense of an acceptable time frame and also an opportunity for dual, competence based learning. However, it doesn't mean it is an easy job for VET instructors to complete this Further Education route. On the contrary, many of them (like Hans and Rob, see intermezzo), have to re-invent studying! The Ad is a Higher Education programme which demands high levels of studying texts and writing papers, of conceptual thinking, of working in groups, of doing practical research etc. As developers of the programme, in all the enthusiasm and plea for lifelong learning, we must underline the importance of the programme design. Knowledge bases, competences, curriculum: it is only one part of the design. An even more demanding part is the design of a 'safe, warm bath' in which the adult student does not drop out of the 'new life of continuing learning'.

In figure 2 the Ad is positioned in the educational possibilities next to the bachelor.

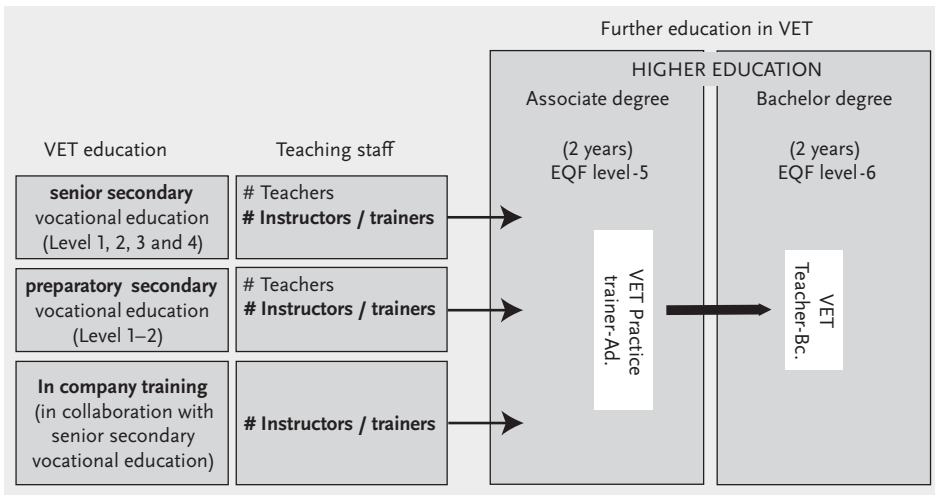

Fig. 2 Further Education possibilities for VET educators

Intermezzo: The further education for VET trainers Hans and Rob

Hans, a 34 year old technical trainer at a big shipyard in the Rotterdam area is a professional welder. He trains personnel in welding. Also he trains, guides and supervises pupils from a senior secondary vocational school in their internship at the yard. The company is very eager to have higher qualified in-company training personnel. Also, the senior secondary vocational school in their expanding collaboration with companies prefers working with qualified colleague educators within those companies. A few years ago, Hans, as an unqualified trainer, wanted to attend the engineering teacher training programme. Both for him and for the company, the Further Education programme was not very appealing. Except from the duration (4 to 5 years), it also was not clear if Hans could hold up with the bachelor level.

In September 2015 Hans started the level-5 Higher Education programme to become a certified engineering practice trainer. In July 2016, Hans completed the study with a diploma.

There is an interesting thing happening now. Hans is seriously considering the Further Education of the engineering teacher programme. The level-5 associate degree allows him without constrains to continue his Further Education into the bachelor programme. He has in a way re-invented himself. He discovered that he is able, willing and ready for continuing learning. What is more, he discovered that continuation offers him even more career possibilities in both the company and the VET school. For Hans, the continuing study has become less risky. After all, he has a diploma on level-5!

Rob is a 49 year old colleague student of Hans and works as an electronics instructor at a ***preparatory secondary*** *vocational school. A couple of years ago, Rob attended the course for VET instructors at Fontys. Because this is not an official Higher Education diploma, the schools puts pressure on Rob to further educate himself as a practice trainer. Rob never wanted to become a theory teacher. He loves his job with the kids in the practice setting of the learning process. Rob is a great pedagogue. Rob is married and has 5 children. The level-5 programme is a great opportunity for Rob within his possibilities and motivation to become a certified practice trainer in his VET school. For him, just like for Hans, the 2-year programme offers a viable horizon. Also Rob succeeded in July! For now, he is not ready to continue in the teacher training. Maybe he never will.... But, even after a few years he has the opportunity to step into the bachelor programme.*

The development and implementation of a pilot Ad-course for practice trainers

With the development of Ad, we aim at solving the dilemma on teaching staff. We have bachelor teachers for the theoretical subjects and the upgraded skilled engineering technicians from industry for the vocational skills training.

Next we describe the pilot Ad-course for practice trainers. The course was developed by the teacher training institute of Fontys University of Applied Sciences in cooperation with regional VET schools. The description is in terms of design requirement, course design and implementation and evaluation.

Design requirements

We concluded that the further training for instructors to the level 5 practice trainer should respond to the needs of the educational vocational levels 1 and 2 as well as the specific pedagogical needs care of pupils. We were able to define ten design parameters for this level 5 training (Dorp Van, Lem and Dehing, 2015).

- a feasible study horizon of two years, attractive for both employers and employees;
- focus on relevant pedagogical-didactical skills. Create sound pedagogical competence to serve different vocational skill levels and special needs care of pupils;
- focus on extending relevant technical and managerial skills;
- prepare practice trainers in VET for a multi-facetted professional identity, capable of training in a variety of practice situations, with varying roles, tasks and responsibilities;

- responsive to (professional) labour market requirements such as adaptability and flexibility;
- enable awareness in career planning in line with one's professional development opportunities;
- allow for interconnected pathways in the education system (from level 4 towards level 6); the training solution is an intermediate qualification (EQF level 5;
- inclusive to adults returning to the Higher Education system

Course design and implementation

The training programme for practice trainers consists of two closely connected components: (1) an on-the-job programme at the workplace (VET-school or company), and (2) an off-the-job programme at the Fontys teacher training institute. After the first year (technical training and basic training in pedagogics and didactics), the student enrols in the final stage of the associate degree for practice trainers. This year differs from the second year of the teacher training.

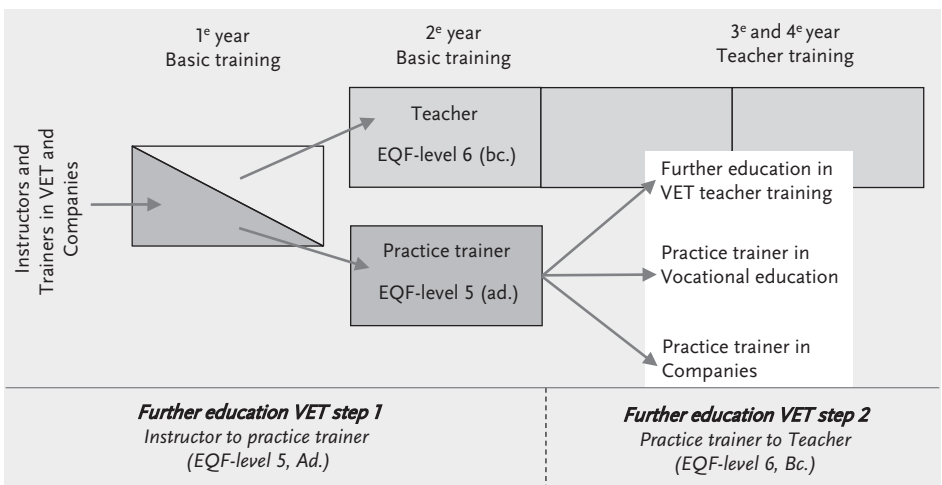

Fig. 3 Two-step Further Education for educators in VET

Although the same competences are developed, this training is much more focused on the educational setting of the practice trainer. At the end the student demonstrates by a final integrated project his competences. The project is developed, carried out and evaluated within the real educational setting of the student in vocational school or company. The project contains the development of an educational practice, for instance a 8 week new programme for welding for level 2 pupils. In the programme, the student demonstrates a variety of didactical forms and methodologies: direct instruction, demonstration, experiential learning, classroom conversation, excursion etcetera. Also the student demonstrates coaching and guidance competences, especially because practice trainers often teach in settings with special needs pupils, the pedagogical and didactical considerations

about the learning of these pupils are of great importance. Parallel to the project, the student carries out practical research. For instance, the student investigates in different schools and companies the comparable educational programmes and the way these schools deal with special needs pupils. In the end, the student has built a portfolio in which he analysis his competence development by reflecting on and referring to the project and all the different parts in the project.

During the training at the Fontys institute, the students are coached and workshops are carried out. An important element in the programme is the concept of 'the mentoring circle'. The programme considers the student as 'owner' and 'architect' of his or her own learning and development process. The students are involved in so called productive learning tasks: authentic learning projects defined by the student themselves. This basic assumption deserves, as a consequence, a trial in the 'empowering' of the mentoring and monitoring process. These student-trainers are coached by their coaches in their school or in the company and at the Fontys institute by the educator. Parallel to this formal coaching, another coaching/mentoring process is established. The mentoring process applies the social constructivist approach, with 'richness of learning environment', 'ownership of learning process', 'responsibility for results', and 'learning communities' (we learn together and we are responsible for each other). Small study groups of 4 students operate as so called 'mentoring circles', where mutual learning and mentoring is promoted. Every other week the students meet with their 'mentoring circle', taking care of each other, exchanging knowledge and ideas and sharing articles and instruments, visiting the schools of each other. They discuss the experiences in the mentoring circle. The Fontys educator supports, monitors and coaches the mentoring circles. (Lem, P., 2013).

Evaluation

The programme has been designed on the listed design requirements as on official (practice trainer) associate degree (2 year) programme. Successful conclusion of the programme leads to a level 5 qualification within the EQF. The programme is comprised of two components: an educational component and a techno-vocational component. Both are subdivided into parts that allow for the qualification objectives as prescribed by Dutch law, to be fulfilled. So as to provide for comprehensive learning, an integrated learning approach of both components is effectuated in the curriculum, including both competence and practice-based learning. The programme offers different specialisation routes: automotive, construction, metal, electro and installation, and catering and hospitality. The programme holds a particular favourable position in the Dutch education system. The programme is positioned on level 5 of the EQF and creates a bridge between EQF level 4 and EQF level 6. It provides an attractive pathway to progress up towards the Bachelor level. In European perspective, programmes at EQF level 5 are attributed much potential (CEDEFOP 2014a; CEDEFOP, 2014b).

The programme was evaluated in 2016. Some main points from the evaluation: the practice trainers underline that the study programme meets their world of

interests, skills and experiences, and, consequently the students were only very limited affected by a 'praxis-shock' in education. In this light, students also mentioned acceptance by the pupils and by staff leading to more confidence. As developers, we are glad with these remarks in the light of the importance of developing of a professional identity. Methodologically, the competence based programme was high rated. Students noticed that the programme offered all the opportunities to translate the content and competence development to their specific educational setting. For almost all students (and their family!), the 2-year duration was an extremely important aspect of the programme. The same remark came from their employers in VET-institutions and industry. One of the practice trainers mentioned another benefit for his company: *"The construction firm, where I work as an in-company trainer, uses my Associate degree for positive image and as an example of their quality insurance programme*." However, the students criticized the part of the technical subject programme. In general, they rated that part of the programme as too difficult and noticed that it was not always relevant for their job as a practice trainer. For us as developers, this is a difficult issue to tackle because the associate degree programme offers not only a readiness profile for practice trainers, but also a readiness profile for Further Education into a bachelor programme.

Conclusions and recommendations

In VET schools, the necessity of a relevant differentiation in educators has been recognized. Also it is recognized that the level-4 instructor has to be upgraded to a higher level on both the technical and pedagogical field. For Further Education of instructors in VET-schools and in companies, the (2 year) practice trainer (associate degree) programme has been designed. Participants, who successfully complete the programme, receive a formal (professional) Higher Education certificate: a (labour-market) entry qualification for practice trainer. Main objective of the Ad programme was to further professionalize VET instructors. The challenge was to provide the trainers with pedagogical competencies and technical modules to become more competent to educate level 1 and 2 vocational pupils. The participants perceived the 2 year duration of the programme and the part-time delivery mode as very appealing but, the combination study and work remained challenging. Additionally, participants were satisfied with the outline of the programme and especially with the spectrum of pedagogical competence they obtained. In contrast, participants were critical on the provided technical modules. It is assumed that this has to do with the 'struggle' to formulate and design the relevant technical knowledge base for level-5 practice trainers.

It was investigated whether the programme would effectively deal with the challenge of obtaining sufficient enrolment numbers. From the research, the authors conclude that the enrolment numbers need to improve for the programme to be really successful in face of market demand. They recommend measures to be taken within schools and industry to have the practice trainer be positioned more explicitly within the organisational function mix/map.

Authors conclude that although improvements within areas of the practice trainer programme are still needed, the programme is a necessary entry on the EQF level 5. The programme represents a formal training programme with particular strengths in terms of quality and responsiveness in view of labour (market) demand: providing a formal labour market (entrée) qualification. It holds the potential to attract (practice trainer) recruits both from vocational schools as from industry. Simultaneously, the programme caters for solutions in the short term for professionals: the perspective of managing a dual profession, working both in industry and school (part-time). Finally, new and flexible progression pathways in the Higher Education system are made possible with this new practice trainer programme: (1) by its position on EQF level 5; the programme provides (upward and downward) connectivity with both instructor and bachelor programmes, and (2) by its short cycle and part- time delivery mode; the programme allows alignment of professional career planning and manageable study horizons.

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Understanding the English subject offered in the South African Technical Vocational Education and Training Colleges and its implications for the curriculum delivery

Mary M. Madileng

Summary

Twenty one years after the South African democratic elections, vocational education which is envisaged as a critical role player in responding to the needs of industry and the labour market, is still faced with insurmountable challenges. Initiatives meant to bring about sustainable economic growth by opening ways for much wider participation in the economy, to reduce poverty and a range of related social ills and to enhance development of social mobility through vocational education, have not addressed the systemic challenges. This paper is premised on the notion that the perceived lack of quality of curriculum delivery in the vocational education sector is probably due in part to a lack of understanding of the nature of knowledge in vocational education. Furthermore, a curriculum which is looking both ways, to work and further learning; poor understanding of appropriate ways of teaching and ineffective assessment practices may also contribute to the perceived weaknesses in the vocational education sector. This article outlines the nature of knowledge and skills specified in the English subject offered in the TVET Colleges. The paper follows the English curriculum message as it starts from the production field where new ideas are created and modified, to the recontextualization field where curriculum designers produce written curriculum documents, to the reproduction field where English lecturers transform the curriculum in their classrooms. An analysis of this curriculum identifies strengths and weakness, highlights accomplishments, exposes faulty areas, and focuses on realistic policy alternatives for the TVET sector.

It helps identify gaps with regards to curriculum design, appropriate pedagogical practices and assessment practices in the TVET sector.

Keywords

Vocational Education; Outcomes-based curriculum; social mobility; social ills; National Certificate Vocational; official recontextualization field; pedagogical recontextualization field; reproduction field; pedagogic devise; pedagogical practices.

Introduction

This article examines the nature of knowledge specified in the English subject offered in the National Certificate Vocational (NCV henceforth) programmes and how lecturers of one Vocational Education and Training College interpret and understand the curriculum. Technical and Vocational Education and Training (TVET henceforth) in South Africa has its roots in the industrial and apartheid economic era from the 1920s to the 1970s. The history of vocational education in this country dates back to debates on issues of social order, educational inferiority and low intelligence (Badroodien 2004).

After the 1994 democratic elections, there was renewed enthusiasm from government, researchers and the general population for giving attention to the technical colleges. The technical colleges were transformed into Vocational Education and Training institutions. In 2007, a new curriculum called the National Certificate Vocational was introduced in TVET colleges. One of the aims of this curriculum is to serve, and enhance accessibility to, predominantly disadvantaged learners and to alleviate the shortage of skilled workers in South Africa which must be overcome if the country is to grow economically (Department of Education 2006). Furthermore, the NCV was conceptualized as an alternative route into Higher Education. The NCV curriculum aspires to address the life-long learning and developmental needs of individuals, organizations and economic sectors (Department of Education 2007). It aspires to present TVET college students with opportunities for a good general vocational education curriculum in a selected programme such as Business, Commerce and Management Studies; Manufacturing, Engineering and Technology; Physical Planning and Construction and Utility Services. TVET college students enrolled for these programmes study three compulsory subjects, also known as the 'fundamentals': English, Mathematics or Mathematical Literacy and Life Orientation. Each of these programmes also includes a minimum of four vocational subjects.

In examining the nature of knowledge specified in the subject English offered in the NCV programme, the paper utilises Bernstein's (1996) pedagogic device as a framework. The analysis follows the subject English curriculum message as it starts from the production and the recontextualization field where new ideas are created, modified and are put together to produce intended curriculum docu-

ments, to the reproduction field where English lecturers transform the curriculum into classroom teaching and learning. The study is premised on the notion that the perceived lack of quality of curriculum delivery in the Vocational Education and Training sector is due in part, to a lack of understanding of the nature of knowledge in vocational education, poor understanding of appropriate ways of teaching, and ineffective assessment practices. The next section briefly discusses how subject English is located with Bernstein's pedagogic device.

Locating English within fields of the pedagogic device

The pedagogic device is a social construct that enables understanding of how knowledge is converted into pedagogic communication. Bernstein (1996) suggests that this device constitutes the 'relay or ensemble' of rules or procedures via which knowledge is converted into pedagogic communication. According to Bernstein (2000) in order to understand how knowledge is implicated in the distribution of power and privilege within societies, analyzing how pedagogical texts are put together, the rule of their construction, how they are recontextualised and acquired would better enhance that understanding. This article used the concept of the pedagogic device to explore both the ways in which knowledge is recontextualised in the TVET college English curriculum design and how the English lecturers transform and reproduced this knowledge in their classrooms.

In allocating subject English within the fields of the pedagogic device to illustrate the nature of power relations within the educational process, I would say that in the process of designing subject English curriculum and its implementation process each sector such as language policy developers at government level and curriculum designers, researchers at universities, as well as lecturers in colleges, will exercise power of authority and forms of control within the educational process of deciding what knowledge and skills to select for inclusion in this subject, and what implementation strategies will be more appropriate and for who. The views presented in a curriculum design will be informed by the prevalent views shared by curriculum designers, specialists and practitioners in the language profession at that particular point in time. Subject English curriculum design has to be appropriate to the language curriculum, the language classroom and the learners, and to the ideologies, the purposes and the objectives of the institution and the society where it is being taught and learnt. In deciding on what knowledge to select for inclusion in subject English curriculum at different levels of learning, curriculum designers and textbook writers' selection will be done in terms of whether English is offered as a First Language, an Additional or Second Language, or a Foreign Language. Decisions will also be based on how content should be organised to ensure progression from one grade or level to the other, on allocation of appropriate teaching time for the subject per level, its sequencing and pacing and on how it should be assessed.

Literary theory debates do not explicitly locate English in the production field, recontextualization or reproduction field. This is because of the horizontal nature

of this subject and that evokes contestations about what is selected for teaching in subject English. These debates include what English is, what knowledge should be specified for English and what gets selected for the subject given the tendency of the subject to change over time. These debates brought about the contestations between a discourse of competence which is discipline specific knowledge and a discourse of social order in the subject English. I think these debates better explain why it is challenging to locate English within Bernstein's fields of the pedagogic device.

Research design and methodology

The paper examined how the intended curriculum for subject English is specified, which knowledge selections are recontextualised and how this is done. The research also examined how English lecturers at one vocational college understand the intended English curriculum. There has been minimal research done so far on curriculum and pedagogy in the South African Technical Training College sector.

Data collection

Data was collected from one South African TVET College in three campuses that have different NCV departments and programmes, Business Studies, Engineering Studies and Utility Studies. The choice of the research setting was informed by the fact that the three campuses offer different NCV fields and programmes and these differences could lead to enhanced in-depth understanding of lecturers' thinking about the intended English curriculum and why they transformed it in the ways that they do.

In analyzing the nature of English offered in the NCV programme, document analysis approach (McMillan and Schumacher 2006:448) was used as one method of collecting data. The intended English curriculum documents collected for analysis included subject guidelines for levels 2−4 prescribed to guide the lecturers in selecting content to teach in the classrooms. These are curriculum documents produced by curriculum designers and the ministry of education in the official recontextualised process. The study did not examine classroom practice, or how the lecturers implement the curriculum in the classrooms, but through semi-structured interviews, the lecturers' thinking and what guided that thinking about what the English curriculum is there for and how they transform it to benefit students in different NCV programmes was investigated.

Data analysis

The data collected in this study was analysed qualitatively (Babbie and Mouton 2001; McMillan and Schumacher 2006). Using a qualitative approach allows for an in-depth look at educational issues and also allows the researcher to gain under-

standing of the participants' relation to their contexts. In analyzing selected intended curriculum documents, focus was on content knowledge specification. Data collected from semi-structured interviews of the English lecturers was analysed in terms of the lecturers' understanding of the knowledge structure of subject English and their views about how they select, organize, treat, distribute and evaluate the acquisition of such knowledge in their classrooms with the aim of understanding what is really taught. Findings were presented in a form of responses to the two research questions:

a) *What constitutes the curriculum for English in the National Certificate Vocational curriculum?*
b) *How do lecturers interpret the subject English curriculum; what is their understanding of the curriculum?*

Summary of my findings and how they answered my research questions

What constitutes the curriculum for English in the National Certificate Vocational curriculum?

In response to the above research question, I made the following claim.

NCV EFAL curriculum is outcomes based and therefore has weak content knowledge coverage

Following the analysis of the NCV EFAL curriculum, the examination showed that it follows an outcomes-based design. An outcomes-based curriculum approach that was adopted in the design of TVET curricula was a politically driven approach which intended to meet the socio-economic, socio-historical as well as the socio-political needs of the country. Topics covered in NCV EFAL are the language skills: reading and viewing, writing and presenting, listening and speaking, and language and communication in practice. The curriculum statements under each of these topics present content knowledge in a form of a list of generic outcomes. I identified that these four linguistic processes are interrelated and that the generic outcomes that are vague and unspecified also set up artificial and blurred boundaries between these four topics in the NCV EFAL curriculum. The outcomes-based designed nature of the curriculum suggested that content knowledge of the subject English drew around the competency levels of students, and not on grounded knowledge of the subject and therefore what they should be taught. This signifies that the selection of content knowledge in the design of the curriculum does not foreground 'what is known' but 'who knows'. For Moore and Muller (1999), subjects that integrates knowledge forms such as outcomes-based curriculum design, tends to reduce knowledge to knowing and experience. This discourse of voice of the knower claims to represent the disadvantaged groups against dominant social

groups. However, according to Moore and Muller's argument, where grounded knowledge is not foregrounded, disadvantaged students are denied theoretical knowledge that is empowering.

The way in which this outcomes-based approach has been conceptualized in the NCV EFAL curriculum displayed serious omissions in terms of sequencing and progression of content. The curriculum statements tried to describe the progression process in the curriculum in terms of the contextual focus and purpose of the curriculum. However, content knowledge coverage in the curriculum does not explicitly indicate what to teach at each level and context. The progression process which is defined in outcomes-based terms does not show distinctive cognitive challenges at each level that will determine different levels of competence within and across these levels of the NCV.

The outcomes-based curriculum design therefore failed to provide guidance to the lecturers in terms of content selection to teach in the classroom, sequencing and progression of lessons. The outcomes-based curriculum design approach assumes that lecturers are experts who are able to select and teach knowledge in order to enable learners to achieve intended outcomes. Any methodology could be adopted, as long as it enabled the students to acquire the learning outcome. Vague and unspecified outcomes subjected the subject to vulnerability as what gets selected for teaching is subjected to individual lecturers' discretion.

I now turn to try and understand the lecturers' views about the curriculum they teach from. An examination of the TVET College lecturers' insights about their understanding of knowledge selected for inclusion in the intended curriculum and the examined curriculum is one of the poorly researched areas in South Africa. The lecturers' understanding of the curriculum they teach from enhances effective choice of content knowledge, resources, as well as teaching strategies. Therefore improved curriculum delivery is enhanced.

How do lecturers interpret the subject English curriculum; what is their understanding of the curriculum?

The question tried to examine how NCV lecturers interpret subject English curriculum and their perceptions about how do they recontextualise the curriculum into pedagogic practice. Transformation of the prescribed curriculum according to Bernstein's (1997) pedagogic device is the field of reproduction where teachers engage in pedagogic and assessment practice. In answering the question, how do NCV lecturers interpret subject English curriculum, I want to make the following claim to present my findings.

Lecturers had limited knowledge of the curriculum they teach from

The claim emanates from responses that explained how the English lecturers seemed to engage with the curriculum document and what they thought the cur-

riculum they taught from was all about. The lecturers felt that outcomes listed in the curriculum document were not helpful enough to guide content selection and sequencing of lessons. They instead found the textbooks more helpful to engage with rather than the curriculum statements. They seemed to follow very different criteria of sequencing, pacing and progression when selecting content to teach in lesson planning instead of following guidelines provided through the teaching plan and the progression process stipulated in the intended curriculum document.

Responses also suggested that the English lecturers were not familiar with communicative language approaches (Canale 1983, Canale and Swain 1980) that underpin the curriculum they teach from. None of the participants had an understanding of the theoretical underpinnings of the approaches. Their lack of understanding of the approaches was also evident in the ways they tried to describe theoretical underpinnings of the curriculum and the different categories that they used to explain communicative language approaches and how they thought the curriculum statements seemed to consider the students' contexts.

The findings demonstrated the short comings of an outcomes-based NCV EFAL designed curriculum and how its vagueness and lack of specificity affect the lecturers' understanding of the curriculum they teach from. The outcomes−based approach in the design of the curriculum also affected the lecturers understanding of the stipulated progression process outlined in the curriculum document. Lecturers devised other criteria for sequencing, pacing and progression in content selection and lesson planning.

Conclusions and implications

The subject English curriculum designed for the NCV programme is outcomes-based and therefore competence based. The curriculum does not explicitly outline content to be covered in the subject but presents a list of generic outcomes as content for English. Students are described as competent if they are able to apply specific knowledge, skills and attitudes in a given context rather than display any strongly defined theoretical position which might indicate rate of competence across well-grounded content knowledge.

Literature shows that outcomes-based curriculum design disadvantages the most disadvantaged communities in many countries including South Africa. Outcomes-based designed English curriculum for the NCV in particular which focuses on competence rather the mastery of grounded knowledge does not seem to benefit South African TVET college students. The curriculum does not provide a clear guidance to curriculum implementers of what knowledge to teach. I believe that South African vocational education English students would benefit from a curriculum that foregrounds the voice of grounded knowledge rather than the voice of the knower. Research findings provided evidence that English lecturers do not engage with the curriculum statements. Inability of the English lecturers to unpack curriculum statements compromises curriculum delivery in terms of content selection to teach, sequencing and progression, and assessment.

Given the above concerns, I argue that attempts to improve the quality of TVET education must include robust curriculum policy making decisions and curriculum design change which include models that are suitable for the South African context. Curriculum policy making should be informed by research that outlines educational, economical, and employment needs in South Africa instead of policy borrowing that is in most instances irrelevant and not addressing the needs of the country. Curriculum policy decisions guiding the design of the English curriculum specifically should also consider the different work-related programmes which students follow at TVET colleges and how relevant should the English subject be in that regard. Curriculum stipulations should explicitly show progression process from one level of the NCV to another in terms of cognitive difficulty of content knowledge so that the different levels of competence of students are clear enough for both vocational teachers and examiners.

Whilst my findings indicate pockets of success in the lecturers' transformation of curriculum statements, I suggest that proper vocational educator training programmes would be a better solution to the problem. Vocational education which faces both to education and work has a different purpose from that of the ordinary school education system. Vocational education educators need specific form of training to ensure that their products are competent enough and ready for work. Findings relating to Bernsteins' debates about the pedagogic device and the different fields of knowledge processing in the design of the curriculum, and the design of subject English curriculum in particular can be incorporated into the pedagogy course of the vocational educator training programmes. There should be a scope of innovation in that regard. For example, vocational educator professional development courses could be linked with research into ways to link development of teacher content knowledge to development of knowledge recontextualization and teaching strategies.

Vocational teacher education programmes should also include ESL development theories and theories that underpin the curriculum they teach from. In developing students' language skills such as reading, writing, listening and speaking, vocational teachers need to understand theoretical debates of ESL acquisition as well as what is involved in these skills and how they could be acquired. Pedagogical development courses should include ways of unpacking curriculum statements, select appropriate text and resources and decide upon appropriate teaching strategies when teaching selected topics. This way they would develop both the target teaching skills and the content knowledge about the selected topics. Vocational educators need to develop competence in context-related pedagogies and situational teaching approaches in ensuring effective utilization of communicative language teaching approaches. Such an understanding can enhance an overall understanding of the production, recontextualization and the reproduction process of knowledge in the design of subject English curriculum.

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A Review on TVET Programmes in Ethiopia: An Experience in Biomedical Technician Education

Esayas Alemayehu

Summary

Various policy documents emphasize the need for expanding both formal and non-formal technical Vocational Education and Training (TVET) programmes so that Ethiopia could emerge as one of the countries where its people enjoy economic prosperity and improve their life conditions. Among different programmes demanded at the TVET level, biomedical technician programme is number one since the type and complexity of the biomedical equipment available in Ethiopian healthcare facilities is expanding. However, this is confronted with a number of challenges that seek solution. This desk study is attempted to cover the art of review of the status of Technical and Vocational Education and Training in biomedical technician disciples in Ethiopia. The focus is to review strengths, weaknesses, opportunities and threats (SWOT) as well as lessons learned and options for supports for the sectors. Reviewing the available documents on TVET was one of the measures taken in generating data for this study. Furthermore, lessons learned through partnership activities.

The availability of clear policy direction is a good opportunity for extending both formal and non-formal TVET programmes for all those who would like to run the business. Measures taken by the government indicate that there is willingness to meet all policy gaps. Trainers available at TVET centers are lacking practical competency. Alleviating the situation requires serious practical training for existing trainers. Care has also to be taken in the recruitment and deployment of trainers. Well-developed training manuals are also lacking in biomedical technicians center as well as other TVET centers. This is due to trainers' inability to prepare their own training materials. Trainers need training and coaching in the development of training materials. In this regard the Ministry of Education (MoE) and TVET Agency should take the leading role. Linking TVET provision to local and international stakeholders could also solve the problems of seed money, revolving fund, coaching, etc. as proved through the Partnership. The plan for attaching the biomedical

technicians programme to hospitals and other health related institutions has not fully materialized. The cause problem is mainly lack of cooperation of the employers as they were not consulted during the planning process. Solving this problem requires further advocacy work. Facilitating and equipping the biomedical technician institute with up to date training gadgets is also essential. These are areas in which stakeholders could give support. As conclusion, studies made on TVET programme are insignificant. Documentation, research and evaluation outputs appear to be neglected. This needs to be the concern of all governmental and non-governmental stakeholders.

Introduction

Background

The Ethiopian government has recognized the importance and the need for establishing a large number of technical vocational educations and training (TVET) institutions in the effort to promote economic and technological development in the country. The vision of TVET as stated in the national Technical and Vocational Education and Training document (MoE, 2008a): *TVET in Ethiopia seeks to create competent and self-reliant citizens to contribute to the economic and social development of the country, thus improving the livelihoods of all Ethiopians and sustainably reducing poverty.* It is with this vision as well as to provide options for the increasing number of school leavers, the Government embarked upon a massive expansion of TVET since 1993. Within a short period it has managed to increase the number of TVET centers from 15 in 1994 to 388 in 2007 (MoE, 2008b). Among different centers demanded at the TVET level, biomedical technician center is number one since the type and complexity of the biomedical equipment available in Ethiopia healthcare facilities is expanding.

However, the growth in capability to manage or maintain medical equipment lagging far behind the rate of deployment of equipment and the situation risks running out of control. Capital investment is being wasted while quality of care suffers. To be part of the long term solution to these problems, Tegbare-id Polytechnic College (TiPC) took the initiative to launch the first TVET biomedical technician programme in Ethiopia. The programme was launched with the main objectives of alleviating the challenge of biomedical equipment management, and thereby improving the quality of health care in the country. The programme is aimed at alleviating the challenge of biomedical equipment maintenance and thereby improving quality of health care in the country. In order to strengthen the teaching learning activities at the department, the American International Health Alliance (AIHA) Twinning Center has launched Biomedical Technician Training Capacity Building Partnership (BTCBP) with two Ethiopian institutions: TiPC and Jimma University, Jimma institute of Technology (JiT), and two US based institutions Rice University and Texas Children's Hospital in Huston, Texas (Alemayehu, 2013). Through this partnership, the department equipped with latest biomedical

equipment which really enhanced the practical knowledge and skill of the students.

In the past, there have been attempts to investigate the status of TVET provisions in Ethiopia by different groups and individuals (Dibaba, et al., 1992; MoE, 2005; CINOP report, 2008). It has been more than a decade since these insight full findings were reported. Recently another study was made on TVET mapping in Ethiopia (EF, 2009) whose findings have been incorporated in this study. In such case, this study is another attempt to cover the art of review of the status of formal and non-formal TVET in the country with special focus on biomedical technician training. Thus, the overall objective of this study is to investigate strengths, weaknesses, opportunities and threats (SWOT) of TVET in Ethiopia as well as lessons learned through BTCBP and options for supports for the biomedical technician programme. Reviewing the available documents on TVET was one of the measures taken in generating data for this study.

Research Design and Methodology

Design: A cross-sectional research design was employed to investigate the strengths, weaknesses, opportunities and threats (SWOT) of TVET in Ethiopia.

Sources of Data and Sampling: In order to investigate the SWOT of TVET in Ethiopia, data were collected from both primary and secondary sources. Policies, strategies, curricula, reports, and previous researches were the secondary sources of data, whereas the TVET – biomedical equipment maintenance documents obtained from the Tegbare-id Polytechnic College (TiPC) and BTCBP were used as primary sources of data. A total of 12 documents were reviewed. In addition, the Head of biomedical technician, Coordinator of the biomedical partnership, Knowledge Resources Center (KRC) coordinator, and five TiPC graduates were purposively selected for interview.

Method of data collection and analysis: Data were collected using two methods namely document analysis and interview. Document analysis was used as a main method of data collection. A checklist consisting of closed ended questions was used to extract data from the documents. The interview was used to augment data collected through document analysis. The major components of the interview were mechanisms in place in the TiPC to evaluate the status of biomedical technician training programme in the newly established partnership. Hence, the data obtained through the checklist was described using frequency and percentage.

Findings

TVET in Ethiopia: Facts and figures

After the introduction of the Education and Training policy in 1994, the number of formal and non-formal TVET provision centers has mushroomed (Table 1). Of these, over 30 % were trained in non-government TVET institutions. Around 60 %

of formal TVET is provided in the form of regular programmes and 40 % in evening classes. Table 1 shows the growth of enrollment in formal TVET institutions as reported by Ministry of Education (MoE), Annual Statistical Abstract (MoE, 2008b).

Tab. 1 Students enrollment in formal TVET centers*

Year	Number of students (Male; % of females)	Average annual growth rate
2002/03	72,162 (M = 37,377; %F = 48.2)	–
2003/04	87,158 (M = 45,798; %F = 47.5)	30.2
2004/05	106,336 (M = 51,940; %F = 51.2)	24.6
2005/06	123,557 (M = 61,415; %F = 50.3)	27.6
2006/07	191,151 (M = 107,327; %F = 43.9)	30.0

* The actual enrollment data could be higher than that shown in the table above since data from four regions (Afar, Somali, Gambela and Harari) was not included.

The table shows that there has been steady increase in the number of students enrolled in formal TVET training institutions. Despite the enormous expansion of formal TVET programme, it only caters for less than 3 % of the relevant age group (EF, 2009). Furthermore, the study made by Edukans Foundation (2009) came up with more detailed 2006/07 enrollment data in TVET centers by region (Table 2).

Tab. 2 Distribution of TVET 2006/07 enrollment by region

Region	Number of TVET centers	Total Enrollment	Number of Teachers	Teachers–Students ratio
ADDIS ABABA	98	45,195	1,742	1:26
AMHARA	61	29,830	1,238	1:24
BENSHANGUL GUMUZ	14	3,707	188	1:20
DIRE DAWA	9	4,208	130	1:32
OROMIA	103	52,596	1,768	1:30
SNNP	63	36,198	1,155	1:31
TIGRAY	40	19,420	862	1:23
Total	388	191,151	7,083	1:27

The number of TVET institutions owned by the government and private sectors was also reported to be more or less equal.

The Non-formal TVET provisions in Ethiopia

By definition, non-formal TVET (NF-TVET) means training based on well-defined curricula, either within or without an institution, with or without guidance from teacher or trainer (MoE, 1998). According to the previous studies (Dibaba, *et al.*, 1992; MoE, 1998; EF, 2009) reports, NF-TVET differs from formal TVET in the following respects:

- The educational background of the target group is different and very diverse;
- Teachers/trainers/instructors are so far usually not certified or examined;

- There are no standardized curricula to be used in NF-TVET provision;
- The duration of training is usually shorter and varies widely;
- NF-TVET is more cost effective than formal TVET.

In Ethiopia, some of the known trades given in NF-TVET centers included woodwork, metalwork, tailoring, embroidery, weaving, typing, computer training, driving, etc. These trades have been given in institutions like community skill training centers (CSTC), prisons and other government institutions. However experiences vary across regions in the country and in other countries regarding the types of trainings given and the modality under which it is given.

The recent NF-TVET mapping survey report showed that NF-TVET is provided in over 400 government, private, community and non-governmental organizations (EF, 2009). The number is expected to be much more than this. However, the NF-TVET system has not been able to fully meet the training needs of the increasing number of youths and adults, Primary and Secondary school leavers, drop outs illiterate adults. This is further threatened by the deep rooted traditional attitudinal outlook towards crafts and craftsmanship. The latter is known as the main cause's underutilization of NF-TVET in particular CSTCs. Resources shortage is also reported (Dibaba, et al., 1992; EF, 2009) as a critical issue in the centers run by the government. Lack of adequate place of work and running costs are also the major challenges. It is also affecting the quality of training provided. In addition to government and NGOs support, training centers themselves have to generate their own fund.

SWOT analysis of TVET provisions in Ethiopia

The major SWOT facing the formal TVET programmes have been well studied by Edukans Foundation (2009). With some little modifications, the core ones are elaborated in sub-sections 2.3.1, 2.3.2, and 2.3.3.

SWOT analysis of TVET Policy

A number of policy documents related to TVET training are available. Some of these are the Plan for Accelerated and Sustained Development to end Poverty (PASDEP) (TVETS, 2006), and the TVET strategy and the Education and Training Policy (TGE, 1994a). The SWOT facing TVET Policy is summarized in table 3. It implies that the government has issued useful policy documents necessary for development and implementation of both formal and non-formal TVET programmes. This leadership role has to continue in consultation with stakeholders.

Tab. 3 SWOT: TVET Policy

Issue	Policy
Strength	Available
Weakness	–
Opportunities	Government commitment
Threats	Lack of conducive environment
Proposed intervention	Conducting studies on policy implementation

SWOT analysis of TVET Curriculum

More than twenty broad vocational areas have been identified for the TVET programme by the MoE. Over 163 trades were also intended under the twenty vocations (MoE, 1998; MoE, 2008a). The number of trades is not yet exhausted, more could be identified. Occupational standards were developed for all the trades being provided in formal TVET institutions with the involvement of stakeholders.

In the reformed Ethiopian TVET-System (TVETS, 2006), Curricula and Curriculum development play an important role with regard to quality driven TVET-Delivery. Curricula help to facilitate the learning process in a way, that learners acquire the set of occupational competencies (skills, knowledge and attitude) required at the working place and defined in the Ethiopian Occupational Standards (EOS). Although there have not been documented evaluative studies ever since the new occupational standards have been implemented, the SWOT facing TVET Curriculum is briefly summarized by Edukans Foundation (EF, 2009) in table 4.

Tab. 4 SWOT: TVET Curriculum

Issue	Curriculum
Strength	Availability of occupational standards
Weakness	Lack of competency for preparing training materials at the grassroots level
Opportunities	Readiness to improve the occupational standards with the involvement of stakeholders
Threats	Lack of skill in developing training materials
Proposed intervention	Providing training to trainers on training materials development

The major problem observed in curriculum development was also indicated by Edukans Foundation (2009) i.e. 'the continuous change made in it. At the beginning, all training materials prepared centrally and used by all institutions with similar inputs and processes. That was changed shortly by occupational standards which were prepared for 10 + 1, 10 + 2 and 10 + 3 programme. Lately, the development of the occupational standards has been re-categorized into five levels i.e. Level 1, Level 2, Level 3, Level 4 and Level 5 packages. This has created a feeling of discomfort on both developers and implementers, and is seen as wastage of time and other resources.

Lessons learned from biomedical technician curriculum development

Presently MoE-TVET Reform came up with the guide to curriculum development in the area of Advanced Biomedical Equipment Servicing Management

(TVETCDM, 2011). The programme is designed to develop the necessary knowledge, skills and attitude of the learners to the standard required by the EOS. The expected outputs of this programme are the learners' acquisition and implementation of **Competence** in Advanced Biomedical Equipment Servicing Management (ABESM). Each unit of Competence has its own specific **Learning Outcomes** with defined duration. Table 5 shows an example:

Tab. 5 ABESM Unit of Competence with the Learning Outcomes and specific duration

Unit of Competence: Module code & Title	Learning Outcomes	Duration
Manage Biomedical Equipment: EEL BES4 M05 Managing Biomedical Equipment	• Plan and prepare management of servicing operations • Keep inventory of biomedical equipment • Manage and monitor servicing operation • Evaluate and document servicing system • Improve work process and staff	50 hrs

Based on the descriptors elaborated on the Ethiopian TVET Qualification Framework (NTQF), the qualification of this specific Programme is "**Level IV**". The learner can exit after successfully completing the modules in one level and will be awarded the equivalent institutional certificate on the level completed. The learner can also exit after completing any one learning module. However, only a certificate of attainment or attendance (this is institutional discretion) will be awarded.

The programme will have a duration of 500 hrs including on the job practice or cooperative training time and civic education. The teachers conducting this particular TVET Programme are **B Level** and have satisfactory practical experiences or equivalent qualifications on biomedical equipment.

The mode of delivery is **co-operative training**. The TVET-institution and identified companies/Hospitals have forged an agreement to co-operate with regard to implementation of this programme.

- The proportion of time spent for theory and practice (30:70) seems sounding. However, one doubts its practicality since most of the trainers tend to make the training more theoretical since they lack practical skills. This could be amended by the apprenticeship programme provided it is coordinated and made effective.
- The other challenge with regard to TVET training is the lack of opportunity for Practicum. There are no adequate number of institutions, factories, production units and other opportunities for attachment. The few that are available are not willing to provide attachment opportunities.

It is said that many of the government TVET training institutions are well equipped and furnished. Facilitating and equipping the institutions with up to date training gadgets is essential. This is an area in which stakeholders could give support. It has been reported that the partnership supports has made the TiPC biomedical technician department in good condition (Alemayehu, 2013).

Moreover, trainers available at both formal and non-formal TVET centers are lacking practical competency. Alleviating the situation requires serious practical train-

ing for existing trainers. Care has also to be taken in the recruitment and deployment of trainers.

In practice, a number of short term training has been organized through the partnership to capacitate trainers. The government has also made efforts to bring expatriate trainers who could bridge the gap. Yet many feel that care be taken in the selection and deployment of expatriates and more efforts be done to continually upgrade the capacity of local trainers.

Furthermore, developing training materials has become a challenge for all TVET institutions. This is due to trainers' inability to prepare their own training materials. To curve the problem, model training materials have been developed and disseminated. However, training institutions are seen using old materials and the model materials without much change (EF, 2009). In this regard the MoE should take the leading role and other stakeholders should provide supporting in the form finance, availing trainers, etc.

Summary

Based on the present study, the following conclusions were drawn:

- The government has issued useful policy documents necessary for development and implementation of both formal and non-formal TVET programmes. This leadership role has to continue in consultation with stakeholders.
- The non-government organizations, bilateral and multilateral organizations supporting the TVET programmes are few in number. In this regard, the MoE needs to carry out intensive advocacy work and win their support.
- Hospitals, industries, production units and other health institutions are not committed in providing apprentice services to trainees. This may require introducing incentive mechanisms to apprenticeship providers and employers. Financial and other ways of providing incentives based on the experiences of other countries need to be introduced.
- The TiPC TVET center has not been able to fully meet the biomedical technicians' needs of the increasing number of hospitals and other health related institutions in the country. This makes it necessary to establish, facilitate and equip more and more TVET centers. In this regard, NGOs and the private sector need to play more role as the government has budget limitations.
- Most curricula used in formal TVET were not developed based on occupational standards. There have not been documented evaluative studies ever since the new occupational standards have been implemented. The lack of adequate and appropriate quantitative and qualitative information on biomedical technicians labour market needs has created a gap in the generation of information that could have been used for improving practice and policy.

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From "the Chicken or the Egg" Technical-Vocational and Informal Training Story to Industry's Manpower, What Comes first? A Philosophical Study

Daniel Dinis da Costa

Abstract

This study reports on an investigation of Technical Vocational Education Training (TVET) graduates on 'on-job' and 'self' trained employability in Mozambique. From these two perspectives, so a chicken-or-egg situation, the research seeks to understand how youth enter or stay aloof in the world of working as it increasingly lacks of qualified manpower. TVET is thought of as a kind of instruction that is designed to empower individuals with professional skills and critical knowledge which the industry needs for production. However, there is a technical-and-vocational education that can be obtained out-of-college; hence in an informal setting which counts, so to speak of, as an invaluable 'asset' for the industry's manpower. As an ongoing research study, 33 participants are part of the inquiry of which eight Mozambique Aluminum (MOZAL) self-instructed workers were selected for a semi-structured interview for data collection. The results seemed to indicate that respondents' perceptions towards TVET graduates' employability and entrepreneurships are fivefold: (i) Policy making decisions; (ii) Resources; (iii) Curricula; (iv) Research; and (v) Industry. As this study has aimed to investigate the underpinning factors for working in industry and self-employment, it has strived to understand what makes employers to consider 'on job' and the self-learning as 'good prospect' for their industry with hope that it could use it to find out whether or not these two types of training adequately prepare young people for a whole range of company's challenges. The study provided a synopsis of possible factors and hindrances which might inform and influence employability and/or entrepreneurship.

Keywords

TVET graduates, On-job training, Residential/self-instruction, employability, entrepreneurship

Background to the study

This study reports on an investigation of Technical Vocational Education Training (TVET) graduates on 'on-job' and 'self' trained employability. Historically, TVET in Mozambique falls under two separate state portfolios: the first one was/is overseen by the Department of (Higher) Education and the second one that is run by the Department of Employment, Labour and Social Welfare. The research analyses the latter as it seeks to grasp the (real) picture of how youth enter or stay aloof in the world of working as well as job market lack of qualified manpower needed for the country's economic sustainable growth and long-term development. It is known that the labour sector struggles to attract local young professionals because either there is a shortage of TVET institutions' leavers to fill available job positions at job markets, or companies tend to recruit expatriates who are more qualified and handsomely paid than the local ones. World-class, capital-intensive, internationally business-bound companies in Mozambique's provinces of Cape Delgado (Anadarko, ENI and ENH on gas exploration), Nampula (Northern railway corridor and Nacala Port serving landlocked Southern African nations such as Malawi, Zambia and Zimbabwe), Inhambane (Sasol gas pipeline Mozambique-South Africa), Tete (Hydro-Electric power dam to South Africa, Zimbabwe and Malawi) and Maputo (Mozambique Aluminium/MOZAL) rely on the latter. If locals are employed, then they are supposed to undergo 'in-plant', 'on-job' or 'offshore' training which is mostly in-country certified by the Instituto Nacional de Emprego e Formação Profissional (INEFP) for professional/vocation and labour studies (INEFP, 2016). The professional institutes and colleges under INEFP act 'now' as 'player'/provider' and 'referee' and INEFP has sought to adopt international certification by a London-based certification company for 9000 ISO. The launch of a new National Authority for Professional Education (ANEP) aims to be a regulator to tackle prevailing issues such as 'the competence based training' debate, training of instructors, levels and acquired competences, confusion in not/forming separate qualifications to TVET and Universities and the role of Polytechnics. This regulatory body should ensure that these capital-intensive industries are assured of proper training standards, geared to technological advancement and producing well-qualified professionals.

Aim of the study

As this study aimed to investigate the underpinning factors for TVET system in Mozambique, this paper strived to understand what makes employers consider 'on job' and 'self' trained ones as 'good prospect' for their companies with hope

that these companies could use to find out whether or not these two kinds of training prepare adequately young people for the whole range of companies internship/leadership programmes. This brings us to the question: *How is the TVET system in Mozambique organized to respond to the world of work?*

Research questions

The study research questions that were proposed are as follows:

- To what extent do policy making decisions inform and influence technical and vocational education at college, 'on job' and 'self' training routes?
- In which way the college, 'on job' and 'self' training routes programmes 'de facto' curriculum/Pedagogy of TVET lead to high standard training?
- How resourceful are college, 'on job' and 'self' training routes, in order to meet the required training standards set by regulatory agencies, companies and professional associations?
- Is there a possible comparability measure between college leavers, 'on job' and 'self' trained in terms of their employability?

Conceptual Framework/Theoretical assumptions

Ontologically speaking, technical Vocational Education and Training is thought of as a kind of instruction that is designed to empower individuals with professional skills and core and critical knowledge which the industry needs to develop intended technologies, derive new work processes and bring about production through product development as well the well-being by reducing poverty. TVET stands for shared vision and complexities. Lester Smith (1970) sees vocational education as bound to industry development. This definition drives the Mozambique Employment, Labour and Social Welfare Ministry's new policy scheme that abides both TVET institutions and the industries. Historically, the TVET institution still viewed in this millennium differently and treated mostly as separate 'rather dodgy' route to excel in life as opposed to secondary schooling. As a result of this underestimation, technical education in Mozambique lacks behind and is seen as second-rate education for young underprivileged, impoverished, from poor parenting/parenthood and from minorities' and also from suburban and peripheral settings, side-lined and hence those deprived from state or private educational resources. There is also another 'chicken and an egg" story concerning what subsystem actually does well in providing manpower between technical schools/colleges (seemly scholastic) and vocational/professional training (practice-oriented). What distinguishes these two subsystems seems to lie at the perceptions' level rather than the quality of training, learning outcomes or skills developed. The industry is keen to recruit who it feels is the best 'value for money' and happened to be the latter case. Thanks to recent legislation that regulates apprenticeships and learnerships programmes approved by the Mozambican Parliament, it is possible now that the Government eases up revenues and levees for those companies that

allow 'in-plant', 'on-job' and collaborative training so that apprentices and learners are updated in new technological advances and be fit for works and jobs to come within industry. However, the establishment of technical schools and institutes of technologies within the higher education brings about a new realm in the Vocational Education and Training as the Government of Mozambique (tries to) use(s) these to curtail strongly-held beliefs that technical and vocational education is tawdry as it is regarded as 'second choice' and 'last resort' when it comes to choose the 'right [path for] education'. This leads us to theoretically assume that for those who do not choose to [go for] neither secondary education nor for technical and vocational education, their choice may likely be vocational training as well as at work place. Work-place vocational training is so to speak of a kind of training undergone whilst the trainee works. Depending on the kind of contractual ties there may be or not remuneration. Besides, there are employers who on understanding of trainee social situation, they may offer as they work or at end a small or handsome grant. The multimillion dollar companies MOZAL and Anadarko/ENI may have chosen to conduct different work-place vocational training approaches due to their core business: Gas and petroleum. MOZAL conducts in-plant training and in partnership with INEFP (Da Costa, 2013) and the latter after admissions seeks to grant scholarships for appropriate professional training offshore. This will lead us also to a belief that there may be many out there in entrepreneurship activities. As entrepreneurs, the youth engage in a 'self-learning', 'self-empowering' and 'professional-oriented' instructive mechanism that can therefore be 'any given time' and 'anywhere'.

Research approach/Materials and methods

To carry out this research, the study subjects were college leavers from Instituto Industrial de Maputo (IIM) who completed their third year in civil engineering, mechanics and industrial chemistry. 'On job' trained subjects were the newly employed and experienced workers from Mozambique Aluminum (MOZAL) who have undergone in-plant training programmes. The 'self'-training subject are taken as entrepreneurs who may choose to get their training whilst at work or attend forms of residential face-to-face tuitions. As an ongoing research study, 33 participants are part of the inquiry of which eight Mozambique Aluminum (MOZAL) self-instructed workers (INEFP graduates) were selected for a semi-structured interview for data collection.

The findings and discussion

The results seemed to show that the influences on TVET system and provision of TVET education are fivefold: (i) Policy making decisions; (ii) Resources; (iii) Curricula; (iv) Research; and (v) The Industry.

Policy making decisions

From the emergent data, the respondents' views on policy making decision show that:

> [...] Technical-Vocational Education and Training **(TVET) is not the authorities' priority** (R6). "It **doesn't see it; doesn't recognize [its] importance**...(R1). Furthermore "...there is lack of commitment [...] but (...) **the country's development is TVET-based** (R7). Notwithstanding these, "there has been an attempt to equate TVET to general education. However, **TVET needs a large capital investment**. (R3). The **Integrated Programme to Professional Education Reform** (PIREP) has brought about new realm of a **competence-based training**. Many see it as advocating TVET provision without academic qualifications (R5). In 80s, the State Secretariat for Professional Education (SETEP) and Ministry of Labour pursed the policy use to demand that TVET be exclusively of **practice-orientated** only. This has led many to shy away from the TVET subsystem to general education (R8). It was also suggested that "the policy for TVET can be implemented under the following *sine-quanon* conditions: (1) A **good and sound training model** of TVET; (2) Good **investment policies** to allow equipping the training institutions with 'state-of-art' **infrastructure and lab facilities**. Under the current TVET reforms **continuous in-service training of instructors** is envisaged (R4). There is [then] a need for a policy that institutes that the curriculum should comprise two fundamental parts: (i) The **knowing** [philosophical and/or theoretical aspect of training]; (ii) the **knowing-know** [competency-based training taught through Standard Units of competencies] to be able to do professionally an activity (R7). [It is practicable] to allow all interested **stakeholders to have a say and play a role in the policy making decisions** so that in the implementation phase it be easier to adopt needed changes (R2).

Under a memorandum of understanding between the Universidade Pedagógica and the University of Magdeburg, the Prof. Jianeven (2013) proposed that "there is a need of establishing a forum in which the Industry, the University and colleges, as well as employers come together to discuss matters that are relevant to TVET" in order to eventually come up with a joint training agenda and policies that can inform what type of training should take shape within the training institutions so that the world of work gets graduates who are trained within the agreed scope.

Resources

The data show that as well as financial, the material resources are the most important undertake for a sound TVET provision:

> The PIREP's reform was chief to provide the necessary **infrastructure, equipment and labs facilities** were deployed for both public technical and vocational education institutions (R3). [Indeed] equipment, infrastructure, labs and **workshops** are part of reform implements (R6).

Most respondents have indicated that 'laboratories' and 'training facilities' make up an important 'asset' for a functioning TVET institution. The findings corrobor-

ate with UNEVOC standing that are supportive of the vision that a shared use of training institutions' resources such as labs, lecturers and students mobility and partnering in doing research activity and community interventions.

Curricula

The evidence arising out from data shows the TVET curricula as portraying the following:

> As it can be seen, the **curriculum is neither good nor bad**. Because it lacks its philosophical [knowledge] part (R2). The **curriculum doesn't give the same qualifications as those of 12th grade leavers** (R1). TVET leavers do not prescribe the requirements to enter the university studies, but **good for the world of the work demands** (R8). The **curriculum does not teach the theories**. The trainee does not know how, what and for what [insights] on competence-based training (R3). Knowing-how doesn't make it necessarily adequate for what is needed to do, so one in some degree **needs a theoretical approach** [knowledge] (R4; R2). The curriculum places more emphasis on **execution** (competence-based) that are needed in big companies. It is actually for **occupational work than professional one** (R5). Just to realize how far we went with these two TVET courses: **Industrial Mechanics** and **industrial electricity (**R1). To be able to manage this curriculum, you need **qualified trainers** for a **sound TVET programme** (R1; R6).The graduate will not get **professional autonomy** (R7). [Nor she/he will excel in the] **entrepreneurship** [world] fully with this curriculum (R1). (...) To who PIREP went to get an advice on the current curriculum? Obviously the **big companies** are the ones who benefited most from the PIREP consultation; 'forgetting' the **small businesses** (R2).

The results show that the curriculum and curriculum development 'see' instructors' training as significant element/step towards any successful 'management of TVET institutions'. Most interviewed stressed that there should be curriculum 'strands' that are 'strongly enough to buy in' by the industry. The industry 'knows' what 'quality' of 'instructors', 'curriculum content' and 'trainees profile' it wants to attain results which cater for its needs and demands. The Government new rules and incentives (GoM, 2015) ease up doors for more participation and partnership in constituting what should be laid down rather than a simple prescription of the curriculum content, the actual 'subject matters' and the competence-based skills as well as the continuous training of instructors.

Research

Looking at the emerging data, TVET research results are as follows:

> The system of TVET in Mozambique relies on **inventors and innovators**. The colleges and institution of professional training also organize **exhibitions (displays)** (R1). There is also a scarcity of **research activities** (R3) (...) need for the **research training** (R7) (...) therefore, if there is **no investment, no research** (R1). [One prevailing situation is that] there is a **lack of motivation** among trainers and other players to do research in the system (R6). **Resistance to change and apathy** go hand-in-

hand in the process of implementing the new curriculum (R1; R8; R4). [It seems that] **applied research** is the way forward. Most research conducted in the TVET field is commissioned rather than being part of the process of training and learning (R4, R5). There is therefore the need for **maximizing time for labs work; experiments**, **joint applied research,** etc. (R1).

The evidence indicates the 'scarcity' of that research activity and publishing at higher education sector and TVET institutions. These has led to GoM's (ibid.) legislative scheme in 'funding of higher education' policy and fiscal incentives, and also looks at where to allocate financial resources: The number of students to be enrolled, the graduation rates and type and number of scientific articles produced. The implementation of these measures poses a serious challenge to TVET institutions because its 'academic' staff lack of training in managing research.

The Industry

The industry system and in its relation with TVET institutions to optimize synergies for the workers profile it needs is screened through the following data:

> The industry has **rigorous criteria**. The **graduates under PIREP reform meet industry's criteria** (R6). Workers on the early stage of their careers are subject to **on-job training**. TVET institutions provide tools only to them. The reform stresses on-job training to meet the industry rigorous demands (R3; R2). In addition, the **curriculum** *per se* is developed with **industry participation** (R6). DINET (The Nation Directorate for Technical Education) and the industry agreed that professional training should entail: **40 % theory and 60 % practice** (R4). [Studies on TVET graduates'] **employability** need to be conducted (R1; R8). Large industrial employers demand area **experts/specialists and new technologies** (R1; R5). However, the way training is undertaken; specialist-based, makes the industry's work expensive and the **small businesses struggle to catch up** (R7, R5, R2).

Generally it was found that there is a 'missing' link between the industry' demands and needs of the 'management at school level', as the colleges and industry fail to recognize and build a common vision and ground for the trainees' profile to be designed together, for mentors from industry to intervene in the TVET institutions, lecturer to get acquainted with the industry developments, and the industry itself arrange for apprenticeship and leadership programmes. The way forward is, so to speak of, for setting and forging a 'new contract' of possibilities under a win-win smart partnership to pursue and tackle ways for technological advances together as both excel in it.

Concluding remarks/Conclusions

The study provided a synopsis of some possible TVET factors and hindrances which inform and influence employability and entrepreneurship in Mozambique. As it has been realized the TVET system is twofold: one technical education (with sound theoretical approaches), another vocational which is practice-oriented type

of training. However, the whole system is held responsible for producing a 'good employees' and a "bad entrepreneurs" (Barca, 2015). The results seem to point to future studies on TVET laws, regulation and rules; the strengthening of the ANEP role and resources-sharing particularly those making practical/professional training meaningful and relevant to the world of work as well as demands of the industry. Although these results capture only the perceptions respondents hold over the TVET system and in-service training, quantitative data need to be collected to measure the strength and pitfalls of the work-force and their contributions to the world of work.

Acknowledgements

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The Concept of Competence Based Assessment in Vocational Education and Training

Ethel Kyobe

Globally, Vocational Education and Training (VET) has been addressed differently with three (3) distinct models around the world. The developed countries have been able to customize the Vocational Education and Training curriculum to specifically address the demands and requirements of their own environment.

There are three (3) distinct models worldwide;

- The liberal market economy model, its supply reflect the demands of the private market *(Great Britain and Australia)*
- The state regulated bureaucratic model where National education systems define, provide and finance Vocational Education and Training *(France, Italy, Sweden and Finland)*
- The dual system model strong public-private collaboration, enterprises finance apprenticeship training and state agencies finance the TVET schools *(Germany, Austria, Switzerland, Denmark and Norway)*

However, developing countries are struggling to adapt Competence Based Education and Training (CBET) in order to reform their education and training systems to include and introduce skills training. There is an effort to establish a Technical Vocational Education and Training (TVET) system to balance academic grades and skills in Competence Based Education and Training. The provision of TVET is viewed as a necessary intervention that attempts to empower people, reduce poverty and realize the Millennium Development Goals. It is argued that, if people, especially the youth, are equipped with employable skills with which they can access labour markets, then the incidence of unemployment, poverty and other undesirable consequences of social-economic exclusion would be reduced. The International Labour Organization congress held in Geneva 2012 resolved that TVET has emerged as an important conduct for confronting and resolving the global "youth employment crisis".

TVET is a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and

related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupants in various sectors of economic and social life. Its framework includes Governance, Industry engagement, Competency Based Standards, Qualifications Framework, Quality Standards for providers, Delivery and Assessment.

The African Union (AU) recommends a TVET system that is based on a solid foundation of a social general education with a possibility for specialized technical and credit transfer to Further Education training.

TVET contains 3 main organization components;

- General education – considered as the foundation for Technical Vocational Education and Training
- Initial Training Systems is often referred to as "Vocational Education"
- Continuing Training System concerns life-long vocational training – new direction of TVET globally

Vocational Education and Training is quite rooted in general education and little attention is given to research. Understanding the complex interplay between learning at work and learning at school is then urgent. Action research is one tool which analyses the interplay and can easily evolve into real production. This gives the new direction of TVET globally, which includes Life-Long Learning.

The continuing training system concerns life-long vocational training. Research has shown that true work ethics and authentic labour market competences for economic development can only be attained through learning by doing at the workplace. Competence is the ability to demonstrate a set of skills, knowledge/understanding and attitudes required to do a job or to perform tasks and duties successfully. Competences can be measured against well-accepted standards and assessed against provided evidences at work location. "Human competency is the ability to perform, knowledge alone is of little value" said William Blank.

Concept of CBET is based on several principles which include flexible training or training/learning modules, assessment and certification, recognition of prior learning, work place learning and self-paced learning.

The prescription for CBET has the following parameters;

- It is industrial led and demand driven.
- It focuses on competence based outcomes with transparent assessment system which has positive certification.
- It encourages life-long learning with recognition of prior learning and a credit transfer system.

Competency Based Assessment (CBA) is emphasized in occupational assessment as a measure of occupational competence of individuals to support occupational learning. The assessment types include norm referenced and criterion referenced. In CBET system, criterion assessments are used. It is prudent to observe the features of a good assessment – validity, reliability, objectivity, efficiency, transparency, effectiveness and differentiation. The learning domains cognitive and psy-

chomotor domain allows us to differentiate the levels of complexity in terms of competence. Blooms Taxonomy of cognitive domain demystifies the skills at different levels. Competence Based Assessment calls for a comprehensive assessment system including theory, practical and oral items.

In order for a worker/trainer to carry out a standardized labour activity, he must be formally assessed and verified to prove that he is competent.

The certification of competencies refers to the formal recognition of the proved competency (thus, assessed and verified) of an individual in order for him to carry out a standardized labour activity.

The issue of a certificate implies that there has been a prior process of competency assessment. In a standardized system, the certificate is not a diploma that certifies prior studies. It is rather a proof of a verified competency and it is obviously based on a well-defined standard. This offers much more transparency to standardized certification systems since it allows workers to know what is expected from them, employers to be aware of the competencies that are being required by their enterprise and training entities to be aided in their curriculum design process. The certificate is a guarantee of quality concerning what the worker is capable of doing and the competencies he/she have to do so.

In designing a framework, care should be taken that only measurable components are included. It is important to restrict the number of competencies required to be acquired for any particular role and arranging them into **Modules or Units of Competency** containing like (similar) topics to make the framework more flexible and accessible to the users (Modular arrangement). The framework should contain definitions and/or examples of each competency.

The Module or Unit of Competency is formed by a group of **Elements of Competency;** it has a clear meaning in the work process and therefore it has value for the work itself. The Module/Unit not only refers to the functions that are directly related to this job's objective, it also includes any other requirement connected with health and safety, quality and relationships at work.

Element of Competency includes the competencies required to be acquired by a person in his/her occupational environment. Therefore, it refers to an action, a behavior or a result that a worker needs to demonstrate and thus it is a **Task** that is carried out by one individual.

The Element of competency includes the description of a Task that should be carried out by workers/trainees in their occupational environment. Therefore, it refers to an action that a worker needs to demonstrate and thus it is the ability to carry out a Task by an individual.

Vocational Qualifications Vs Academic Qualifications

Academic qualifications are addressed by an examination type of evaluation where several procedures are followed. It is a summative assessment in a formal setting used as the main (sometimes) form of assessment. Examinations are held at the end of the term or end of year, it is norm referenced. The examination type of evaluation is norm referenced, comparing a student's performance with other students as an indication of final ranking and for placement/selection. The emphasis is majorly knowledge and recall of memory of content.

Vocational qualifications are addressed by a competence based assessment which is formative and informal assessment. It requires and involves continuous assessment and criterion referenced.

The case of Uganda

The Ministry of Education and Sports (MoES) embarked on reforming Business, Technical and Vocational Education and Training (BTVET) in Uganda. In 2000/2001, a multi-stakeholder Task Force prepared a Strategic Plan to establish a "Uganda Qualifications Framework (UQF)". A BTVET Sub-sector Review conducted in 2002 recommended *to* start with the establishment of a "Uganda Vocational Qualifications Framework (UVQF)", and to reform BTVET along the lines of "Competence-Based Education and Training (CBET)".

In February/March 2003, the Strategic Plan for UQF (Task Force) was reviewed/updated and the establishment of a UVQF was integrated into the BTVET Sub-sector Reform Strategy/ESIP. The key element of this BTVET reform was the development of a Uganda (Vocational) Qualifications Framework (UVQF) based on a Competence-Based Education and Training (CBET) approach.

The foreseen advantages of CBET include improved access, equity and relevance of BTVET, reduced unit costs of training, Recognition of Prior Learning (or on-the-job-training), among others.

As the Ministry executes its obligation of ensuring quality in training standards, the public-private partnership is being strengthened to improve occupational competence of the country's workforce without gender bias.

Further to efforts to link Education and Training to the real world of work, the Ministry set up the UVQF Secretariat in 2004 to facilitate the anticipated UVQF design and development/piloting of its instruments and mechanisms leading to re-configured BTVET in Uganda.

In December 2008, the BTVET Act 2008 was launched in which UVQF is established by Law.

Why establish a UVQF?

- Lack of the right competencies of the workforce limits productivity and thus competitiveness of Ugandan economy
- BTVET courses do not sufficiently reflect the requirements of the real world of work in Uganda (relevance of certificates and diplomas is questionable
- Access to BTVET is denied for the majority of young people
- Unit cost of BTVET is too high

Purpose of UVQF is to define

- Occupational standards in the world of work
- Assessment standards
- Vocational qualifications of learners who meet the set standards of the different studies provide guidelines for modular training

In establishing the Uganda Vocational Qualifications Framework (UVQF), there are three (3) main stages of development;

1. Occupational profile development
2. Training modules development
3. Test item development

These are compiled in what is called an Assessment and Training Package. These packages act as a guide to both the instructors and institutions of Vocational Education and Training.

By definition, a Qualifications Framework is a unified system of linked national qualifications highly visible, quality assured national system of educational recognition which promotes life-long learning and a seamless and diverse education and training system. The Uganda Vocational Qualifications Framework in essence is a mechanism to define the occupational skills requirements in the world of work (occupational Standards).

- Assess learners against these standards (open-access assessment)
- Award vocational qualifications (certification) to learners who prove that they meet standards
- Provide pathways for progression

Competence Based Assessment

It is a formative and informal assessment which includes continuous assessment as an integral part of the teaching and learning process. It is criterion referenced, which compares students performance against pre-determined criteria/standards to provide feedback and improve performance. The emphasis is placed on outcomes of the learning process.

The Directorate of Industrial Training has been implementing CBA since 2007 with the introduction of CBET which bases on modular training and embraces non-formal/informal training. The Directorate of Industrial Training conducts Competence Based Assessment in two forms;

1. Modular assessment
2. Occupational assessments

The methods used include;

1. Oral questioning
2. Written tests
3. Direct observation
4. Record of continuous assessment
5. Skill demonstration

The assessors are trained to conduct competence based assessment using both written and performance test items, with marking guide which controls any variations in the final awarding of marks.

In competence based assessment there are dimensions characterizing the execution of work which include scope of work, context, complexity, predictability and team work. On the other hand, there are also dimensions of leadership, autonomy, resource control and creation of new concepts.

In order to determine the competence level of an occupation, the dimensions are applied to give a level descriptor. For example for the scope of work in terms of duties and tasks Level 1 is narrow range, Level 2 is moderate range, Level 3 is broad range while Level 4 is full range of the occupation.

In competence based assessment, emphasis is put on both the assessor and assessment instruments. The instruments are developed by a team of practitioners plus the instructors in the particular occupations. In the test item, the criteria for assessment, scoring guide and maximum score are clearly indicated for guidance.

There are specific guidelines that have to be followed to the detail of a performance test such as preferred venue, tools and materials and remarks to both the assessor and the candidate. At the end of the day, the given marks are showing a measure of "How well" the candidate can do the job.

The test medium of communications varies to include local languages. The Directorate awards several types of certificates following the UVQF, Transcript, Worker's PAS, and Certificates for Levels 1, 2, 3. The instructors and managers of vocational institutions are awarded both certificate and Diplomas level IV & V of the Uganda Vocational Qualification.

According to the statistics, in 2009, 3736 candidates were assessed, in 2010, 16,581 candidates were assessed, in 2011, 23,758 candidates were assessed and in 2012, 26,208 candidates were also assessed. A total number of 124,947 candidates were assessed between 2009 and 2014. This shows an increasing demand from skills assessment.

Challenges

1. Generally, there is low quality of training which is attributed to the following
   – poorly equipped training institutions
   - Lack of tools and facilities in institutions
   - Inadequate number of qualified instructors
   - Instructor absenteeism
   - Abuse of internal quality assurance mechanisms affecting validity of accrediting assessment centres
2. Lack of harmonized interpretation of Competence Based Education and Training
3. Lack of harmonized interpretation of the legal framework (BTVET Act 2008)
4. There is a weak Public-Private-Partnership resulting in less participation of industry and private sector in skills development
5. Training levy legislated under the BTVET Act of 2008 not implemented
6. Misalignment of skills training to the labour market demand
7. Defining the pathways that ensure vertical progression
8. At present, facilities conducive to support UVQF assessment from Level III and above can only be accessed in industry support to People with Disabilities in the assessment system i.e. few assessors in sign language, blind etc.
9. Need special attention during assessment to allocate extra time in both practical and theory
10. There are training and infrastructure barriers
11. Inadequate funding to the Directorate to conduct competence based assessment

Shaping and networking with digital media in Further Education: Conceptional and strategic considerations

Christoph Bohne

Abstract

To fulfil the growing challenges on the German labour market in Vocational Education and Training (VET), shaping competence-based and networked teaching and learning is needed. Despite all efforts in vocational science and politics, teaching and learning is still dominated by refresher trainings in a lot of VET institutions. Moreover, there is a lack of full-fledged VET networks. Frequently, learners are not included actively in teaching and learning processes.

The digitalization has entered nearly all areas of society. Although a huge range of digital tools already exists, the implementation in VET proceeds slowly. The use of digital media depends on infrastructural conditions as well as didactic methodical possibilities of educators. Digital media are often used passively for obtaining information or unsystematically. But they do have potential for improving shaping competence-based teaching and learning.

The essay describes basics of shaping competence-based and networked teaching and learning. Potentials of digital media in VET are presented. A media-supported Further Education network for VET educators will be outlined.

Introduction

The great importance of the dual system of VET in Germany's education system and economics is undisputed (BMBF, 2015a, 2016; Hoeckel and Schwartz, 2010). The entire VET system offers several vocational training programmes. About 1.36 Mio. adolescents in 327 professions are trained in the dual VET system (BIBB, 2016, p. 108, p. 119). Apprenticing companies, VET schools and other training centres are involved in apprenticeships. In their empirical analysis, Ebbinghaus

and Krewerth (2014) figured out that the coordinated interaction between the places of learning is in deficit. The interlinking between theory and practice is supposed to qualify apprentices for vocational tasks and participation in society. Further Education should support skilled workers in shaping work and society. Companies are confronted with the challenge to ensure to have enough young skilled personnel.

VET educators who are able to teach and train shaping competence-based, especially in connection with digital media, are needed. Educators have a strong influence on the learning success of learners. It is obvious that teacher training influences the quality of teaching and learning (Kurtz, 2014, p. 251). Qualified and competent VET educators in companies, schools, and other places of learning are essential.

The digitalization is continuing worldwide. According to that, the use of digital media increases in the education sector. Software and hardware products offer a wide range for supporting teaching and learning as well as networking processes. That's why it is recommended to qualify VET educators with digital media and for using them in teaching and learning processes.

Shaping competence-based teaching and learning

A view into the (German) VET practice shows that there are still a lot of refresher trainings. Experiences from the research and development projects *EMAG* (Eicker and Bohne, 2015) and *LAGL* (BMBF, 2015b, p. 55) confirm this. That's why it is urgently necessary to establish further training for VET educators based on shaping competence. This is to meet the high requirements on skilled workers in the world of work and society.

Shaping competence-based teaching and learning is based on a constructivist position and was primarily marked by Heidegger and Rauner (Heidegger and Rauner, 1989; Heidegger *et al.*, 1988; Rauner and Weisenbach, 1984). Since then, shaping orientation and competence have intensively been discussing. Shaping competence always evolves from the shaping space of work, education, society, and politics. Interdependencies between these four corner pillars must be considered with regard to VET and the related vocational science (Fig. 1). In technical domains, the aspect of applied technology enlarges the shaping space. Applied technology means user-oriented technology in VET. Work describes the accrued work in a field of work or in a profession. Education describes the whole teaching and learning processes of educators and learners. Society means the democratic living together with individuals in a region or country. Politics sets up frameworks which regulate the other parts (e.g. Working Conditions Act, Vocational Training Act). In this shaping space learners must (co-)shape. To achieve this shaping process shaping competence is needed.

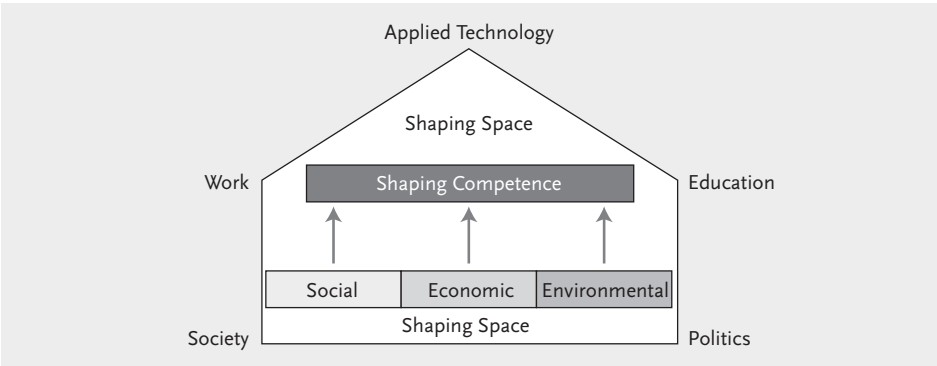

Fig. 1 Shaping Space. Source: Own.

Following Richter and Meyer (2004, p. 23) shaping competence means a targeted influence of the personal, vocational and social environment through own actions. Shaping competence is defined as a polyvalent possibility which solves complex tasks. In the context of social, economic and environmental aspects, learners should weigh up alternatives and consider possible consequences. They should be able to decide for a solution of the task and justify it. Learners are supposed to (co-)shape working and business processes actively. Learning situations and corresponding learning tasks for the development of shaping competence have to be arranged.

In this discourse, the triad *social-economic-environmental* has already been considered, but not explicitly under the mask of VET for sustainable development (BMBF, 2014; Kuhlmeier *et al.*, 2014). Frequently, the word sustainability is unclear and used inflationary. The aim is to create a social, economic and environmental compatible consciousness respectively attitude leading to responsible and reflective (co-)shaping. In the *Brundtland-Report*, sustainable development is defined as "[...] a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 41). In short with the words of the *German Council for Sustainable Development*: "Today not at the expense of tomorrow, here not at the expense of elsewhere" (Bertelsmann Stiftung, 2014, p. 2).

Networked teaching and learning

Networking can promote shaping competence-based teaching and learning. VET networked teaching and learning is attached a great importance. Jahn and Goller (2015, p. 185) describe the necessity of cooperation in the dual system. Thereby, regional structures should be strengthened and learning processes be supported. Networks are a possible answer to permanent change processes in VET (Kremer, 2004, pp. 82−86). In this context, informal and collective learning are of great significance. Furthermore, learning environment, interests, and experiences of VET players are central (Diettrich, 2015, p. 166).

Networking goes further than cooperating. In a cooperation, each institution respectively individual works separately for itself. Information and knowledge are shared with single institutions. In networking all institutions work together. They feel an advantage and follow a common goal. Accordingly, they must have an intersecting set in their usual working and learning tasks. Based on market demands and chances, tasks have to be determined and justified. VET players must be willing to reorganize their consisting internal working and learning organization/behaviour, so that outward-directed connections can evolve. A network initiator and moderator is required (Eicker, 2009, p. 124). This moderator primarily fulfils network and administrative tasks (Elsholz, 2015, p. 180).

Because of the variety of network typologies (Diettrich, 2015, p. 168; Elsholz, 2015, p. 172) the term *Further Education Network for VET Educators* (FEN-VET) is proposed in this context. Such a network stores informal qualification potentials for competence development. This raises the question how networks have to be shaped for working permanently and improving professional VET actions. Efficient networks have a high interactive intensity. They are also characterised by a relationship of trust between the VET players and strong self-organizational skills. The network and its learning concept have to be dynamic, flexible, and attendee-oriented (Diettrich, 2015, p. 168).

Potentials of digital media

Digital media can promote shaping competence-based and networked teaching and learning. E-learning is often attributed to self-determination of learning time, place of learning, learning speed, and learning style (Erpenbeck *et al.*, 2015, p. 1). One disadvantage is the missing personal contact and social exchange. As a result of the pilot project *FuTEx*, Littig (2015, p. 247) establishes that physical phases are essential. Thus, future-oriented blended learning (Pachner, 2009) has been attested the highest priority in organizational learning (mmb-Institut, 2016). Both formats have in common that a didactic methodical analysis as well as a teaching and learning concept are needed. Important for the success of learning is the linkage of current skills and experiences (Erpenbeck *et al.*, 2015, p. 7). Relevant working tasks have to be transferred to shaping competence-based learning tasks. Thereby, user generated content plays a major role.

Howe and Knutzen (2013, pp. 18–35) identified possible applications of digital media in technical vocational apprenticeship. They show six categories accompanying working and learning tasks with the help of digital media:

1) *Provision of information and contents*

   Educators and learners have the possibility to provide working and learning relevant materials in the internet.

2) *Visualize, animate, and simulate*

   Working and business processes could be visualized realistically in videos in real time. Animations can present complex or not visible processes in a simplified way. Simulations enable to steer technical machines safely by influencing parameters.

3) *Communicate and cooperate*

   With the help of tools like weblogs, forums or chats, educators and learners are able to communicate and cooperate independently of time and place.

4) *Structure and systemize*

   The high density of information and the complexity of the world of work and profession make structured and systematic processes necessary. Tools like *Evernote* enable to integrate digital artefacts and lead learners to a structured system.

5) *Diagnose and testing*

   Audience response systems are suitable to check the stage of learning anonymously via the learner's own tablet or smartphone. As a result, educators can influence the steering of the learning process. Moving images and simulations can be implemented as the basis of shaping-based exams.

6) *Reflection*

   Portfolios facilitate to reflect the learning process. Diverse artefacts can be uploaded and tagged. This leads to linkages and with it to a chain-like reflecting process.

The categories above were modified for a FEN-VET. Digital media enrich a FEN-VET by considering working and learning tasks including contents as the central elements of the network. Digital media are established on a macro and a micro level (Fig. 2).

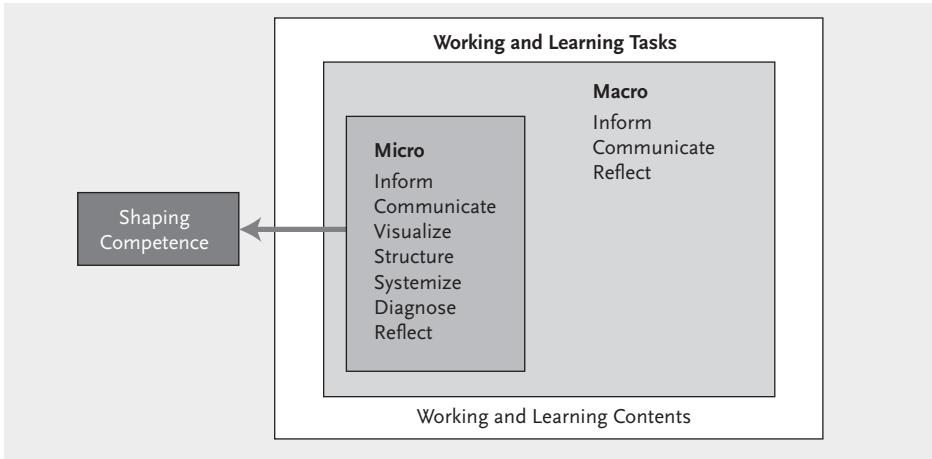

Fig. 2 Digital media in a FEN-VET. Source: Own. Referring to Howe and Knutzen, 2013, pp. 18–35.

The macro level serves networking. VET players mainly inform, communicate, and reflect their actions. To get to the micro level, the macro level has to work fundamentally. The micro level serves possible connections of digital media in teaching and learning processes. This level addresses VET educators and learners. Both levels contain media supported processes. Digital media should be tested and evaluated in the network in own learning processes. VET educators develop 'VET media competence', which can be re-examined in VET practice. Learners always have to be involved in the learning process for developing shaping competence.

Networked Further Education with digital media

With the contained multi-professional consolidating competence of VET players, a FEN-VET can lead to a higher quality of teaching and learning. With the help of shaping competence-based teaching and learning, individuals are able to develop shaping competence. This process can be enriched with digital media (Fig. 3).

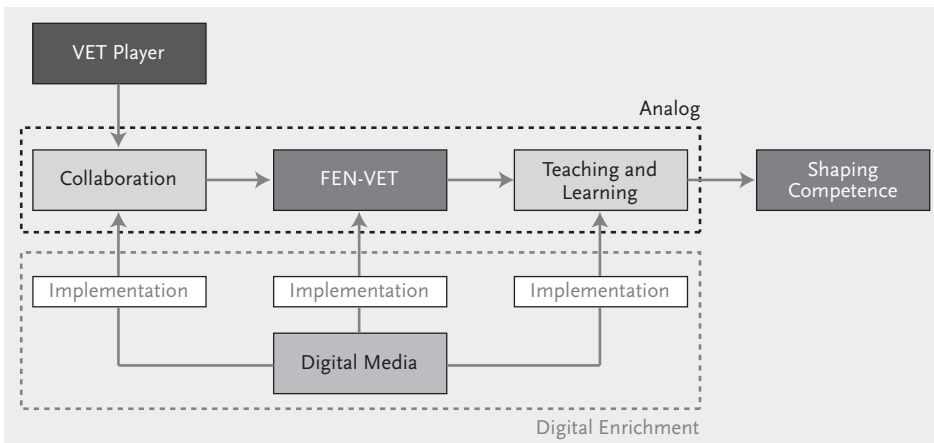

Fig. 3 Digital Networking. Source: Own.

To initiate a FEN-VET, a strategy is needed. Complex network-related teaching and learning processes have to be planned, executed, and evaluated. At the beginning, potential VET players are present who work and learn isolated from each other. A network initiator is required. He or she has to overtake the implementation of the network proactively. Regional conditions have to be examined. Experiences show that especially in companies, competitive thinking exists. Therefore, an initial analysis has to point out the benefit of a collaboration towards an isolated working. Moreover, the connection with current networks and interfaces has to be considered. The connection to a current regional VET player team is useful (e.g. schools, companies, universities). Initiators must be convinced of the implementation of a FEN-VET and prepared to collaborate according to their possibilities. Thus, a mutual benefit must be available. This advantage is mainly present in the

informal Further Education of VET educators and in the increasing quality of VET practice. Potential VET players have to be approached strategically and they should benefit of a FEN-VET. Common contents, interest, and tasks motivate the union. From the beginning, potential VET players have to feel an individual advantage. A high commitment, long-term engagement, and openness are necessary. Competences of the network initiator are requested.

Initial communication processes arise by acquisitioning new VET players. Digital media is useful for informing and communicating. Fundamentally, digital media have a positive effect on the publicity of the network initiative. Moreover, they facilitate the search for potential VET players. A FEN-VET information site could be linked in VET portals. A representative website with required information about the FEN-VET is helpful. Simple websites can be realized without the knowledge of programming with the help of open-source-software like *Jimdo* or *WordPress*. If long distances between VET players exist in rural or structural weak regions, personal contact is difficult. Ways of communicating are reduced to phone and e-mail. For the initial contact, communication via phone is recommended. If something new is initiated and uncertainty exists, an informative website contributes to union. Potential VET players often prefer a *(digital) picture*.

If some potential VET players have already shown their interest and assured their collaboration, intensive communication and collaboration processes take place. Collaboration means networked interactions of VET educators in vocational working and learning. At this stage of development, it is not an efficient FEN-VET but a basis network. As soon as central aspects of network acting have been agreed on, organizational steps derive from it. A platform for network-related professionalization of VET educators should be worked out and justified. A lot of open educational resources like the learning management systems *Moodle* or *ILIAS* are available. Useful structures have to be created. From the technical perspective features like extendibility, interoperation, and scalability should be paid attention to. Besides the following main categories, it is reasonable to post latest news on the home page. This includes the option to subscribe a newsletter.

- Latest events (workshops, conferences, congresses, seminars)
- Tasks (relevant working and learning tasks including teaching and learning practice)
- Contents (education policy, vocational scientific and vocational educational contents)
- Staffroom (contacts to FEN-VET-members, private discussions)
- Publications (a list of relevant publications being linked or uploaded as PDF)
- About FEN-VET (presentation of the network, central idea, members, contact).

Sub-categories are, of course, possible. The platform pursuits a practical holistic Further Education process. It is important to emphasise that different competences cannot be developed isolated. Shaping competence-based teaching and learning can also lead to an adequate quality without digital media. *Digital learning* which does not focus on shaping competence is usually from a lower quality. That

means, the basis for *digital learning* must be shaping competence-based. Above all, the process from working to learning has to be justified and reflected. With reference to working and learning tasks vocational scientific and educational contents have to be worked out, analysed, and reflected. Digital media *only* offer the possibility to enrich this learning with the help of different tools. Experiences from the research and development projects *EMAG* and *LAGL* have shown that the satiety of tools and contained functions often complicate the selection and use of digital media. Digital media open up new possibilities in teaching and learning (e.g. with the help of augmented reality and wearable computing). The consideration which tools and functions are able to contribute to a shaping-oriented solution of a task should be prioritized.

Digital media, which have been used as realization and shaping tools and proven effectiveness, are recommended in a FEN-VET. Intuitive operable tools with the option to deactivate not useful functions are prioritized. For example, in a forum you can discuss about documented learning situations and worked out learning materials. By means of web-based app sharing, learning situations can be developed in real time. In a webinar, new technical artefacts in companies can be presented. Scientists could produce a podcast with *Garageband* containing their central findings of empirical research. Curricula at schools could be elaborated and discussed in a *wiki*. E-portfolios provide the opportunity to document and reflect the learning process of VET educators. Following Wiesenhütter and Haberer (2015), a network-opened and practical MOOC (Massive Open Online Course) with the topic 'VET for sustainable development' might be useful. Digital media should be tested and discussed in the network before implementing them into VET practice.

The integration of media-supported learning in VET institutions is a measure of organizational development. This means a change process. Usually this process does not run without resistance. Hence, possible resistance and conflicts have to be discussed and solutions have to be found as soon as possible. In the past, it has often been shown that digital media could not be implemented in practice. Reasons were insufficient media competence, inadequate digital infrastructure, poor usability, missing interest, insufficient advantage, and the opinion that digital media means an additional workload. Individuals will seldom be able to establish an innovation. Thus, it is recommended to form coping groups (Erpenbeck *et al.*, 2015, pp. 18–23). With the implementation of digital media, the interests and preferences of learners must be considered. If this does not happen, learners could become afraid of reforms, loss or competence deficits. Therefore, a FEN-VET should offer support, e.g. in form of blended coaching (Bohne, 2014). At least three regional or national presence meetings are suitable. The VET players should get the opportunity to meet each other personally. This strengthens the FEN-VET. Besides VET educators, skilled workers, and apprentices should also participate. These people are able to bring in valuable feedback from the perspective of learners.

Conclusion and prospect

Initiating a FEN-VET is a challenge, especially if competitive thinking or even discrepancies exist. The FEN-VET's aim is to achieve a wide-changing in the learning culture leading to a new quality in teaching and learning in VET institutions. A FEN-VET is suitable for practice-oriented learning and lives from the give-and-take of the VET players. Due to the persistent dynamic in VET, lifelong learning and with it media-related learning is omnipresent. The huge workload and missing learning time of VET educators leave room for improvement by employers and politicians.

To prove the effectiveness of a FEN-VET, empirical evidence is needed. Benefits of e-learning and blended learning with regard to learning efficiency and profitability could be proved in the development cooperation. Inter alia, the Further Education programme *ELDI* has been developed in Namibia and is offered worldwide (f-bb, 2011). In Sub-Saharan Africa, a FEN-VET could promote vocational teaching and learning across country borders, and also across continents. Finally, apprentices should be prepared as best as possible for the outlined shaping space. Every individual who participates in VET has to invest openness and engagement to achieve a change in the learning culture.

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Learning and Exchange Platforms: An Approach to professionalise TVET trainers in Namibia?

Silke Partner

Abstract

The acute shortage of skilled labour in most sectors in Namibia is linked to inadequate access to and poor quality of training programmes, often related to lack of practical skills of trainers. This shortage is affecting the growth potentials of the Namibian economy. The Namibian Government has recognised the existing gaps and is working within the framework of the National Development Plan (NDP 4), to develop a high quality technical Vocational Education and Training and training of trainer system.

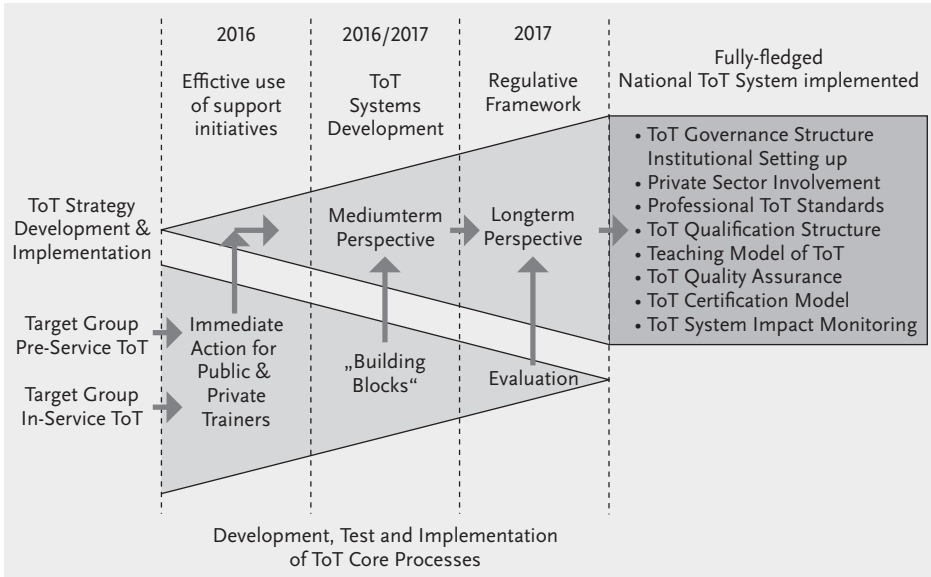
The results of a needs analysis and competency assessment of in-service TVET trainers conducted by the Namibian Training Authority (NTA) shows a lack in mainly technical skills and industry exposure. Trainers are currently systematically taking part in national, regional and international programmes to improve their technical skills, coupled with trade specific pedagogics, industry exposure and cross-cutting issues.

The NTA supported by GIZ-ProVET Programme on behalf of the Federal Republic of Germany has introduced learning and exchange platforms to create more favourable conditions in the process of building capacity in the TVET sector. Trainers use them to share their learnings from those programmes, including reflections on technology, teaching techniques and reform recommendations with other trainers in the field. This way, the trainers themselves take ownership of their learning process and become responsible for their continuous professional development as they establish communities of practice. These platforms enhance the impact of the upskilling programmes leading to a TVET system focused on the teaching and learning processes related to the workplace and its effectiveness. Subsequently the trainee is assumed to acquire better workplace related skills and occupational competence.

Background

Although Namibia is defined as upper-middle income country (according to the World Bank), almost one third of the population of 2.1 million lives below the poverty line, with 4 % living in extreme poverty. One of the main factors related to poverty is the high unemployment rate, which officially stands at 27.4 % (LFS 2012), with women and young people being mostly affected. At the same time, there is an acute shortage of skilled workers in most sectors due to inadequate access to and poor quality of training programmes. This shortage is also affecting the growth potentials of the Namibian economy as well as the sector's contribution to facilitate the transition to a knowledge-based economy. The Namibian Government has recognised the existing gaps in Vocational Education and their impact on the economy. It is working within the framework of the National Development Plan (NDP 4), to develop a high quality education system in order to achieve the main targets of employment promotion, sustainable economic development and a reduction of income inequality (2012/2013 – 2017/2018).

The National Skills Development Plan, commissioned by the Namibian Training Authority is the guiding framework for investing in skills development priority areas. It identifies occupations in high demand for each industry sector which are necessary to create a demand-driven TVET system. One major constraint for a quality delivery of high quality and demand oriented training programmes at public and private training providers however remains the level of current trainers related to the changing demand and technology development of the labour market. They lack technical skills, industry experience and knowledge of recent reforms within the vocational training system in Namibia, e.g. with regard to the introduced competency based training and assessment approach. At present there is no pre-service or in-service training programme that is designed to meet the skills development needs of trainers in Namibia. Up-skilling of trainers and strengthening the management capacity and the quality of the VET system therefore remain priorities of the current reforms and are currently organized in ad-hoc responses to short term needs.



Training of Trainer (ToT) system development approach in Namibia (own source)

Learning and Exchange Platforms

Improving the quality of TVET means improving the delivery and therefor the quality of training of trainers in TVET (ToT). A national ToT system in Namibia is currently being developed according to national priorities within the current TVET reforms such as the NTA VET expansion plan, revision of the VET Act as well as the funding of priority needs through the recently introduced VET levy. Short-term trainings are being supported for trainers utilizing international and regional partnerships and procured from Namibian and regional training institutions. Often these are stand-alone initiatives and trainers are being sent back to their workplaces without being able to translate the content of such training into their everyday work or the opportunity for lessons learnt to be fed into the development of a ToT system.

In February 2016, 12 practical TVET trainers in the field of automotive (Auto-Mechanic & Auto-Electric) have attended a six week training programme outside of the country. In order to evaluate the training and organise the debriefing of the trainers, NTA together with GIZ-ProVET Programme on behalf of the federal republic of Germany has introduced the "Community of Practice for Automotive Instructors" (CoP) for all Auto-Mechanic & Auto-Electric trainers.

As part of NTA's overall objective to promote exchange, cooperation and collaboration between stakeholders through capacity building support, the workshop was one of several interventions aimed at promoting an environment that enable learning and exchange.

Even though expected results of learning and exchange platforms can vary, they should follow certain ground rule:

- it is a place to learn
- it is a place to exchange relevant information
- it is being used to share information and to analyse information and develop operational plans
- it is being used by staff members of the NTA to gain field information and stakeholder engagement
- it is beneficiary to all participants in regards to expand knowledge and competence
- it is introducing a learning network for trainers in specific trade/occupation

To organise this particular debriefing following steps have been used based on the GIZ management tool Capacity Works and has since then been adapted by the relevant NTA divisions.

1. Establish why the debriefing workshop is being carried out and identify the issue to be examined

The scope and structure of a debriefing workshop will depend on the reason why it is being carried out and the issue to be examined. Therefore, you should clearly state the benefits of debriefing in the invitation, so that all participants are clear about its purpose. There may be a particular issue that the workshop needs to address. The more clearly you communicate the reason for the workshop and the issue it will examine, the more productive the debriefing process will be.

2. Collect successes and problems

The individual participants recall successes and problems that occurred in the course of the project and each participant then writes these down on cards. In complex projects, you can carry out debriefing for parts of the project (e. g. lines of action, work packages). When they pin up their cards, you should give each participant an opportunity to comment on the successes and/or problems in front of the plenary group or to pin them up without comment, or hand them to the moderator anonymously for him/her to pin up. Alternatively, have the moderator collect the participants' feedback by email prior to the workshop. This step generates a revealing map of successes and problems that already highlights critical phases or events at a purely visual level. It also reveals whether the participants perceived the same events as key successes or problems.

3. Cluster successes and problems and define lessons learned

In this step, the moderator pools the successes and problems into similar categories together with the participants.

4. Draw conclusions and define activities

In this step, you ask yourself what approach the project needs to take in order to meet the needs of the objectives system. The aspects discussed in the previous

steps allow you to document recommendations for the project's steering (structure) in line with the five success factors. It is useful if you map these recommendations on a pin board, focusing on the objectives and results. Try to cover all five success factors. Based on the outcomes achieved so far, you now invite all participants to discuss and develop activities and recommendations.

5. Document lessons learned

In this step, the moderator documents the lessons learned and hands them over to the project. They serve as a basis for deciding on the project's future orientation and for learning from the experiences, successes and problems of the past.

Debriefing has always an operational and educational component. Thus this could be used to be beneficial to all topic related trainer in the country. Hence an exchange platform (community of practice) could be used for the purpose of debriefing and knowledge exchange between NTA operational staff members, respective trainers and the individual trainer who went on a training intervention.

Out of this first debriefing process a community of practice (CoP) for automotive mechatronics trainers in Namibia has been formed. The CoP with support of ProVET and NTA has up engaged into a partnership with a German training institution that avails trainers to Namibia in intervals to give input theory and practice training based on project work over a longer period of time. In between the automotive trainers themselves overcome shortcomings of the current curriculum and material with establishing peer-learning and peer-coaching sessions. They learn to reflect on their role of a trainer, their responsibilities and how to set up and tackle real issues from workplaces in a project-based approach, which they can then also apply in their teaching environment.

Feedback from the trainings in the community of practice has been positive:

"It was good to bring up this idea of Learning and Exchange Platform for the first time."

"It was a good lesson. I have learned and I will bring that practice back to my centre."

"Sharing of information on how to improve the system."

"Good of sharing the ideas from the ToT."

"Such platform must take place as it helps people to see in which direction we are going or want to go."

"The discussion platform was very good because it allows everyone to participate."

"The training was productive; I learnt a lot to improve my training skills."

"The programme was perfect, I have learned a lot from the others."

"The World Café was good, first of its kind, train the trainer – good stuff."

"Organize trainer interventions periodically."

A next CoP has been set up for electrical general and plumbing with always one vocational training centre taking leadership in hosting the CoP.

The Namibian Training Authority has since then taken full ownership of building communities of practice among their TVET Trainers and organizing learning and exchange platforms in various ways in order to become even more effective and identify national master trainers, who in future can coach and train trainers in Namibia.

> *Communities of Practice are a non-hierarchical, practical form of learning for sharing knowledge and experience. Individuals with shared interests exchange information on a training intervention and a defined area of specialisation and generate new knowledge together. A community of practice (CoP) is a group of individuals who share an interest in a common field and join forces to actively exchange practical knowledge and experience over a long period of time and to generate new knowledge together. Participation is voluntary and cannot be delegated. CoP trigger collective learning processes that generate knowledge and experience that is continuously developing.*

Conclusion and recommendations

For the relatively small number of technical TVET trainers in Namibia, the exposure in short term trainings has been very successful, when they are well prepared and followed up. Especially for specialised, newly introduced and innovative trades, short term interventions and/or the use of regional training programmes to upskill the trainers will remain an integral part of the training of trainer initiatives in Namibia. The debriefing process together with the forming of communities of practice, initiating peer learning processes and finding a hosting institution for a specific trade has proven very useful and will therefore be continued as part of the Namibian Training of Trainer system. TVET trainers in Namibia are the backbone of practical training while the country is developing workplace-based training approaches. Therefore the role of the trainer, his/her professional development process as well as better networking and cooperation between trainers and vocational center management has to be well defined and used in order to ensure professionalization of training staff of the country.

The common purpose, composition of the CoP and the feedback of results into a national dialogue on professional development of TVET trainers has to remain key to all learning and exchange platforms. If the outcomes of training programmes are communicated within the respective institutions and followed up, resources are allocated in advance in order to ensure participation of all stakeholders and Training institutions can become even more responsive to requests to offer training programmes for TVET trainers in the country.

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Promoting effective Work Integrated Learning (WIL) and Recognition of Prior Learning (RPL) practices in the TVET sector through research

Nothemba Joyce Nduna

Abstract

There is a growing interest in increasing research capacity in South African public Higher Education Institutions (HEIs) in general and in Universities of Technology (UoTs) and Technical and Vocational Education and Training (TVET) Colleges in particular. As part of its strategy to increase research capacity, the Education, Training and Development Practices – Sector Education and Training Authority (ETDP SETA) has established six Research Chairs in six public HEIs. This article introduces the work of the Research Chair for Work Integrated Learning (WIL) and Recognition of Prior Learning (RPL) that was established by the ETDP SETA in August 2015. The purpose of introducing the work of the Research Chair is to explore possibilities for research collaborations and partnerships with a variety of stakeholders at local, national and international levels. The article is divided into five sections. The first section is an introduction which provides the context, focus and purpose of the Research Chair. This section also highlights the need for research into WIL current practices and WIL staff development needs and advocates for the development of WIL related HEQSF qualifications in the TVET sector. The second section provides an overview of literature on WIL and RPL and relates the work of the Research Chair to the 2013 Policy on Professional Qualifications for lecturers in TVET and *the 2015 Draft RPL Policy for the Higher Education Qualifications Sub-Framework (HEQSF)*. The third section deals with the research methodology that covers the research questions, intended outcomes and data collection processes that were involved. The fourth section discusses the research findings and enabling factors for the Research Chair. The final section provides a summary of the findings and calls for research collaborations.

Introduction

Research Chair's Context and Background

Effective and efficient WIL and RPL practices have never become more critical than the present time when South Africa is faced with challenges that include high unemployment rates, alarming youth fallout and drop-out rates in the education system, low levels of skills, declining economy and declining quality of the education system. These challenges have resulted in a growing interest in increasing research capacity in South African public Higher Education Institutions (HEIs) in general and in Universities of Technology (UoTs) and Technical and Vocational Education and Training (TVET) Colleges in particular. As part of its strategy to increase research capacity, the Education, Training and Development Practices – Sector Education and Training Authority (ETDP SETA) has established six Research Chairs in six public HEIs. One of the Research Chairs that was established by the ETDP SETA in August 2015 is for Work Integrated Learning (WIL) and Recognition of Prior Learning (RPL). The ETDP SETA Research Chair Initiative (RCI) is therefore a knowledge and human resource development intervention aimed at strengthening and improving the research capacity of the ETDP SETA to produce high quality research and post graduate students for the Education, Training and Development (ETD) sector and to provide technical research support and capacity to the ETDP SETA to deliver on sector focused research.

The challenges mentioned above have also resulted in the development of several national policy documents that highlight the need for economic growth and social development (Department of Higher Education, 2011). Such need requires an adequate supply of graduates that have appropriate attributes and work-related competencies (Department of Higher Education and Training, 2014). This means that the role of Post-School Education and Training (PSET) institutions (TVET colleges, private FET, Community Colleges and HEIs) is crucial (Fraser, 2014). These institutions are expected to demonstrate responsibility and commitment to socio-economic development through developing programmes that are responsive to economic, social, political and cultural needs of the country (Department of Education, 1997). Central to the development of graduate attributes and students' work related competencies, is staff capacity development in terms of WIL and RPL through partnerships with industry, universities, government departments (Setas) and other relevant stakeholders.

Focus and Purpose of the Research Chair

The target population for the Research Chair is staff that is involved in WIL practice in the Technical and Vocational Education and Training (TVET) sector. The intention is to identify WIL and RPL staff needs as well as staff WIL practices and challenges and investigate how an attempt can be made to address such needs and challenges when formal HEQSF aligned qualifications that have a WIL component, are developed and implemented in partnership with industry and other

relevant stakeholders. The need to develop such qualifications is documented in the 2013 Policy on Professional Qualifications for lecturers in TVET which will be implemented from 2017 (RSA, 2013). The purpose of the Research Chair is to facilitate a planning process that will enable the implementation of this policy and other RPL policies that are related to WIL by 2018.

The Research Chair therefore aims at building knowledge about the TVET sector, and in particular, the contribution of WIL to the training that the sector offers. This includes the role of WIL in preparing staff to engage meaningfully with the world beyond the TVET College. Understanding the relationship between academic study and learning within the world of work is key to building knowledge in the field of work integrated learning. The Research Chair also aims at formulating recommendations towards transforming the TVET sector and providing staff development opportunities through formal qualifications. It is envisaged that the Research Chair would also benefit the staff and students of other partners involved in the project, in terms of research capacity development.

The need for WIL and RPL research

Research into WIL staff development needs and interventions that include the development of formal WIL-focused qualifications needs urgent attention. Effective WIL staff development could enable staff to plan, implement, assess and monitor WIL, manage WIL partnerships and conduct WIL research effectively and efficiently. Students that benefit from receiving such high quality WIL, could develop employability skills and attain graduate attributes that could make them employable and even self-employable. Employable graduates could raise the productivity of the formal and informal sectors and have a contribution that could have a significant impact to socio-economic growth and social development. Research on the development and implementation of WIL staff development programmes and qualifications as well as on alternative access to WIL staff development programmes and advancement of staff within WIL qualification programmes is therefore necessary. It is against this background that the Research Chair for WIL and RPL is operating. The work of the Research Chair is introduced to explore possibilities for research collaborations and partnerships with a variety of stakeholders at local, national and international levels.

Literature overview on WIL and RPL

Research Chair's Definition of WIL

The Research Chair's definition of WIL is drawn from the WIL definitions of both the Council on Higher Education (CHE) and the Higher Education Qualifications Sub-Framework (HEQSF).

The Council on Higher Education (CHE, 2011), defines WIL as an umbrella term that describes curricular, educational and assessment practices, across a range of

academic disciplines that integrate formal learning and workplace concerns. The integration of theory and practice in student learning is seen as occurring through a range of WIL approaches. Examples include: action-learning, apprenticeships, cooperative education, experiential learning, inquiry learning, inter-professional learning, practicum placements, problem-based learning, project-based learning, scenario learning, service-learning, team-based learning, virtual or simulated WIL learning, work-based learning, work experience, workplace learning, and so on. This means that WIL can be practised in different ways for different contexts and purposes.

With the introduction of the revised National Qualifications Framework as a single integrated system comprising of three sub-frameworks, work-integrated learning is also included as an integral component of various vocationally oriented qualifications (CHE, 2013:16, 27, 28, 29, 32) in the Higher Education Qualifications Sub-Framework (HEQSF).

Work-integrated learning in the HEQSF is defined as follows:

> WIL is characteristic of vocational and professionally-oriented qualifications, and may be incorporated into programmes at all levels of the HEQSF. In the HEQSF, WIL may take various forms including simulated learning, work-directed theoretical learning, problem-based learning, project-based learning and workplace-based learning. The selection of appropriate forms of work-integrated learning depends on the nature and purpose of the qualification type, programme objectives and outcomes, the NQF level at which the WIL component is pegged, institutional capacity to provide WIL opportunities, and the structures and systems that are in place within professional settings and sites of practice to support student learning. Where WIL is a structured part of a qualification, the volume of learning allocated to WIL should be appropriate to the purpose of the qualification and to the cognitive demands of the learning outcomes and assessment criteria contained in the appropriate level descriptors. (CHE, 2013:16)

WIL is seen as an important element in the learning repertoire as it provides key opportunities to explore the world of knowledge at the nexus of theory and practice (CHE, 2011). It contributes to graduate maturation and work-preparedness, and in the South African context it improves employability.

Research Chair's Definition of RPL

The Research Chair's definition of RPL is drawn from the draft RPL Policy developed by the CHE in March 2015 to guide the implementation of RPL in higher education. The CHE defines RPL as the "process through which non-formal and/or informal learning are measured, evaluated and "translated" into their perceived formal equivalents for recognition across different contexts. The intended outcome is the recognition of such prior learning for the purposes of alternative access and admission to higher education learning programme, or for advancement within qualification programmes. The draft policy further states that RPL processes and

Credit Accumulation and Transfer (CAT) and/or articulation are all closely related to assessment practices and together, these three elements enable individuals to move within and between non-completed qualifications on the HEQSF as envisaged in the NQF Act 67 of 2008. RPL is seen as the process for facilitating access to, and mobility and progression within education and training and career paths, (section 5 (1) (b) of the NQF Act); and also for accelerating the redress of past unfair discrimination in education, training and employment opportunities (section 5 (1) (d) of the NQF Act). RPL is therefore viewed as a process for providing alternative access and admission to higher education learning programmes, or for advancement within qualification programmes.

Policies that inform the Research Chair

The work of the Research Chair for WIL and RPL is underpinned by the following policies:

The Policy on Professional Qualifications for lecturers in TVET

This is the policy on Professional Qualifications for lecturers in TVET **that has been published by the Department of Higher Education and Training (DHET) in 2013.**

According to this policy, the lecturers are central to the educational activity in institutions that offer TVET. Sufficient, appropriately qualified and competent lecturers, who understand and have expertise in both the academic and work-related dimensions of TVET, are needed if the institutions that offer TVET programmes are to make the critical contribution expected of them (RSA, 2013: 3).

This policy takes into account the following:

- Lecturers are needed for all the subjects offered in TVET and lecturers need to be able to teach across the different NQF levels within their subject or field.
- Lecturers who teach TVET courses need to be competent in both the theoretical and practical aspects of the courses that they teach.
- A strong workplace component must be built into lecturer qualification programmes for programmes that prepare lecturers to teach the practical or workshop-based components of programmes, in order that lecturers are able to prepare learners for the demands and requirements of the workplace.
- Curriculum offerings in TVET institutions change as workplace demands change (for example, in response to the development of new technologies). Qualification programmes must also be able to respond flexibly and dynamically to industry-driven change. (RSA, 2013: 8)

According to this policy, lecturers' certification and professional development should include WIL both in teaching settings and industry-based settings (RSA, 2013: 15).

The policy places emphasis on the importance of integrating and applying different forms knowledge when the lecturer qualifications are developed. Such forms

include disciplinary learning, pedagogical learning, practical learning, situational learning and fundamental learning.

It is further stated that All TVET lecturers need to have up-to-date knowledge of the application in, and relevance to, the workplace of the subjects they teach ... to match developments in the field (RSA, 2013: 10).

With regard to RPL the policy states that:

Many of the students, who will enter TVET programmes, will be already practicing as TVET lecturers and/or have other prior qualifications and/or have gained substantial experience as a result of learning/practicing in the workplace. It is possible to recognize relevant prior learning that is already in place. A key principle that must inform RPL practice is that learning outcomes must not be compromised as a result of RPL practice. It must also be noted that, in terms of credit accumulation and transfer (CAT), not more than 50 % of the minimum credits contained in the new qualification can be recognized as prior learning (RSA, 2013: 14).

The 2015 Draft RPL Policy for the Higher Education Qualifications Sub-Framework (HEQSF)

The RPL related activities of the Research Chair will also be guided by the RPL Draft Policy that is being developed by the Council on Higher Education (CHE) to guide the development and implementation of RPL across the post-school education and training system, and across all levels of the NQF. The CHE (2015) provides a number of guidelines for the application of RPL within higher education.

At the moment, the Research Chair is guided by the policy on Professional Qualifications for lecturers in TVET **that** provides the following guidelines for RPL practice:

- For prospective students holding **relevant** prior qualifications, it is possible to provide recognition for credits earned in the prior qualification, provided that there is equivalence between the learning for which credits have been achieved in the prior qualification and the learning that will be 'credited' in the new qualification, both in terms of the learning content and the NQF level at which it is pitched; taking into account that what is recognized does not exceed 50 % of the credits in the new qualification.
- Prospective students who have completed the [30-credit] Vocational Education Orientation Programme (VEOP) can be given recognition for the credits making up the VEOP for similar learning in the new qualification.
- Prospective students who have undergone substantial learning in the teaching workplace or the industrial workplace as a result of meaningful workplace experience can present themselves for Assessment of Prior Learning (APL), against learning outcomes stipulated in the qualification for which they wish to register. Students cannot in this way be granted recognition for more than 50 % of the credits for the qualification for which they wish to register.

Importance of Partnerships

Literature indicates that there is enthusiasm around the world for greater participation and active involvement of the wide variety of interest groups in order to address the social and economic needs of the people (Teichler 2000; Foster and Stephenson 1998; Garrick and Kirkpatrick 1998; Teichler 1998; Birch 1988). Such enthusiasm stems from a belief that co-operative generation and application of knowledge and expertise could contribute to finding solutions to local, national and international demands. It is believed that higher education in partnership with communities, local and provincial governments, the private sector and international partners could play a major role in socio-economic development.

A review of research from Canada, United Kingdom and New Zealand also indicates commitment of the various governments in establishing sustainable partnerships for effective economic growth and community development (Craig, Dashfield and Thomson 2003). In Canada, the Community Access Programme (CAP) recommends that partnerships should be active, stable and multiple-source funded. In the United Kingdom, the government has committed to partnership with community groups and in New Zealand, the government has recently committed to working closely with the community sector (Craig, Dashfield and Thomson 2003).

Research methodology

Theoretical Framework

The Research Chair adopts the key theoretical constructs that underpin the notion of WIL. These include constructs that theorise the transfer and recontextualisation of knowledge as it moves in complex ways between university and workplace settings (Eraut 2004). The work of Activity theorists (e.g. Engestrom 2001) is used to enhance an understanding on how work and academic knowledge may be integrated as a platform for WIL in the process of developing WIL staff related qualifications.

Research phases or projects

- Understanding current WIL practice and WIL staff capacity development needs (including RPL) in the TVET sector (September 2015 – July 2016).
- Investigating Curriculum Development Processes, Partnerships and Policies for WIL staff related qualifications in the Post School Education and Training (PSET) sector (August 2016 – July 2017).
- Understanding RPL Policies and assessment practices and processes for Early Childhood Development (ECD) and Community Development Qualifications in the TVET sector (August 2017 – July 2018).

Research Questions for Work Integrated Learning (WIL)

The Research Chair will seek answers to the following research questions:

1. To what extent are TVET lecturers currently prepared for teaching WIL in industry settings in their particular TVET context? (i.e., in terms of curriculum, teaching, learning and assessment)
2. What are the existing practices with regard to the implementation of WIL in industry settings in the TVET context? (e.g., placement practices, partnership management, workplace accreditation, monitoring and evaluation)
3. What are the specific educational and workplace needs of TVET lecturers?
4. What is the current capacity of TVET lecturers to conduct educational research/evaluation in a WIL context?
5. To what extent are current TVET practices aligned with industry/workplace concerns, practices and needs?
6. To what extent are educational technologies used to enhance WIL practice in TVET?

Research Questions for Recognition of Prior Learning (RPL)

The activities of the Research Chair will contribute to national processes and procedures that have been planned to provide answers to questions that include the following:

1. What are the specific RPL needs of TVET lecturers?
2. Which prospective students (students could be practicing TVET lecturers) have other prior qualifications and/or have gained substantial experience as a result of learning/practicing in the workplace?
3. Which prospective students have completed the [30-credit] Vocational Education Orientation Programme (VEOP) that can be given recognition for the credits making up the VEOP for similar learning in the new qualification?
4. Which prospective students have undergone substantial learning in the teaching workplace or the industrial workplace as a result of meaningful workplace experience that can present them for **assessment of prior learning** (APL), against learning outcomes stipulated in the qualification for which they wish to register?
5. What progress has been made in relation to RPL implementation across the TVET sector?
6. What is the quality of RPL implementation?
7. What are the barriers to RPL implementation?
8. How can RPL be further developed and implemented effectively and efficiently on a wide scale across the TVET sector?

Intended outcomes of the Research Chair

The following outcomes are intended to be achieved as a result of the research currently underway.

1. To contribute to knowledge in vocational and professional education through RPL and WIL partnerships.
2. To formulate recommendations towards transforming the TVET sector and providing opportunities for TVET College staff to facilitate WIL effectively and efficiently.
3. To add insights and depth to knowledge of WIL in TVET curriculum and practice, and contribute to national plans for TVET college staff development through formal qualifications.
4. To benefit the staff and students of other partners involved in the project, in terms of research capacity development.
5. To build knowledge in the field of RPL and WIL in order to enhance an understanding of the relationship between the academic world and the world of work.
6. To strengthen partnerships between UoTs, TVET Colleges, workplaces and other stakeholders in terms of WIL and RPL.
7. To encourage collaborative action for the promotion of WIL and RPL within higher education institutions, and at regional, national and international levels.

Data collection methods and processes

The following section describes data collection methods and processes that relate to Project 1 which aimed at understanding current WIL practice and WIL staff capacity development needs (including RPL) in the TVET sector. The data collection methods were in line with the research design of the Research Chair which is characteristic of both quantitative and qualitative approaches.

Designing research instruments with TVET Colleges and related stakeholders

To ensure that there was a collaborative discussion process for designing, and revising research instruments, a workshop was organised to discuss the questions with representatives of the six TVET colleges in the Western Cape, the Western Cape Education Department (WCED), the South African College Principal's Organisation (SACPO), the ETDP SETA and CPUT staff at a workshop held at Granger Bay on 12 October 2015. The TVET College staff participated actively in revising, adapting, and adding questions. The involvement of the TVET staff in refining the research questions was an attempt to ensure relevance and applicability of the research questions to the TVET context and to clarify that the research journey was collaborative, co-owned and beneficial to all those involved.

Data collection and analysis

The questionnaire which was revised and developed further was set up on Survey Monkey and distributed to more than 1000 TVET staff in all the provinces of South Africa as an on-line questionnaire. The questions for the focus group interviews were piloted at a DHET-TVET WIL forum meeting held on Thursday, 17 March 2016 in the Western Cape. The responses to the questionnaire were followed with 18 focus group interviews (i.e. 2 focus group interviews in two colleges per province). The collected data was analysed quantitatively and qualitatively.

Research findings and enabling factors for the research chair

Research findings

The following research findings only relate to data that was collected by means of a survey. The focus group interviews are still in an analysis stage. The research findings that are presented below only relate to an understanding of WIL and RPL staff capacity development needs.

Education and training needs of WIL practitioners

Respondents were asked to identify their needs as a WIL practitioner in terms of education and training. Overall respondents highlighted that they wished to gain additional skills and training relevant to their areas of specialisation. Needs were also largely centred around keeping up to date with changes in industry. For example, respondents noted the following:

> *The techniques and information development changes often. We need to be able to keep up with new ideas and information development.*
>
> *Is to understand the changes of the industry compared to what the students are studying in schools currently.*

Specifically, the need to know about changes with regards to technology was emphasised:

> *I need to integrate latest industry technology into our syllabus.*
>
> *Gain more exposure to the industrial sector in order to keep up with new technology at industry.*
>
> *To be capacitated and equipped in different industries technologies and processes.*
>
> *More exposure to work places and technological training to align myself with modern technology.*
>
> *Being placed in the workplace to be exposed to the most current technological developments.*

Staff also noted the need to have training to allow them to become better teachers in their subject areas:

WIL will help me become a better educator, it is useless to teach our students the curriculum without the knowledge of what the industry need from them. With WIL I am able to integrate my teaching with the work place.

Staff need to be exposed to the industry so that they can relate this knowledge to the syllabus.

Understanding the industry better and the ability to link knowledge gained in the industry with the classroom knowledge.

In particular, 12 % of respondents also noted the need for more practical exposure to learning content, and work experience for both teachers and students so that they are able to link theory with practical experience, for example:

Place students to expose them to business environment before they finish their studies as to realise the importance of ethics and code of conduct etc in the workplace and also to see the bigger picture as a whole while studying. Combination of Theory and Practical.

To give me an inside of the connection between what is taught in business studies with what is happening in the real business out there.

Exposure to practical application of subjects in business and industry.

Practical exposure in water treatment L2, beer industry L4, electronics L4.

Practical work for marketing, for example, design a product, or promotional strategy.

To do the practical job to see if the theory can be practiced.

I need hands on learning in industry in order to transfer that in my classroom.

A further 7 % of respondents highlighted the need for management skills, specifically in project management, coordination, financial management, negotiation and facilitation, for example:

How to approach Companies

Making presentations, networking, how to do Service Level Agreement with employers. SSACI (Swiss South African Cooperation Initiative) has already helped us with the basics like how to recruit students, prepare them for WIL, prepare employers, etc.

How to comply with companies that place our students for training in their industries.

Additionally, 3 % of respondents indicated the need for training around how to implement WIL, for example:

How to link up with the different workplaces to ensure that WIL takes place as it should.

Two respondents noted the need for training in teaching methodology (to improve their teaching skills), and 4 % highlighted a need for training in their area of speciality, for example,

I need training in my field of specialist Economics.

As an electrical engineering lecturer I need the following: PLC (Programmable Logic Controller) training, Oscilloscope training, DC (direct current) machines training, Single-phase motors, etc.

Specialised baking courses to refresh.

Latest trends in Mathematics with specific emphasis on how to catch up basic skills which students do not know from the primary grades (e.g. fractions).

Another important training area identified was in regard to developing assessment skills, with nine respondents highlighting this need:

To assess the learner on both the formative as well as the summative assessment, by monitoring and evaluating the student at all times, to determine the progress and the relativeness of the job and the field of study.

Assess the learner, both formatively and summative against all unit standards as relevant to this Work Readiness Programme.

Training in Monitoring and Evaluation.

Assessor and moderator training.

Further, 3 % of respondents specifically noted that the WIL placements need to be directly relevant to what they need to learn:

Placement RELEVANT to improving my skills as a Mathematics lecturer. To observe bookkeeping or SARS or a bank really will not make me a better lecturer. I teach Engineering students. If an Engineer at a large company could show me the application of mathematics in the industry that would be useful, but we get no guidance or assistance on relevant placement.

Lecturer's should be send for courses that are relevant for their needs, or their shortcomings they might have.

Only 10 % of respondents were able to highlighted specific education areas they wanted to improve, for example:

Getting a teachers qualification (PGCE).

I want to further my studies in the Education field for Masters in Education.

Diploma in ODETP.

Preferably a qualification that is in line with either business or engineering studies and strong administration and communication skills.

Certificate in Business to business marketing, Human Resource Certificate, Project Management Skill.

Of these 10 %, a quarter highlighted the specific need for project management skills.

Acknowledging Recognition of Prior learning (RPL)

RPL presence and implementation at colleges

Respondents were asked whether RPL was implemented at their colleges. Only 18 % of respondents indicated that RPL is implemented at their college. However, there were disparities noted within colleges, where some respondents indicated that RPL was implemented while others indicated that it wasn't. This may be attributed to lack of understanding or familiarity with RPL.

Previous experience relevant to RPL

Respondents were asked whether they have any experience and knowledge gained from informal learning that they think should be recognised (as part of RPL) towards their qualifications or promotion. Almost a third (31 %) noted that they do have previous experience that is relevant to RPL. When asked to explain their responses, some were able to substantiate their responses, noting the experience that should be recognised, for example:

I worked for more than 25 years in industry on the mines and at hospitals where I gained a lot of experience and I feel that knowledge helps me a lot in the classroom.

I have so much experience in agriculture and have acquired informal qualification.

Retail industry experience and banking experience especially in customer care management.

I have been working for 13 years in the Business world before teaching at the College.

I have a qualification in project management and it is not recognized in terms of my salary payment.

Enabling Factors for the Research Chair

Through its focus on WIL, RPL and development of new WIL-related qualifications for TVET staff, the Research Chair is well-placed to initiate discussions, stimulate debate, strengthen partnerships, and encourage communication and collective action with a variety of interest groups at regional, national and international levels. The processes for developing and implementing HEQSF aligned and WIL-related qualifications as well as RPL practices will involve a wide range of stakeholders that will have to communicate and take action collectively. Such stakeholders include industry, government, SETAs, Quality Councils, TVET Colleges and universities.

In addition, the following factors provide an enabling environment for the Research Chair to create platforms for discussion forums:

Existing MoU between the South African Technology Network (SATN) and the South African College Principals Organisation (SACPO)

South African Universities of Technology have a well-coordinated network that signed an agreement with SACPO. Consequently, there are collaboration initiatives that are taking place between the TVET sector and the UoT sector. Such initiatives relate to articulation and joint programme offerings.

SATN National Committee on Programmes and Qualifications with its national WIL Task Team

SATN promotes communication and interaction through its national committees. One of its committees is the Programmes and Qualifications Committee that has a dedicated national task team for WIL. The task team is composed of WIL directors that liaise with all the Faculties and facilitate WIL at an institutional level).

Through the national WIL Task Team, it is possible for the Research Chair activities and research partnerships with TVET colleges to be discussed and implemented at national level.

The Department of Higher Education and Training (DHET) and SACPO support for the research

In its ethics approval letter, DHET expressed an interest in and support for the research. SACPO offered assistance for the Research Chair to get buy-in and support in the TVET sector and also expressed an interest in playing a monitoring and evaluation role. In addition, some of the TVET College Councils granted permission for the research to be conducted.

Feedback on presentations and discussion forums

The Research Chair activities were presented to the TVET Chamber and the Provisioning Chamber of the ETDP SETA on 7 and 14 March 2016 in Johannesburg. A presentation on the Research Chair activities was also done at the TVET- HE Research Colloquium which was organised by the ETDP SETA on 16–17 March 2016 in Johannesburg.

Summary

The Research Chair's aims of providing knowledge and insight into WIL practice and staff development needs in terms of RPL, curriculum design, WIL facilitation, WIL assessment, WIL partnership management and WIL research, are presented. Also presented are the research findings that relate to WIL and RPL staff capacity development needs in the TVET sector. Such identified needs have to be addressed through the development of a range of WIL related qualifications which are stipulated in the Higher Education Qualifications Sub Framework (HEQSF).

The development of WIL related qualifications requires robust partnerships between relevant stakeholders. It has been argued that an integrated approach that allows for greater participation of a wide variety of interest groups is key for the success of any intervention. Such participation encourages communication, constructive feedback and collective action that in turn ensure quality, effectiveness and efficiency. The Research Chair for WIL and RPL adopts this approach with the purpose of promoting effective and efficient WIL and RPL processes during its process of developing and implementing WIL related qualifications. It is against this background that the Research Chair calls for partnerships at regional, national and international levels.

The Research Chair also adopts an approach to research that encourages research for action with the aim of contributing to WIL staff development, development of necessary graduate attributes through WIL, graduate employability, development of WIL partnerships, socio-economic development and South Africa's economic

growth. This type of research is in line with the National Development Plan and therefore needs the support of a wide variety of interest groups.

An argument is put forward that for students to receive meaningful WIL and become employable citizens that contribute to their country's economic growth, they need qualified and competent staff that is able to facilitate and manage WIL effectively and efficiently. The planning and implementation of WIL is a complicated process and it should be understood that WIL involves curricular, pedagogical and assessment considerations that differ from those of general programmes. It is therefore necessary to develop WIL related qualifications that are of high quality and credible. Such credibility can only be guaranteed if all relevant stakeholders are included in the planning, implementation and evaluation processes.

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Teachers understanding of Entrepreneurship Education in Malawi Secondary Schools

Feggie M. Mphasi

Abstract

Education programmes in entrepreneurship are a new phenomenon in Malawi. The onset of the new Secondary School Curriculum Assessment Reform (SSCAR) has seen entrepreneurship topics introduced in technical subjects such as Agriculture, Metal Work, Wood Work and Technical Drawing. Despite introducing entrepreneurial concepts in the above subjects, the teachers of the subjects have not had prior training in entrepreneurship. Knowing that a successful education system is critically dependent on the quality of the teaching involved, research into teacher education therefore remains a priority. While teacher content knowledge is crucially important to the improvement of teaching and learning, attention to its development and study has been uneven in the Malawian setting and internationally. Debates have focused on how much preparation teachers need in the content strands rather than on what type of content they need to learn.

This study used focus group discussions and interviews with key persons. The focus of the study was to find out how the teaching of entrepreneurship concepts in technical subjects in Malawi secondary schools is affected by the teachers' entrepreneurial content knowledge and what should be done to improve entrepreneurial PCK. More especially, the paper has examined the entrepreneurial reasoning, insight, understanding, and skills required for a person to teach entrepreneurship.

Based on preliminary literature review and entrepreneurship report analysis, the article reveals lack of support and disorganisation of the process. The article concludes that the perplexity is as a result of lack of appropriate teaching pedagogy and support leading to poor governance. This article will help entrepreneurship education policy advocators to understand how best to implement entrepreneurship education by first training the implementers; teachers in this case.

Introduction

The Ministry of Education, Science and Technology (MoEST) in Malawi introduced a new Secondary School Curriculum Assessment Reform (SSCAR) which has incorporated entrepreneurship. The SSCAR has been implemented in the 2015−2016 academic year in all Malawian secondary schools. The SSCAR has included topics on entrepreneurship in all subjects. However, in order to attain the SSCAR objectives, teachers of entrepreneurship need to possess not only general pedagogical skills, but also content skills in entrepreneurship together called pedagogical content knowledge (PCK). Despite this, the training of the teachers to acquire entrepreneurship knowledge has not been emphasized. Pedagogical content knowledge (PCK) is one of the seven knowledge domains for teaching (L. Shulman, 1987). The study aimed at assessing the entrepreneurial reasoning, insight, understanding, and skills required for a person to teach entrepreneurship. Specifically, the study aimed to: (1) investigate technical education teachers' content knowledge of entrepreneurship, (2) find out teachers' views about entrepreneurship education, and (3) examine entrepreneurship teacher preparation.

Entrepreneurship education in Malawi schools

Entrepreneurship education includes all activities aiming to foster entrepreneurial mindsets, attitudes and skills and covering a range of aspects such as idea generation, start-up, growth and innovation (Arasti, Falavarjani, & Imanipour, 2012; Fayolle, Gailly, & Lassas-Clerc, 2006b). In an effort to improve the relevance of education in order to meet the needs of the students, potential employers and the nation and to strengthen the need to equip the youth with skills necessary for the survival regardless of attainment of tertiary education or not, the Malawi government has revised its secondary school curriculum to equip the youth with knowledge and life skills (Ministry of Economic Planning, 2002; Ministry of Education Science & Technology, 2002). In addition, the national goals of education, among other things, include the promotion of occupational and entrepreneurship skills, practical skills and ethical and socioeconomic skills (Ministry of Education Science & Technology, 2001). This can thus best be achieved through formal teaching and learning of entrepreneurship from the grassroots level. However, Ministry of Economic Planning (2002) observed that the provision of entrepreneurial schools cannot just happen overnight across Malawi owing to lack of qualified teachers to teach the subject and that this may in the long run defeat the whole purpose of the government's goal to take Malawi from the doldrums of poverty by the year 2020. Still more, despite this observation by Ministry of Economic Planning (2002), the SSCAR curriculum was still introduced before entrepreneurship teachers were trained. This has resulted in teachers without any or with little knowledge of entrepreneurship education teaching concepts of entrepreneurship in schools.

Currently, entrepreneurship has not been included as an independent subject, but rather as mere topics in different subjects. The topics are taught by teachers of

the specific subjects, the majority of whom do not know anything about entrepreneurship. This has resulted in lack of knowledge about the purpose for teaching entrepreneurship in secondary schools (Grossman, 1990; Magnusson, Krajcik, & Borko, 1999). The "knowledge of purpose of teaching the subject matter" indicates the knowledge about the purposes for teaching a subject in horizontal and vertical views. The horizontal view refers to the general principle of teaching a particular subject, whereas the vertical view refers to the goal of teaching a subject at a particular level. This knowledge is regarded as the most important PCK component (Grossman, 1990; Magnusson et al., 1999) because it guides teaching reasoning and instructional decisions. This knowledge guides teachers to reconstruct subject matter knowledge and to represent the subject matter knowledge in a comprehensible way. It filters the subject matter knowledge of teachers through teaching reasoning, which distinguishes teachers from content experts. Besides the holistic understandings of subject matter knowledge, teachers should also understand and decide what to teach and how to teach.

Consequently, the lack of the right people to teach entrepreneurship has led to disorganisation of the teaching of the concepts as well as poor governance of the same in Malawi.

Concept of PCK

According to Shulman, PCK is a special combination of content and pedagogy that is uniquely constructed by teachers. It represents the blending of content and pedagogy into an understanding of how particular topics, problems, and issues are organised, represented, and adapted to the diverse interests and abilities of learners. Cochran, King, and DeRuiter (1991) agrees with L. Shulman (1987) saying that PCK is the transformation of subject matter knowledge and general pedagogical knowledge. Kuratko (2005) however, argued that PCK is a separate category fuelled by subject matter as well as pedagogical and educational context knowledge. PCK can thus be said to be a concept that combines the knowledge of the content, for instance entrepreneurship, and metalwork; to the knowledge of the pedagogy, for instance, how to teach entrepreneurship or how to teach metalwork, giving insights into educational matters relative to the learning and teaching of a topic.

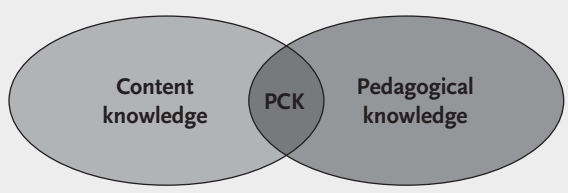

Fig. 1 Pedagogical content knowledge (adapted from Mueller et.al, 2014)

Despite the lack of consensus, researchers agree that the unique qualities of PCK are important in understanding teaching and education. This therefore means that

the lack of knowledge in entrepreneurship by teachers of technical and Vocational Education (TVE) subjects in Malawi is bound to bring a lot of challenges to them as teachers and to the attainment of the whole goal of introducing entrepreneurship in secondary schools. It should be noted that entrepreneurship education was mostly introduced in secondary schools to help learners develop a high entrepreneurial self-efficacy that will help them to venture into establishing own trades using skills attained in TVE subjects. Bae, Qian, Miao, and Fiet (2014) pointed out that entrepreneurial self-efficacy can only occur if the teaching of entrepreneurship is done in the same manner like the other subjects such as mathematics; where only those who are trained as mathematics teachers are supposed to teach mathematics.

Against this background, the paper is looking at the nature and extent of the pedagogical content knowledge among Malawian secondary school TVE teachers as they are required to teach entrepreneurship concepts for the first time. The discussion will be based on a modified model based on ideas of Shulman (1986; 1987) regarding pedagogical content knowledge. Shulman first introduced the PCK concept into the educational realm after he had noticed that policies that dealt with teacher competency in the 1980s ignored content and focussed largely on basic pedagogy. He also realised that there was a gap in research regarding subject matter content and that research literature on subject matter content teaching was lacking. The missing content became a matter of serious concern such that after a study on knowledge growth in teaching, they focused on content knowledge.

Methodology

The study used a qualitative paradigm where, focus group discussions (FDGs) and interviews with key persons were used to ensure validity and reliability of the findings. Altogether, three FGDs and two interviews were conducted. In addition, records indicating submission of lesson plans were also checked with the school authorities.

Discussion of the Findings

Technical education teachers' content knowledge of entrepreneurship

The study found that most teachers were lacking in entrepreneurship content knowledge as indicated from the responses in the FDGs. For example one teacher said that:

> "I have never learnt anything called entrepreneurship before, the only time I ever heard of it is when I saw the topic in the book"

Another one had this to say:

> "I thought entrepreneurship is business? So I just tell the learners to start businesses"

Such sentiments from teachers of the subject show that learners are not taught the concepts of entrepreneurship as spelt out in the various curricula. This therefore indicates that teachers fail to understand and transform subject matter knowledge for teaching purposes (Shulman, 1986). The transformation of subject matter knowledge involves a series of actions from the "preparation" of materials, "representation" of the ideas in various forms, "instructional selections" of teaching methods to "adapting" and "tailoring" instruction to specific learners and context (Shulman, 1987, p. 16). Furthermore, an effective teacher needs to master the subject matter knowledge of the subject that he or she teach, as well as the pedagogical knowledge related to the subject (Sipon, Pihie, Rahman, & Manaf, 2015). One key interviewee blamed the lack of knowledge on the hasty way entrepreneurship was introduced in the secondary school curriculum which led to teachers not being trained in the concept of entrepreneurship. However according to government records (Ministry of Economic Planning, 2002; Ministry of Education Science & Technology, 2002), there was ample time to allow for training of teachers from the time the idea was first hatched to the time entrepreneurship concepts were implemented in the syllabus. This shows a lack of support to teacher training by the government which has consequently led to lack of teachers' content knowledge of entrepreneurship, a vital component of PCK as asserted by Shulman (1986, 1987).

Teachers' views about entrepreneurship education and curriculum

Curricular knowledge represents the fundamental pedagogical feature of PCK (Magnusson et al., 1999) and relates teachers and students in school to the education goals. Knowledge of curriculum by teachers, mostly, indicates teaching objectives in school context are met, and also can help teachers, especially novice teachers, to develop their teaching style (Johns & Iredale, 2010). In the case of Malawi, most entrepreneurship teachers are novice teachers because almost all of them have never taught entrepreneurship before.

The study found that teachers have embraced entrepreneurship education in all VET subjects in secondary schools simply because they are supposed to ensure its implementation. However most of them do not know why it has been included in all subjects in secondary schools owing to their lack of knowledge of the Malawi curriculum despite every syllabus highlighting the curriculum at the beginning. All of the participants of the FDGs and the key persons interviewed were of the view.

Design of Current Technical and Vocational Education and Training (TVET) System in Zambia

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Abstract

The paper discusses the design of the current Technical and Vocational Education and Training (TVET) system in Zambia by considering the organisation, policy and legal frameworks and regulation of the sector. Also discussed is the national qualifications framework and the learning pathways are the institutional arrangements (ranging from Ministerial to Training institutions) and levels of training. The relationship between the Science, Technology and Innovation (STI) and TVET in Zambia is described. Challenges of TVET are also described. Recommendations are made on how to strengthen this relationship for the benefit of the TVET sector and citizens in the Southern African Development Community (SADC). These recommendations are made on STI and TVET sectors having regular interactions and exchange of information, SADC nations having greater networking and sharing of information, key stakeholders in the TVET sector interacting much closely and regularly.

Keywords

Technical and Vocational Education and Training; Science, Technology and Innovation; Southern African Development Community.

Country context

Zambia is a land-linked country with eight neighbouring states. The estimate population is: 14.5 million with 10 provinces and 100 districts. There are 73 tribes with 7 local languages used on electronic media and taught in schools. The official language is English. The economy comprises a mixed economy consisting of a modern urban sector and a largely rural agricultural sector.

Current TVET system

The Government of Zambia, through the Ministry of Higher Education has been working on reforming its system of technical education, vocational and entrepreneurship training (TEVET). This has been done through Policy Review, enactment of new legislation and adoption of strategies to implement the TEVET Policy. In 1996, the Government issued a policy document, i.e. Technical Education, Vocational and Entrepreneurship Training (TEVET) Policy. This policy underwent some review in 2008 and is still undergoing some review. The review is being undertaken in order to address changes in the socio-economic set-up of the nation.

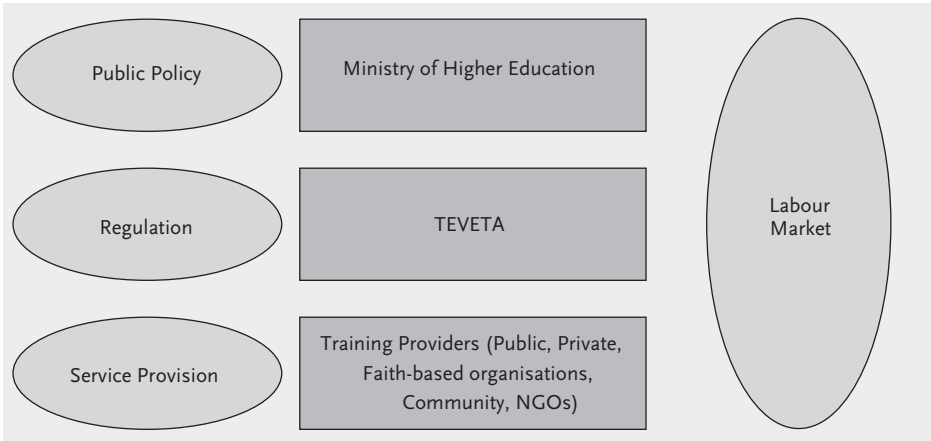

Fig. 1 Functional Structures of the TVET system in Zambia

Regulation of TEVET

The TEVET Act also led to the creation of the Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA). TEVETA's function is to regulate and monitor Technical and Vocational Education and Training (TVET) in Zambia. TEVETA does this through inspections carried out by part-time inspectors in all the provinces and through full-time staff based at its' headquarters in Lusaka. TEVETA is also responsible for the development and review of national curricula. It facilitates the development of local curricula for training institutions. The TEVET Act of 1998 has since been reviewed with the TEVET Act No. 11 of 2005 having since been enacted.

Department of Vocational Education and Training

In 2000, the Department of Technical Education and Vocational Training (DTEVT) was dissolved. In its place TEVETA was established. With the dissolution of DTVET, the 23 institutions which it managed, were placed under management boards. The Department of Vocational Education and Training (DVET) in the Ministry of Science, Technology and Vocational Training was created to formulate,

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monitor and evaluate the TEVET Policy. The department also promotes TEVET and also assesses the impact of TEVET programmes. Another function of the department is to increase stakeholder participation in the provision of TEVET. Before the current TVET reforms that started in the nineties, TVET provision was mostly done by public institutions. Currently TVET provision is done by private institutions, faith based organisations, trusts and community based institutions. The department has two units: Entrepreneurship and Skills units.

Entrepreneurship and Informal Sector Training

The TEVET Act led to the creation of entrepreneurship and informal sector training. This was meant to address the shrinking formal sector. Many African nations have experienced shrinking formal sectors. This has been due to embracing economic reforms. These reforms have been characterised by privatisation of parastatals, reduction of the formal sector through retrenchments. The shrinking formal sector has led to the growth of the informal economy (Konayuma, 2006:3).

Organisation of TVET

The TVET sector is organised into three major parts: policy making, regulation and training provision.

- The Ministry of Higher Education (MoHE) through DVET is responsible for TVET policy making and monitoring of the sector.
- TEVETA is responsible for regulation of the TVET sector.
- Registered training institutions offer training. Public institutions are under TVET sector ministries such as General Education, Community and Social Development, Higher Education, Tourism, Environment and Natural Resources. These ministries in addition to Labour and Social Security and Commerce and Industry belong to a TVET Inter-Ministerial Committee which discusses issues of common interest and concern in TVET. Apart from the Committee, the Chief Executive Officers of these ministries are supposed to meet at least twice a year.

The table below shows the distribution of training institutions by province:

Tab. 1 Distribution of Training Institutions – 2014

Province	*Number of institutions*	*Percentage of training institutions*
Central	14	5 %
Copperbelt	76	26 %
Eastern	12	4 %
Luapula	11	4 %
Lusaka	110	38 %
Muchinga	5	2 %
Northern	5	2 %
North – Western	12	4 %
Southern	35	12 %
Western	8	3 %
TOTAL	288	100 %

Source: TEVETA (2014).

Levels of Training

Training in TVET sector in Zambia is offered at the following levels:

- Trade Test
- Craft
- Technician
- Technologist/Diploma.

Entry requirements into these levels differs. Trainees come from primary, secondary and other training institutions. The general education system which feeds into the TVET system follows a 7–5 system. Primary education is 7 years and secondary education is 5 years. Secondary education has two years of Junior Secondary School and three years of high school. Tertiary education ranges from 1–7 years. The TVET sector enrolls about 35,124 learners (2015) in 300 institutions. A two-tier system has been introduced where students in selected secondary schools in grade 10 do both academic and vocational subjects. This is to enable such students fit into a vocational career path and be self-employed after secondary school. The TVET training levels are part of the Zambia National Qualifications Framework as shown in this diagram:

ZQF Level	Schooling	Technical and Vocational Education and Training	Higher Education
10			Doctorate Degree
9			Masters Degree
8			Post-Graduate Diploma
7			Bachelors Degree
6		Diploma	
5		Advanced Certificate (Technician)	
4		Certificate (Craft)	
3		Trade Test Certificate	
2	High School (Grade 12 Certificate)		
1	Basis Education (Grade 9 Certificate)		
Quality Assurance Body (Appropriate Authority)	Ministry of Education	TEVETA	Higher Education Authority (To be established)
Co-ordinating Body	**THE ZAMBIA QUALIFICATIONS AUTHORITY (ZQA)**		

Fig. 2 The Zambia National Qualifications Framework (Source: UNESCO, 2016)

Learning pathways

TEVET is currently based on six learning pathways i.e.

1. Institutional Based Traditional Face-to-face training
2. Secondary School Vocational System (Two-tier system)
3. Learnership System
4. Work-based Training System
5. Open and Distance Learning (Flexible and Blended Learning)
6. Recognition of Prior Learning (Assessment Only)

In-service training for teachers and other staff in vocational training

TEVETA requires that all lecturers in vocational colleges undergo pedagogical training apart from their professional qualification. Lecturers or trainers without pedagogical training undergo pedagogical training mainly at the Technical and Vocational Teachers' College in Luanshya. This training is normally short-intensive training that takes places during vacations or long term training that extends from 1 to 3 years. In-service training is also done for staff to improve their professional skills. This training is done locally or internationally and is supported by funding

from colleges, the Government, co-operating partners and international organisations. The training ranges from full-time, distance learning and online learning. Challenges of in-service training are that the numbers of trainers requiring training in various skills is larger than can be trained at any given time.

Issues and concerns of the Zambian TEVET system

The main issues and concerns of the Zambian TEVET system are quality, access and equity.

Quality

TEVTA carries out inspections in order to ensure that training offered in institutions meets its minimum standards of training. Some institutions do not register with TEVETA and thus offer unsuspecting trainees poor quality training. MSTVT through TEVETA is making every effort to ensure that the quality of training offered to trainees is of high quality and produces trainees that are of good quality. In 2008, more than 100 institutions were de-registered due to not meeting the minimum standards of training. Training institutions often face the challenge of offering quality training vis-à-vis quantity training. There is need to strike a proper balance. Institutions need to have relevant curricula that satisfies the needs of the trainees and industry.

Consultative meetings among key stakeholders are used to improve the quality of training. Signing of performance contracts and disbursement of funds (TEVET Fund) to support training also play a big role in improving quality training. Relevant curricula that satisfies the demands of industry also helps in enhancing quality. Learning outcomes of TVET curricula is supposed to match occupational profiles in industry. Curriculum design in TVET in Zambia is done using a mix of TVET trainers, staff from industry, professional associations and staff from Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) and government ministries. The curriculum is designed for various programmes ranging from Construction, Tailoring and Design, Information and Communication Technology, Carpentry and Joinery, Hospitality and Tourism etc. New programmes are developed when a training need is identified by training institutions, communities or industry. Existing programmes are reviewed in a similar manner.

Currently, TEVETA manages the curriculum design and review process by supervising the curriculum development teams and providing guidance. The curriculum is developed by developing occupational profiles for various skills levels of training. These are then used to develop curricula indicating the learning outcomes expected of trainees after the end of each learning programme (Konayuma, 2007: 4). Consultative meetings, inspections, articles in the media are some of the ways being used to improve training quality. MoHE organises consultative fora with TVET stakeholders every year. During the Stakeholders Consultative Forum,

the Minister reports on activities that the ministry has undertaken in the previous year. The Forum is also a planning meeting for the coming year. Resolutions are made on activities that various Stakeholders will undertake in the coming year.

Access

Ensuring that various types of persons access the TVET system is a big challenge. Efforts to address this challenge are being addressed by encouraging various stakeholders to be involved in training provision and encouraging distance learning. Distance learning however is only provided by 2 % of registered institutions. The ministry, TEVETA and TVTC (a leading provider of distance learning among TVET providers in Zambia) have planned various strategies to promote the introduction of distance learning by other TVET providers. Recognition of Prior Learning is also seen as another way of increasing access to those that could have previously disadvantaged into entering TVET institutions. In 2007, Zambia hosted a Commonwealth Association of Polytechnics in Africa Conference where best practices in Recognition of Prior Learning were shared. The conference also shared steps that some African nations had made in establishing qualifications frameworks in their nations. Further collaboration is required to ensure that nations can benchmark their practice against best practices within the Continent and outside. Then African nations will "ensure that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programmes" (UNESCO, 2005: 1).

Equity

The government and some training providers have introduced bursary schemes in order to address the issue of equity. Policies for gender, disability and HIV & AIDS have been developed and are being implemented. In a joint study that Botswana and Zambia did in 2006 it was noted that some TVET institutions had made significant progress in implementing effective HIV & AIDS programmes.

Linkages

The Ministry of Science, Technology & Vocational Training has noted the importance of strengthening linkages between TVET and Science & Technology. This is because both sectors are inter-dependant and complement each other.

Other issues are:

- Learner dropouts due to unethical work behaviour by some learners.
- Some training institutions expect to reap great financial benefits from employers that they have signed agreements with;
- Employers having a predefined learning material and learning instruction when there is a curricula that already exists in Zambia;
- Shifting goal posts when the training/learning programme has already commenced.

Reflection

The modes of training that have been outlined help to enhance the quality of the learning environment since learners have access to modern training equipment and facilities. Therefore, the learners have greater familiarity with the work environment in a chosen career and these training methods provide a way of networking between training providers and industry.

Future Plans

a) Legal Framework-Revision of the Apprenticeship Act to specify the roles which the key players will perform. In the interim, a framework and guidelines on implementing the Apprenticeship programme will be developed.

b) A National Skills Gap Survey is being undertaken by the Ministry of Labour together with stakeholders which will inform us of the missing skills that contribute towards socio-economic development of the country. The outcome from the survey will form part of the indicators for curriculum review and development by TEVETA.

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Competency based education and training for training of trainers in Vocational Education in Namibia: A curriculum evaluation

Lance P. Hauuanga

Abstract

An education programme is closely related to the economy and society and vocational education is achieving great prominence in Namibia. Namibia's Vision 2030's goal to become an industrialised and knowledge-based economy has emphasised the need to strengthen Vocational Education and Training (VET) and to align it to serve the current and emerging needs (ETSIP, 2006).

I became aware of the increasing number of people who are acknowledging that qualified VET trainers are needed in the country to reform and develop Vocational Education and Training (Formal debate on the Implementation of CBET in Namibia: 2010). The quality of vocational education greatly depends on the quality of its training force within the various institutions. In April 2016, the Namibian government has introduced an action plan the " Harambee Prosperity Plan(HPP)" towards improving the quality of the training staff and to increase the number of qualified VET trainers from 15,000 in 2015 to 25,000 by 2020 (HPP, 2016:45). Research has shown that there is mounting interest worldwide in the potential of developing qualifications for Vocational trainers that support attempts to improve trainer quality, enhance the relevance and industry acceptance of recognised training and bolster skill development within the broader economy.

The rationale to prioritise and invest in VET is strong and convincing and stems from the recognition of VET as a source of skills, knowledge and technology needed to drive productivity in knowledge-based and transitional societies for the twenty-first century (HPP, 2016:44). A higher quality of Vocational Education and Training is necessary in any country in order to supply a high quality labour force. In Namibia, the quality of vocational education will greatly depend on the quality of its training. "Developed economies were not built by PhD holders, but by craftsmen

and artisans. We cannot expect development without these requisite skills" (HHP, 2016:44). It is evident from the afore-mentioned statement that the role of qualified trainers will play a vital role in every society because they produce artisans and craftsman needed to develop and enhances the country's economy.

Summary

Historically, the Government of Namibia, through a financing agreement with the European Commission for the Namibia Human Resource Development Programme (NHRDP), designed and established Vocational Instructor training programmes at the then Polytechnic of Namibia (PoN) in 1998. The initiative was launched in 2001 and the Instructor Training Programmes (ITP) have been offered at the institution since then. The training programmes that were accredited by the Namibia Qualification Authority (NQA) as academic qualifications aimed at the development of pedagogical skills of individuals pursuing a career as an instructor in VET in Namibia. The targets for these qualifications are pre-service and in-service vocational instructors. The qualifications were developed to cater for instructors operating in a Competency Based Education and Training (CBET) system.

To provide these training programmes, a Department of Technical and Vocational Education and Training (DTVET) in the Faculty of Engineering was established in the then Polytechnic of Namibia. This department was established to develop structures and processes and create professional development opportunities to ensure the optimum alignment of the NTA requirements to the broad industry needs.

In early 2008, the Programme Management Unit for the establishment of the Namibia Training Authority (NTA) and the Ministry of Education (MoE), appointed foreign consultants to review the ITP that was offered by the then Polytechnic of Namibia (PoN) and it was intended that this review would be future orientated and focus on the relevancy of the course content, the structure and duration of the programme, the delivery methods, course assessment and the target groups of the programme.

Based on the review of the ITP, it was agreed with the recommendations from the consultants to replace the ITP with Unit Standard Qualifications for VET trainers that are consistent with the policies and procedures of the Namibia Qualification Authority (NQA) and articulate with the relevant Technical and Higher Education qualifications under the Namibia Qualification Framework (NQF). With these recommendations as point of departure, DTVET commenced with the curriculum process to develop a set of Unit Standards (USs) provided by the NTA and to present it to the major stake holders in VET at the end of April 2009.

The following training programmes based on USs were developed and registered on the Namibia Qualification Framework (NQF):

- Certificate in Vocational Education and Training: Trainer NQF Level 4

- Higher Certificate in Vocational Education and Training: Trainer NQF Level 5
- Diploma in Vocational Education and Training Management: NQF Level 6

The three training programmes are offered full-time, part-time and in distance education modes. The Certificate and Higher Certificate programmes can be completed in one academic year, whereas the Diploma can be completed in two years. The training programmes employ a CBET model for the course delivery.

This paper evaluated the existing curricula designed to encompass CBET for the training of trainers within the context of VET in Namibia. Results derived from this paper could promote curriculum reform and implementation thereof.

Empirical results

- There are currently 154 trainers in the Public VTCs and 58 trainers in the Private VTCs.
- 88 graduates from the Certificate programme (NQF Level 4)
- 62 graduates from the Higher Certificate programme (NQF Level 5)
- 48 graduates from the Diploma programme (NQF Level 6)

Tab. 1 Comparison of CBET to traditional training programmes
The table below highlights the major difference between the two types of programmes

Process	*CBET(2009 – current)*	*Traditional Training Programmes (2001–2008)*
Vocational standards (Major Content)	*Needs of employment (performance based)*	*Educational requirements, procedure and regulations*
Assessment	*Can do/Can't yet do (Competent/ Not yet competent*	*Grading scales, pass, fail*
Certification	*Modular/Unit Std. accreditation*	*Diploma*
Length of training programme	*Flexible – depends on needs*	*Fixed period*
Syllabus/curriculum model	*Modular/Unit Std.*	*Courses-whole programmes within defined occupations*
Delivery of training	*Multiple methods and locations*	*Institution based*
Methods of training	*Active, learner centered, project based*	*Traditional, lectures, show/tell, demonstration*

This table focussed on the evaluation of the Higher Education curricula pertaining to the CBET and Traditional qualifications for the training of trainers in VET which included trainers that were trained thus far. Five of the eight themes of Higher Education research as identified by Tight (2012), is covered in the paper, which include: teaching and learning; course design (curricula); the student experience-especially after graduation; quality; and institutional management.

Tab. 2 Comparisons of VET Qualifications between South Africa and Scotland
The table below shows the difference between the South Africa and Scotland qualifications.

Country	*South Africa*	*Scotland*
Responsible body	*Education, Training and Development Practice (ETDP) – SETA*	*The National Training Organisation for Employment (Ento) & LLUK*
Functions of Qualifications	*National recognised for Vocational trainers*	*National recognised for Vocational trainers*
Unit Standards	*108*	*41*
Number of Qualifications	*6*	*6*
Assessors	*SAQA, ETDP and SETA*	*SQA requirements*
Qualifications	*1. Further Education and Training Cert. L4* *2. National Certificate L5* *3. National Diploma* *4. National Cert. L6* *5. Bachelor L6*	*6. Level 3 in Learning and Development* *7. Level 3 in Direct Training and Support* *8. Level 4 Management of Learning* *9. Level 4 in Co-Ordination* *10. Level 5 in Learning and Development*

Literature indicates that research on Technical and Vocational Education and Training (TVET) is a relatively young field within the domain of educational research. It was only in the second half of the twentieth century that State institutes for TVET research were founded to investigate the foundations for the development of national TVET systems and to support planning bodies in shaping and organizing Vocational Education and Training (Rauner, 2009:1443). The researcher agreed to that the studies in Vocational Education and Training be conducted in all the types of institutions of vocational education, which includes Further Education, the qualification of vocational teachers, as well as national structures and systems and international comparative studies.

Conclusion

This paper attempted to evaluate the CBET and Traditional training programmes for VET trainers in Namibia and to provide a conceptual understanding of the implementation of the qualifications. In this context, CBET is broadly defined as training that develops the skills, knowledge and attributes required to achieve competency standards. NTA (2015). Given the assumed confusion that existed after the implementation of the CBET system, there is now a tremendous need for research and generation of knowledge to improve our understanding of the effect and influence that CBET has for VET practitioners in Namibia.

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Professionalization of VET teachers and Curriculum Development in VET System: Results of Survey, Practice and Challenges in Burkina Faso, Senegal and Germany

Wendkouni J. Eric Sawadogo

Abstract

VET systems in African countries do not match the qualifications and competences required in the labour market (UEMOA, 2004; Sawadogo, 2005, 2012). Instead they are more theoretical focusing on the shrinking formal sector that offers very limited employment opportunities. Consequently, this leads to high unemployment of their graduates.

Due to lack of alternative employment in the formal sector, a critical mass of these graduates is obliged to find occupations in the "informal sector". However they haven't been equipped with the requisite skills.

A paradigm shift to the so-called "informal sector" must be done, so that local education and employment possibilities could be better taken into account in the policies of VET system, especially in the process of professionalization of teachers (Sawadogo, 2012).

In this process, the development of curricula for teachers and skilled workers becomes a key factor.

Indeed, "the competence of skilled workers, i.e. their professionalism, in the "informal sector" esp. consists in the successful completion of professional work and business processes *and* their ability to secure fair financial remuneration for their services" (ibid. p. 87).

In light of this, this paper shows how contextualized concepts and an Internship Reports-Based Method of Updating or Developing Curricula (ibid. p. 178ff) could contribute to Further Education of VET teachers.

Based on the above-mentioned concepts, the paper draws from Burkina Faso, Germany and Senegal examples of Further Education for VET teachers that would guide the establishment of a FE system.

Keywords

Professionalization, competences, informal sector, paradigm shift, curriculum updating, internship reports based method, VET teacher training and further training

Professionalization of VET teachers and Curriculum Development in VET system: Results of Survey, Practice and Challenges in Burkina Faso, Senegal and Germany

Introduction

Although VET education alone does not guarantee employment, it is certainly an indispensable factor in the expansion and development of employment, because productivity, earnings and better conditions of life increase, through amongst other things, capacity building and innovation.

Although VET systems in countries of Sub Sahara Africa cost at least three times more than basic secondary education systems, they often provide no better foundation for private sector jobs (IBRD, 2014, EUR 20).

They are generally more theoretical and focused on a shrinking formal sector, which offers very limited employment opportunities. Consequently, unemployment is highest among their graduates due to a lack of competitiveness in the labour market (UEMOA, 2004; Sawadogo, 2005, 2012).

The majority of VET teachers has no work or practical experiences in the specific teaching subject area and it has no good (regular and formal) connection to the enterprises related to their field in the labour market. This majority never or rarely goes on excursions with their pupils and it seldom or never makes use of internships (Sawadogo, 2005, 2011).

The professionalization of multipliers and the quality of the curricula are key factors to develop and secure the quality of VET and FE systems, so that VET graduates can transfer successfully their acquired knowledge from the training field to the field of application, i. e. in the labour market.

The Problem of Transfer of acquired Knowledge from Training Field to Field of Application (Labour Market)

The challenges in VET system are e.g., how professionalization of VET teachers and curriculum development can be designed and implemented, so that graduates, who are or will be in paid employment or who take or will take themselves (self-employment) entrepreneurial activities on the market, will be empowered to secure and improve their activities.

Teachers in vocational training, similar to their counterparts in the general education, mediate systematically the contents of their learning programmes (curricula) in the given time, such that their learners (trainees, students) are able to pass the final exams with good results. That unfortunately does not mean that

- the graduates are sufficiently educated and
- trained according to the required knowledge and skills in the labour market, so that
- they can apply the content they have learned in the work conditions (function field).

These failures represent the problem of inert knowledge by creating insufficient link between theoretical knowledge and processes acquired in VET education and workplace contexts and practices in the labour market.

These problems can be attributed to the deficiency and inadequacy of the learning content and processes (curriculum), of pedagogical equipment and in the transfer of knowledge from the training field to workplace.

According to psychological instruction studies, the production of inert knowledge is in the way, how knowledge in the sense of application relatedness, life orientation, and practical orientation is so mediated (Sawadogo, 2012; Gruber, Mandl & Renkl, 2000; Gerstenmaier & Mandl, 1995).

Thus, professional teaching and learning processes should be, more than ever, related to the social and economic development of the country, to the learning and work context.

VET education should prepare students for employment, for lifelong learning and in general for the life in the society.

The examples below (Figure 2 and Figure 3) take into account these aspects from the guidance, the requirements check, the recruitment, the phase of specific competence development until the phase of preparation and supporting the entering in the labour market.

The professionalization of VET Teachers

The goal of professionalization is to enable an individual to realize effective and efficient work actions and typical tasks in accordance with certain standards. Professionalism (professionality) refers to a particular quality of professional actions by skilled workers.

Tietgens (1988) defines professionalism as the ability to use broad, scientifically deepened and diverse abstract knowledge adequate in concrete situations.

Typical tasks for trainers in the Further Education and training are:

1. Preparation of teaching units and the review after giving the lessons (e. g. selection of content and justification of this selection, organization and evaluation).

2. Implementation of teaching units (e.g. didactic-methodological design of instruction).
3. Educational guidance (e.g. guidance of person or institution).
4. Development of concepts (e.g. strategic planning, development, organization and evaluation of a project).
5. Project management (e.g. project application, acquisition, organization and evaluation of a project).
6. Human resource development (e.g. recruiting staff, staffing, capacity building, of staff).
7. Networking (e.g. securing, strengthening and development of cooperation with partners).
8. (Educational) controlling (e.g. planning, management and control of the educational institution).
9. Public relations (e.g. information, communication and marketing work) (Sawadogo, 2011, p. 86).

The professionalization of VET teachers should orient the teaching and learning processes to the professional actions and activities, which are embedded or anchored in most authentic contexts (e.g. the informal sector).

In this way, all the acquired knowledge, skills and abilities could better be connected with knowledge elements, which are relevant both for the practice and the required actions (Sawadogo, 2012).

The professionalization of VET teachers can contribute to an effective development of the required competences in trainees and learners if the curricula match the needs or competences required in the labour market.

Otherwise the professionalization of VET teachers alone will not be sufficient to provide the skills needed by workers.

This calls for continuous development of the VET teacher‘s competences as well as for continuous actualization of curricula not only for the formal sector but also *for* and *in* the so called informal sector.

VET Curriculum Development and the Labour market (“informal sector”)

To promote the quality of their human capital, Burkina Faso and Senegal, like other African countries, have initiated curriculum reform in 1996 through competency-based approach (Approche Par Compétences (APC)).

The results present points of satisfaction, such as the integration of this approach in the training of VET teachers, the production of pedagogical documents, the gradual appropriation of the APC approach by the actors and some proved improvement of the quality of teaching. However, other issues relating e. g. to working conditions and professional capacity of teachers, as to the monitoring and the accompaniment of the reform remain (DGIFPE/MESS, 2012; MJFPE, 2012; AFD, 2010).

In practice, it appears that the used theoretical concepts of the approach as the processes of development and implementation of curricula in this reform, are different depending on the international partner or donor country and on the technical operator (AFD, 2010; IBE-UNESCO, 2008; Tankoano, 2012). Due to lack of sufficient funds and personnel for the curriculum reform, the development and the implementation of curricula for some subject areas couldn't be completed as intended. Through this situation the reform could not properly achieve their goals.

Survey results show that the organization, development and updating of VET curriculum are deficient. It lacks for example, evidence for initiating the updating of training occupations (Sawadogo, 2012).

In addition to this, both countries have implemented curriculum projects for non-formal Vocational Education and Training in some relevant occupational areas in the "informal sector" in order to connect non-formal to formal education and training in the VET systems (MJFPE, 2012; Sawadogo, 2010; Tankoano, 2012). These non-formal education initiatives were based on existing Traditional Vocational Training, which is widespread in West Africa: The Sahelian apprenticeship in Burkina Faso, which is based on family relationships and the Coastal apprenticeship in Senegal, which is based on commercial relationship.

With the results of these projects, the equivalence between formal technical qualifications and non-formal professional qualifications is now established, e. g. in 2015 by a decree in Burkina Faso. These non-formal education initiatives were successful in Burkina Faso and in Senegal and they represent hope for change (X. Roegiers, 2012; Tankoano, 2012).

Africa's economy is characterized by high levels of self-employment. The greatest part of this employment takes place at the "informal sector", which employs about 80 % of city workers in African cities (IBRD/WB, 2014).

To promote the employment in Sub-Sahara Africa, the perception and appreciation of this sector, which is generally described with the negative term coined "informal sector", must be changed. Demand-led curricula for formal as non-formal initial and Further Education and training in combination with other active labor market policies (APESS, 2012) have to be developed and implemented. As Mungazi (1997) puts it, change in education is necessary to initiate change in society.

The relevant employment- as education-related aspects of the so called informal sector must be taken in consideration in the personal and organizational development actions and measures at all levels: macro-, meso- and micro-levels (situation regarding traditional occupations, cooperation, counseling, curriculum development, adult education, permanent control of processes with required suitable structures and responsibilities).

This essential shift of paradigm lets us consider the "informal sector" in developing countries as something positive, legal, worthy to develop, to promote and as something which can be well developed and transformed into formal employment. This consideration must find its expression in the curricula through for

example contextualized and adapted contents, terms and concepts (e. g. competence) in VET/FE systems.

Concept of Competence in the African (biggest) Labour Market

The skilled work in the "informal sector" differs from the one in the formal sector, not only in terms of the working relationships and conditions but also in relation to the scope and the complexity of the job requirements, of needed skills and competences for success in work.

The "informal sector" workers do not enjoy the state labour protection, the state-controlled collective agreements like regulated mandatory services costs by the professional associations or the "comfort" and the "security" of a formal employment relationship. On the contrary, the competences of skilled workers, i.e. their professionalism, consists of a successful completion of professional work in business processes and their ability to secure for themselves fair remuneration for their services (Sawadogo, 2012).

Therefore VET plays a central role in developing the competences and skills of individuals. Thus, VET empowers individuals to undertake necessary and meaningful activities in the society thereby, enabling them simultaneously to secure and improve their livelihoods.

In the "informal sector", where workers often are their own employers, individual empowerment has to be regarded as a criteria of assessment (allocation) of these competences. In order to assess these competences, sufficient scientific methods and instruments are needed to guarantee the identification and analyses of work and business processes for the required competences.

The Internship Reports-Based Method for Updating VET Curricula in VET (Sawadogo, 2012, p. 178 ff.)

The use of the internship reports based method to update or develop curricula for the informal and formal sector focuses on establishing a more flexible and stronger communication between employers and education institutions and as well as fostering the professionalization of teaching and training in VET system. In this method, the quality of research methods and instruments used to measure the competences are crucial in fostering research in VET (see Figure 1).

The method is not only a flexible, systematic, cost-effective and manageable tool but also a system of internal mechanism for quality development.

Through research at the work place, informal knowledge, work experiences, wishes and suggestions of teachers and students as well as of enterprises and especially of professionals in the informal (traditional) and formal sector can be recorded, documented and evaluated for possible updating of the curriculum. The recorded data undergoes deep analysis, and synthesis in order to make evidence-based decisions.

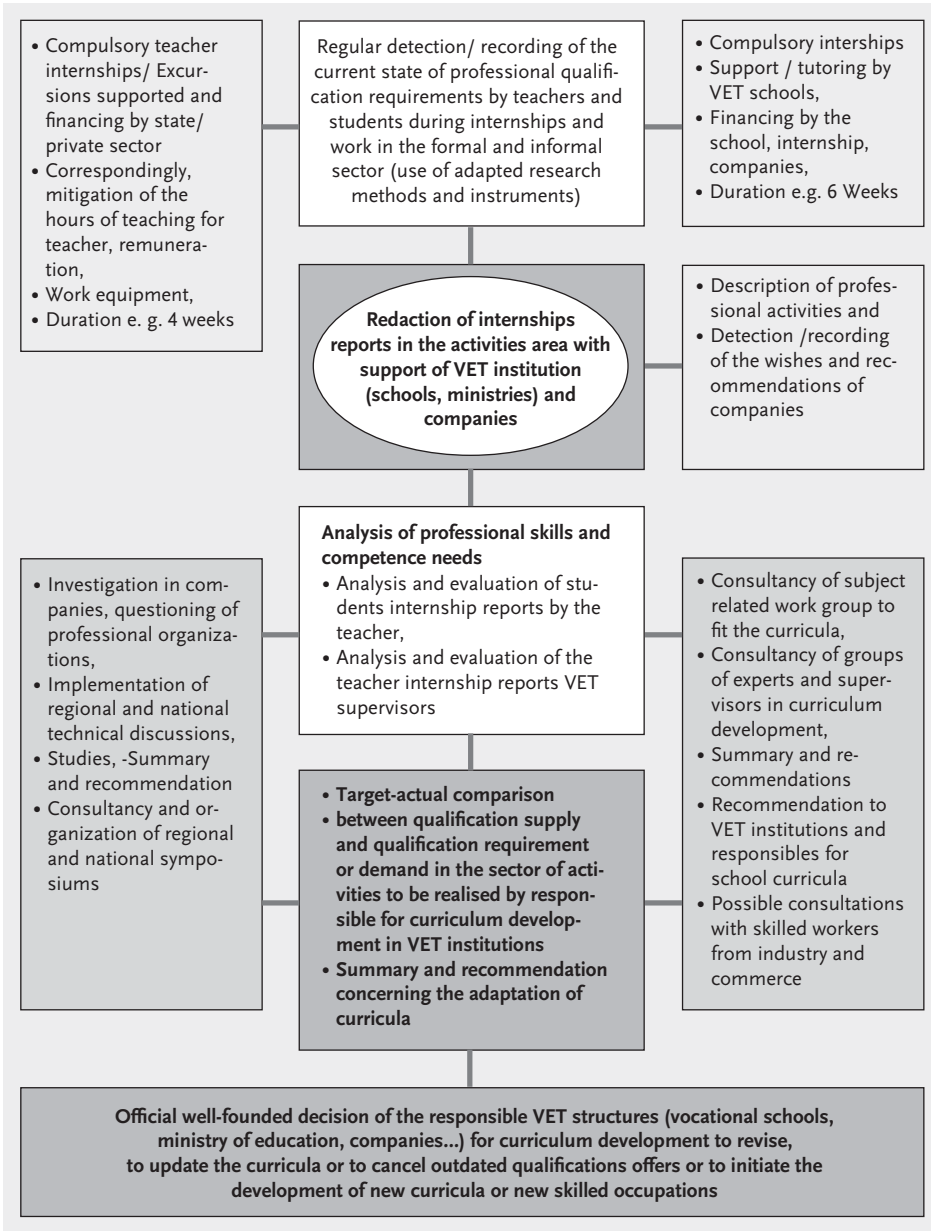

Fig. 1 "Internship reports-based method for updating or developing of curricula", (Sawadogo, 2012, p. 180)

Through this decision-making process, the basis for action, the legitimacy, the occupational competence and capacity of VET trainers and managers responsible for curriculum development are strengthened and increased.

This method is alive to the fact that curriculum development itself is always under construction, hence should provide an updating process of the curricula within

five steps all through the school year/academic term. This curriculum development method is both process-oriented and short-term-oriented. The updating of curricula has therefore to be seen as a process, which accompanies tasks in VET/FES and in labour market. Nonetheless, the method guarantees low costs, is less bureaucratic and closer to professional learning and work situations. As such, it must be systematically initiated, planned, implemented and evaluated (Sawadogo, 2012).

Challenges in Professionalization of VET Teachers and Curriculum Development

In the projects mentioned below, initial and further training programmes have been initiated and implemented in order to develop the professionalization of VET teachers in Burkina Faso, Senegal and indirectly in Germany (Figure 2 and Figure 3).

- Project: "Solar Technician and Curriculum" (Hartmann, M. D., 2014; Sawadogo, W. J. E., 2014): The participant could develop e. g. their capacities by designing a curriculum related to the labour market and improve their knowledges and competences in the field of renewable energy. The designed curriculum was validated, vocational Schools were equipped with technical and pedagogic material. The implementation of the curriculum started at October 2015.
- Master programme (MTFP*): (Hartmann, M. D., 2015; Sawadogo, W. J. E., 2015): A joint application for funding this programme has been prepared and submitted to the DAAD. Participants developed e. g. their competences related to the VET teacher training, (curricula, international standards of quality and Management) and share experiences.
- JEFOSP**: Journées d'échanges sur l'éducation, la formation, l'orientation/insertion scolaire et professionnelle (Sawadogo, 2013): Participants developed e. g. their competences related to education and employment and share experiences.

In these Figures, an attempt was made to put, for example, more attention on the contexts, goals, contents, situations of learning and work, prerequisites of target group, didactic-methodological design, methods of adult education in order to correspond to the needs of competences.

Examples	Project: Solar Technician (Senegal & Germany)	Master programme MTFP* (Burkina Faso / Germany)	JEFOSP** (Burkina Faso / Germany)
Goals under emphasis on contexts and situations of learning and work as target group, adult education, ...	• Continuous training of VET teacher • Development of curriculum • Promotion of the Renewable Energy • Preparation / support in entering the labour market • Vocational skills development related (relation to work and business process, professional knowledge) ...	• Continuing training on curriculum development, • Initial training for VET teacher, research in VET • Vocational skills development (related to work and business process, professional knowledge) ...	• Continuing training, Promotion of the cooperation between VET institutions, labour market • Promotion of the counselling ...
Content of the training; e.g.	• Planning and installation of solar and photovoltaic facilities by way of practical experience • Basics of curriculum development phase, methods of curriculum development • Learning content from the fields of electrical engineering, economy, sociology and VET • Development of curriculum in close coordination between all involved parties and according to technical standards and based of the social and economic situation in Senegal • Various excursions to institutions and companies around in Senegal, Hesse, in Dresden and through Germany completed the course programme ... (Start of the implementation: 10.2014)	• Basics of curriculum development phase, methods of curriculum development • The development of the curriculum • Development of curriculum in close coordination between all involved parties and according to technical standards and based of the social and economic situation in Senegal	• Given general topics • Open and free choice topics
Didactic-methodological design	• Workshops, seminars, practice, excursions, • E-learning	Workshops	Workshops

Fig. 2 Examples of Further Education (FE) and curriculum development for VET Multipliers in Burkina Faso, Senegal and in Germany

*: MTFP: Master programme "Master en enseignement techniques et formation professionnelle (MTFP)" in Burkina Faso

**: JEFOSP: Journées d'échanges sur l'éducation, la formation, l'orientation/ insertion scolaire et professionnelle

Aims/ Elements of the curriculum	Check the entry requirements, advisory, consulting and selection of participants	Development of vocational skills related to work and business processes, professional knowledge, technical / economic / socio-cultural analyses of systems	Preparation / support in entering the labor market
Introduction Presentation of the curriculum	• Module 1 (2 weeks): Welcome, introduction; structure and objectives of the training programme, review of conditions resp. of prerequisites / admission to measure		
Modules of level I 3 weeks spent per module	• Module 2: simple DC system with battery (domestic installation / maintenance) Component selection, workflow planning, contract design • Module 3: Power systems (municipal city/countryside) socioeconomic study, procurement, dimensioning, DC-AC • Module 4: Installation / Use a commercial plant (quality, sizing, costing, implementation, security, warranty, maintenance)		Module 7 (2 Weeks spent) accompanied internship
Modules of level II 4 weeks spent per modules	• Module 5: Installation of hybrid systems, such as hospitals (socioeconomic study, dimensioning, e.g. generators, coupling through automation, system backup) • Module 6: Following the general grid (among other requirements operators at the installations legal regulations, technology of supply, Smart Grid)		
Recommendations on the use / certification	• Organization of the training program's process; final examination (2 weeks)		

Source: Sawadogo, W. J. E. and Hartmann, M. D. (2013), Structure of the curriculum "Solateur Photovoltaique", TUD.

Fig. 3 Structure of the curriculum, Solar Technician for VET Teacher in Senegal (Sawadogo, 2013; M. D. Hartmann, 2013)

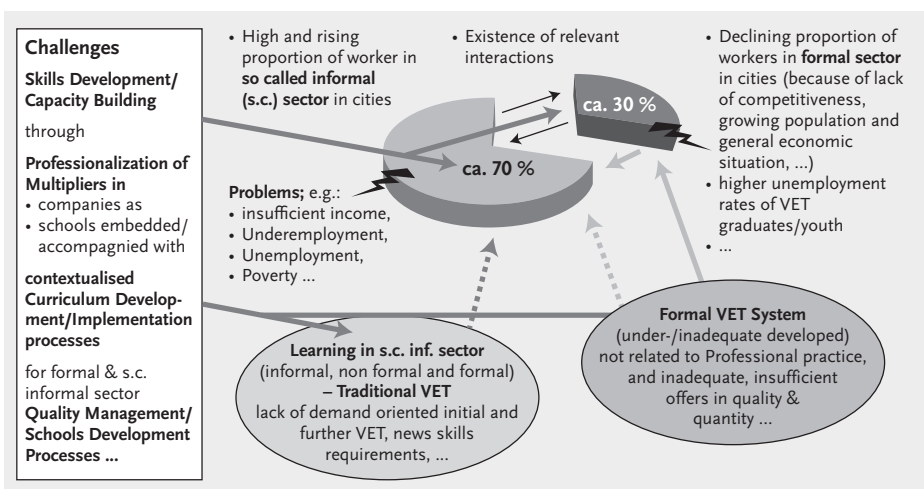

Fig. 4 Labour market, Employment and initial and further Vocational Education and Training situation (VET/FE) as challenges in cities and countries in Sub-Sahara Africa (Sawadogo, 2013)

As shown in Figure 4, there are several challenges that hinder the professionalization of VET teacher and the curriculum development in VET/FES to contribute effectively, efficiently and impact-oriented to the achievement of these goals and sustain the assurance and development of quality in VET/FE system. In order to

achieve this target, effective quality management systems (e.g. QESplus, circle of quality, schools evaluation measures, competence of trainers, and projects) should be developed in the VET and teacher education institutions (Wiesner, 2009).

VII Conclusion

Professionalization of VET teachers (multipliers), continuous development and updating of curricula to be labour market oriented are key factors for the development of initial and further Vocational Education and Training. However, their high costs constitute major obstacles for many Sub-Sahara-African VET systems. In order to develop the internal and external quality assurance systems of VET and FE in Sub Sahara Africa, flexible, systematic, cost-effective and manageable process-oriented and short-term-oriented methods, instruments and tools have to be developed, implemented and evaluated. The integration of the so called informal sector in the VET policies must become an imperative to tackle globally the problems of employment and training for youth in Sub Sahara Africa.

The particular attention to the "informal sector" in training and employment policies calls for a paradigm change by international and local political actors (for example, actors in education, employment and economic sectors).

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Professionalization of VET teachers in Ethiopia: The current practices, the challenges and the way forward

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ABSTRACT

In the past, TVET teachers acquired pedagogical and vocational skills at the beginning of their career. This would be adequate for them to prepare TVET trainees for the job they were being prepared. However, today this is no longer possible as real "world of work" is changing and demanding new knowledge, innovative learning methods, advanced technology and work practices in a non-stopping way. One way of tackling the challenge is through professionalization of teachers so that they would be equipped with necessary skills and knowledge that enable them to cope up with the ubiquitous change. As a result, this paper initiated to identify the current practices and challenges Ethiopia is facing in the move towards professionalizing TVET teachers. This was done through critical review of national documents on TVET system where international literatures were also used for comparison. In addition, empirical data were collected from TVET colleges in Jimma town (Ethiopia) for illustration. In general, the study shows that due emphasis was given for professionalization of TVET teachers by clearly defining profiles for TVET teachers of different levels. However, there is high shortage of TVET teachers, particularly industry-based trainers. The shortage is due to lack of competent candidates who can meet the requirements. Lack of Higher Learning Institutions that can supply TVET teachers is the other factor. In addition, those who have gone through pedagogical training were also opting for teacher-dominated teaching approach, which is against the basic principle of TVET pedagogy.

Background of the study

Technical and Vocational Education and Training (TVET) is a kind of education that mainly focused on leading participants to develop the practical skills, the know-how, and understanding necessary for employment in particular occupation

or groups of occupation (World Bank, 2001). TVET system in Ethiopia is also meant for the same purpose. The Education and Training policy of the country stressed on the role of TVET in producing skilled human power that can contribute towards rapid economic development (MOE, 2002). The document added that TVET is presumed as a tool for the effective utilization of human resources which is the basic difference between developed and developing countries. To this end, TVET system required to be needs based and graduates have to be equipped with competences demanded by labor markets. Cognizant of this fact, Ethiopian TVET system was reorganized into outcome-based system with the direction set by the National TVET strategy issued in 2008 (MOE, 2008). Accordingly, competences requirement in the labor markets become benchmark for teaching, training, learning, assessment and qualification.

The main objective of TVET is to produce lower-level, middle-level competent and motivated, adaptable and innovative workforce that can contribute strongly to the country's economy development and poverty reduction (MOE, 2010; 2015). However, the mere production of technically competent TVET graduates doesn't guarantee having competent and productive labor force unless all rounded personality development of graduates is put at center of TVET system. Having professional TVET teachers is among the many factors influencing the production of competent, motivated, self-reliant, adaptable and innovative TVET graduates (MOE, 2008). This is so as teachers are linchpin in the act of transforming education (Hattie, 2012). Hence, it is naBve to think to achieve desirable educational changes without conscious and active participation of teachers. For this matter, Fullan (2007) named teachers as an agent of change as it is the teachers who will translate the desired reform into practice. He also noted that teachers themselves need to undergo change if they are required of implementing the change into their classroom teaching. Hence, he named teachers also as an object of change. This shows that teachers need to be equipped with the required knowledge, skills, and dispositions that can assist them to implement the desirable change in their teaching and thereby facilitate the learning of learners. This implies that all teachers including TVET teachers need to be professionalized in order to carry out successfully the tasks expected of them.

Professionalization of teachers begins at teacher education programme; hence teacher education programme is considered as a place where teachers start learning the profession of teaching (Darling-Hammond & Lieberman, 2012). In the past, once TVET teachers acquired pedagogical and vocational skills at the beginning of their career, it would be adequate for them to prepare TVET trainees for the job they are being prepared. However, today this is no longer possible as real world work is changing and demanding new knowledge, new learning methods, new technology and work practices in a non-stopping way. One way of tackling the challenge is through professionalization of teachers so that they would be equipped with necessary skills and knowledge that enable them to cope up with the ubiquitous change (Korthagen, 2004). Therefore, the initial and further training is needed for teachers and instructors in TVET system of all levels. As a result,

this paper initiated to identify the current practices and challenges Ethiopia is facing in the move towards professionalizing TVET teachers.

Objectives of the study

The article has three key objectives:

- to unfold the current practices towards professionalization of TVET teachers in Ethiopia,
- to reveal challenges in professionalizing TVET teachers,
- to suggest the way forwards.

Research methods

There are plenty of research methodologies being emerged in a continual base. However, the research questions intended to be answered determine methods, source of information, tools for data collection, analysis of data and presentation of the output as well. Having this in mind, the following methods were utilized in order to identify the current practices and challenges the country is facing in professionalizing TVET teachers:

- critical review of the following national documents with TVET in focus:
  - Growth and Transformational Plan I (2000−2015),
  - Growth and Transformational Plan II (2015/16−2020/21),
  - Education and Training Policy issued in 1994,
  - Evaluative studies conducted by Ethiopian Academy of Science (EAS, 2016),
  - Educational Sector Development Programme IV and V (ESDP IV &V);
- collection and analysis of empirical qualitative data[1] through interviews conducted with:
  - VET teachers and students,
  - Expert from the Zone Education Bureau responsible for TVET,
  - Oromia Regional State Commissioner for TVET.

The empirical data could substantiate the findings from critical review of ministerial documents.

The Context of the study

In the last two decades, Ethiopia has been embarked on improving access to formal education of all levels. In the current rapidly expanding education system, TVET programme is playing decisive roles in making most of workforce productive and competitive (MOE, 2016). Accordingly, the government has set a plan to admit 80 % of grade ten completers to TVET colleges while the remaining 20 %

1 For methodological issues see Tacconi, 2011.

to upper secondary education to prepare for university education (MOE, 2015). In order to absorb the majority of grade ten completers, construction and upgrading of TVET colleges have been taking place throughout the country. By the end of 2013/14, there was a plan to offer at least one TVET college for each Woreda (*district*). However, in reality there were woredas which couldn't get TVET College although there has been massive construction of such colleges (MOE, 2015). In general, there were 1,348 TVET institutions in 2013/14, which is even surpassed the plan for the year, which was 1,074 institutes. These TVET colleges absorbed 45 % of grade ten completers among which females ratio went up to 51 %. As mentioned in the document, the fact that families and grade ten graduates considered going for TVET College as a least alternative is accounted for the low number of students joined TVET colleges. They rather prefer to join Teacher Education Colleges for primary school teachers.

With all the above mentioned shortcomings, the number of TVET teachers and trainers keep on increasing from time to time. For example, the number of trainers increased from 11.153 in 2011/12 to 17.322 in 2013/14 (MOE, 2015). There are five levels of TVET Education: Level I, II, III, IV and V. (MOE, 2008). For each of these levels different categories of teachers are required. Hence, there are three categories of VET teachers, namely, A-level, B-level and C-level teachers. Level I, II and III students are expected to be taught by at least C-Level teachers. C-level teachers has graduated from a TVET institute above level three, has been assessed as competent to train at that level and has undertaken C-level training methodology. Level-IV students are taught at least by B-level trainers who are expected to have bachelor degree and assessed as competent to train at level four and have undertaken B-level training methodology. Lastly but not least, Level-V students are expected to be taught by A-Level trainers. A-level trainers have Master's degree and have been assessed as competent to train at level five and has undertaken A-level methodology. Therefore, the above indicated figure of TVET teachers maintained the planned distribution of trainers of 1:3:24 ratio for A:B:C level trainers (MOE, 2015). However, even if the planned ratio was achieved over the last five years, still there is high scarcity for B-level trainers. In addition, females were meagerly represented both as a trainers (17 %) and leaders (3 % out of the total of 2.604) (MOE, 2015).

The other issue which deserves further clarification before proceeding to the main theme is the concept of TVET teacher. Who are TVET teachers? To this end, we need to consider the training modality being used by TVET system. The TVET system used cooperative training modality whereby students are expected to spend 30 % of their time in TVET institutes to develop theoretical concepts and basic skills while 70 % in industry to acquire bulk and depth of practical skills in the work place (MOE, 2016). According to the source indicated above, in the last five years, 83 % of TVET trainees deployed to industry for apprenticeship. This tells us that there are two types of TVET trainers: Institution based TVET trainers and Industry based TVET trainers.

Professionalization of TVET teachers

Teaching profession plays a crucial role in equipping citizens with necessary knowledge, skills and dispositions that they need to develop their potential and to become active member of the society and the workforce (European Commission, 2010). As it is already mentioned teacher education is the first stage where teachers start learning formally about teaching profession. Therefore, in order to improve quality of teaching profession, it is vital to consider the issue from its root that leads towards improvement of teacher education. Improving quality of teacher education meant that the pass card to teach is only provided for those who have the interest, the ability, and the attitude to teach. Having this in mind, the Government of Ethiopia clearly set a direction for provision of TVET teacher/instructor training in its education and training policy issued in 1994 and in the National TVET strategy of 2008 (TGE, 1994; MOE, 2008). As to the policy document, teachers of any level of education including TVET need to be certified before stepping in the classroom. This means that teaching TVET students needs special training or practical skills that involve high level of education that someone else doesn't demonstrate without undergoing training like any type of profession.

There are specific features that make a profession a profession. In the first case, the members need to have distinctive *profile*. Second, there should be a sieve that filters new members to join the profession so that anybody merely out of passion will not be allowed to do so *(recruitment of members*). Accordingly, those who show up interest in the profession must also go through intensive learning of the content knowledge. Thirdly, in the case of teaching profession including that of TVET, there must be pre-service training that prepares people to join the profession for the first time. Finally, as discipline knowledge and required competences are in a constant move (dynamic), there should be also a window whereby the members keep on updating their knowledge and skills against the drastic change in real world of work (*in-service training*). Put it differently, there are four factors which appear to influence the status of a given profession: professional profile of members, recruitment mechanisms, opportunities for pre-service and in-service training. Therefore, the attempt of professionalization of TVET teachers in Ethiopia will be analyzed from the perspectives of the above four factors.

Profile of TVET teachers

The first and the most important thing is the profile required to be a TVET teacher. As clearly mentioned in the government document, no one is allowed to teach at TVET institutes only out of passion or for the sake of earning living (MOE, 2008). The following three parameters have been set and used in order to filter out competent and interested trainers:

A. Educational qualification – TVET teachers of the three levels required to fulfill educational qualification required for each level. C-level trainers at least have to graduate from TVET institute of three levels. Similarly, B-level trai-

ners are expected to have bachelor degree from a recognized higher learning institute. Finally, master's degree is required for A-level trainers;

B. Ethical and technical competence to teach (passing on occupational assessment) – Educational qualification is a prerequisite to join TVET system as a trainer. However, it is not sufficient to determine the competence of the individual to teach in TVET system. For this reason the second litmus test is the search for proof of ethical and technical competences of the applicant to teach. To this end, occupational assessment is prepared separately for each level and only applicants who perform well on the assessment can be considered for further assessment. As some of the interviewees mentioned senior staff, who had joined TVET colleges some years back only based on their educational qualification, were suspended from teaching position because they couldn't make pass on occupational assessment. To illustrate:

> ... there are senior staff who have joined our college before the commencement of COC *[occupational assessment]* exam. Now they took the exam and failed, hence they are suspended from teaching job. They are doing administrative activities now and at same time preparing themselves for the exam (*Teacher interviewee 2*);
>
> Now a day, COC is becoming a concern for teachers. If you couldn't make pass on the exam you can't get hired as a teacher. Some of my colleagues have failed because they couldn't perform well particularly the practical aspect. You must practice and understand the reason behind each practice. As a result, my friends who are preparing for exam are intensively reading and practicing all core practices (*Teacher Interviewee 3*).

The above two scenarios imply that technical competence to teach at a given level has been critically considered and as a result applicants have been also engaged seriously in the learning process;

C. Teaching methodology – once a candidate successfully demonstrates the criteria set like level of educational qualification and occupational assessment, he or she must go through training methodology designed for teaching of the specific level before resuming teaching position. However, TVET teachers interviewed reflected reservation on the effectiveness of the teaching methodology as a requirement for resuming teaching position compared with the rest of the criteria. Let's consider the following excerpt:

> ... you need to present certificate of participation in the training methodology, which is mostly organized either at Nekempte or Addis Ababa. Since only participation is needed and no serious practical as well as theoretical examination is designed for it unlike occupational assessment, trainees don't seriously attend the training... There is also no system that forces you to implement the training skills into classroom teaching. Because of this fact, some of teachers are continuing to teach in traditional way than at least trying to apply what has been learned during methodology training (*TVET teacher interviewee 1*).

As can be understood from the above excerpt, while *educational qualification* and assessment as *a competent to teach* at a given level are prerequisite to be hired as a TVET teacher, for *training methodology* only participation in the training is needed. This made teacher candidates not to take seriously pedagogy courses, which has its own implication on the application of innovative pedagogies in their later teaching. In sum, table 1 presents summary of profiles of TVET teachers:

Tab. 1 Summary of profile of TVET teachers

TVET level	Minimum trainer's profile	Description/requirements
Level I Level II Level III	C-level trainer	• Has graduated from a TVET institute above three level • Has been assessed as a competent to train at the levels • Has undertaken C-level training methodology
Level IV	B-level trainer	• Has bachelor degree • Assessed as competent to train at level four • Has undertaken B-level training methodology
Level V	A-level trainer	• Has master's degree • Has assessed as competent to train at level five • Has undertaken A-level training methodology

Having predefined profile for TVET teachers of different level is important in order to enhance the status of the profession. However, it is important to look into the current status of TVET colleges in satisfying themselves with teachers of the required profile. As the evaluation of the last five years educational sector development programme (2000/01−2014/15) shows, the trainers' distribution was not aligned with the need. Particularly, there exists a shortage of B-level institution based trainers and of industry based trainers of all levels. Qualitative data collected from respondents also implies the same message.

> There is scarcity of qualified teachers for level IV and above. For example, one of TVET College for soft skills in Jimma couldn't be promoted to level IV because of lack of qualified teachers. This is so since we couldn't get experts from a market...; you know that the problem is nationwide as there is insignificant number of higher learning Institutes that supply TVET teachers (*Zone TVET expert interviewee*);
>
> ... I am at level III and attending accounting. I liked the support we were provided with during level I and II. I appreciate my teachers. However, the situation now at level III is not similar to the previous levels. It is only one teacher who is teaching us. Students are not happy with him even during level I and II. Hence, we presented our compliant to the college in need of replacing him with another teacher. However, the college responded that it didn't have any alternative teacher to replace him. As a result, some of my friends have decided to make transfer to another town. Actually this is a must for me as well to move to another town if I could make pass on occupational assessment for level III since my college doesn't have level IV programme. ...We already asked the college dean to open Level IV but the response was the same, i.e., we don't have teachers (*TVET student interviewee 4*).

These all scenarios show that even if there is limitation of professional teachers, the Government as well as TVET colleges are not letting unqualified people to take over TVET classes. They also didn't consider the shortest path to profession, which is dangerous for the status of the profession as well as for the quality of teaching (Darling-Hammond, 2009).

Recruitment of teachers

As the system expands, ongoing recruitment of trainers will be required to match enrolment demands. So as to maintain the promise of having TVET teachers of the required profile with adequate number, pragmatic recruitment mechanism needs to be in place. This is also well thought and designed in the government document although still there is a gap in addressing the limitation of teachers for some levels of the training. The following are strategies set to recruit competent candidates to the profession:

- *recruiting from higher level TVET training completers* – C-level institutions trainers will be recruited from level four and above training completers who are ethically and technically competent and interested in completing the upgrading to become a trainer;
- *upgrading trainers to the next level* – trainers updating and upgrading have been also taking place to promote C-level to B-level and B-level to A-level as required to meet the training demands. The upgrading has been taking place in the TVET trainer Institutes established for the same purpose;
- *direct recruitment from market* – at the time the upgrading strategy fail to meet the demand for trainers, direct recruitment from the market takes place. This is mostly done for B-level and A-level trainers;
- *recruiting from industry* – industry based trainers who provide cooperative training and can also serve as assessors are expected to be recruited from industry. However, good progress is not yet observed in this regard as witnessed by the government documents and interviewees as well.

In sum, trainers are expected to be recruited from industry, directly from TVET colleges, higher level TVET completers, and higher learning institutions. Recruiting of trainers from TVET training institutes as well as upgrading of trainers helps to ensure that up-to date skills are retained within the training system.

Pre-service training

As long as we agreed that teaching at TVET institutes is one aspect of teaching profession, it is mandatory to have a pre-service teacher education programme where new entrants will start learning and practicing teaching. For this matter, the country has gone through different experiences in establishing strong pre-service TVET teachers. Following the issuance of National TVET strategy in 2008, TVET Trainers Training programme was established in public universities. It was first started in Adama University (the present Adama Science and Technology University), then expanded to other well established universities including Jimma University.

However, training of TVET teachers in the Universities didn't succeed and now vanished from all universities. One of the main key factors was the fact that the design as well as the delivery of the courses gave due emphasis for teaching of theory at the expense of practice. As a result, graduates failed to cope up with teaching of practical aspects at TVET colleges. The first author was also participating in the programme particularly facilitating pedagogies courses and witnessed that all University teachers teaching discipline content, pedagogies and subject area methodology used to teach in the way they were teaching other university students. On top of that candidates were also not interested to be TVET teachers; rather they were inclined towards engineering despite the degree nomenclature they were to obtain. These all added up and made graduates incompetent to take over teaching position at TVET colleges. The following extract was taken from interview with Commissioner for TVET in Oromia regional state to shorten the story and to get the point why the programme was cancelled from universities:

> ... my office as well as the National TVET agency had made an agreement with public universities to train TVET teachers. The training was started at Adama Science and Technology University first and then extended to other universities. However, since the training was more theoretical because of various reasons, the intent of producing qualified TVET teachers was not realized. I remember exactly what happened at Adama Science and Technology University who was the pioneer in starting the programme. The teaching and learning process became more of classroom based theory and less action based pedagogy was utilized. As a result, there was serious complain from students to the extent of boycotting classes. The problem was also seen in other universities ... The then graduates of TVET teachers now suspended from teaching position since they couldn't successfully pass on the occupational assessment designed for TVET teachers. As a result, now we cancelled all TVET teachers training programmes launched in collaboration with universities. Instead one TVET teachers training Institute is established nationally in Addis Ababa namely *Ethio-china Polytechnic college* to train teachers at A-level. Competent Teacher educators from international markets (Asia, Europe and the like) who successfully passed on qualification examination have been recruited and running the training programme ... The college is implementing action based pedagogy and both theory and practices are well-coordinated (*Oromia regional state commissioner for TVET*).

As can be understood from the above excerpt, now TVET colleges, Commission for TVET at regional bureau and National TVET agency are keeping themselves away from Universities. While A-level trainers are being prepared nationally by Ethio-China Polytechnic college, upgrading of C-level and B-level trainers take place at regional TVET trainer training institutes. Presently, each region has at least one of such training college. This shows that the linkage between universities and the surrounding TVET colleges are becoming weak. The task of universities becomes offering internship opportunities for trainees.

In-service training and certification

Besides organizing pre-service TVET teacher training, the Government has set clear direction for updating existing TVET teachers with required knowledge and skills through in-service training. For instance, the competences of all TVET trainers were assessed and training was provided on the identified gaps and occupational standards. As already mentioned, currently there are many teachers put off teaching job because they couldn't succeed on occupational assessment. These teachers need to go through in-service training and sit again for occupational assessment. In general, training provided on the following topics in the last five years: Entrepreneurship training, Occupational specific curriculum development, Training methodology, Institutional assessment, Quality and productivity improvement and Implementation of cooperative training modality (MOE, 2015). Moreover, the Government has already planned to provide in-service training on technology adaption for all TVET teachers on duty, which will definitely demand even more institutes that will provide the training (MOE, 2016).

Pedagogies being used in TVET colleges

The above section speaks for itself that the Government as well as TVET colleges have doing great job so as to professionalize TVET teachers. Predetermining the professional profile of TVET teachers for different levels, undergoing rigorous process in recruiting TVET teachers, organizing pre-service training for new teachers joining the profession and provision of in-service training opportunities have been given emphasis, which are believed to be relevant for teaching profession in general and that of TVET teachers in particular. However, the value of these all endeavors is measured by the extent to which TVET teachers applied relevant pedagogies in their teaching. To this end, evaluative studies, reflection of TVET teachers, trainees and experts have been solicited to get insight into the reality on the ground.

The recent evaluative study conducted by Ethiopian Academy of Science (ESA, 2016) reveals that 71 % of TVET trainees participating in the study responded that their TVET teachers have been using teacher-dominated approach to instruction. This is even high compared to university final year students of similar discipline where 64 % of them confirmed that their professors were using teacher-dominated talk and blackboard use at the expense of using other learning-centered teaching methods.

The other story is that interviews with TVET trainers and trainees portrayed similar impression with the evaluative study indicated above. To illustrate:

> ... I have been here for the last three years; ...all of them [TVET trainers] are lecturing. I never touched parts of automobile... neither in the college nor outside of the college. ...I think my friend is better than me in this regard as he has relative who has a garage and is working there at his spare time. ...even he is regularly earning money from it. ...He is our group leader... in one to five networking and all assignments have been done by him. Mostly what we need to do is to check if he has registered correctly our names and identification

number on the cover page. Now, I feel that this is not good. I and some of my colleagues are wasting our time. ....No feedback on assignments is given. The presentations are conducted by the team leader. ...the feedback is given only on written and practical examination that takes place during CoC exams (*TVET trainee 3*);

... the teaching methodology being used in the college is more of lecturing ... There is also problem of instructional materials. They are giving us to copy like this one (*showing the course syllabus for one of the module for Level I accounting*). As you can see from this you can't get adequate information from this material. ...Students who have money including me are attending also night class. ...we do so since we can't get succeed on CoC unless and otherwise we relearn the content with extension class...(*TVET trainee 4*).

The above interview excerpts disclose that TVET teachers were not only lecturing but they were also not systematically assessing the progress of trainees, give differentiated feedback, encourage interdependence as well as individual accountability in the process of learning (Gillies, 2003). For that matter, trainees were not getting adequate understanding let alone competence to perform something. In this regard, it is difficult to consider that appropriate pedagogies are being implemented in teaching trainees.

TVET teachers involved in the study have also confessed that they were not effectively facilitating learning to the degree they were expected of doing. They sorted out the hindering factors as well. For example:

... there are many factors influencing the teaching and learning process in the college. In the first case, students are not showing interest in practical activities, ... they looked at teachers who give them intensive practical activities as enemy. ... I can see also limitation in ability to learn ...Sorry to say that some of them are coming here simply to snatch certificate, not to develop competences and knowledge they were supposed to have (TVET teacher 2);

... I know that I am not doing what I am expected to do. This is because of lack of training materials. How can I teach practically maintenance of automobile on the condition that there is no automobile to be repaired ... I lecture, then demonstrate for example parts of a motor. It is up to them to search and practice. This is the only thing I can offer ... (TVET teacher 5).

Accordingly to the above interview excerpts, lack of interest from students in the practical activities as well as the fact that less prepared students joined TVET colleges made TVET teachers not to run the teaching and learning process in the way they wanted. Besides, lack of learning materials hampered the practical aspect of learning. What so ever the reasons are, the application of mere teaching-centered approaches will bring nothing in terms of learning of trainees. The critical issue worth rethinking is that if pedagogy is missed used at TVET colleges, how could the objectives of producing competent, motivated, adaptable and innovative work force be possible? As of the current situation and as witnessed by partici-

pants, trainees would rather develop helplessness, dependency and stubbornness except those who enter the system with purpose.

Conclusion

The article intended to uncover the current practices and challenges Ethiopia is facing in the move towards professionalizing TVET teachers. This was done through critical review of national documents and studies conducted on VET system. In addition, empirical data collected from trainees, teachers, experts and leaders relevant for TVET system were used to illustrate the reality on the ground. In general, the study shows that outstanding emphasis was given for professionalization of TVET teachers. The first indicator is having of clearly defined profile for TVET teachers of different levels. The second is using of rigorous procedure for filtering outstanding TVET teachers into the system. Thirdly, pre-service training is provided for new entrants into the system as teachers. In addition, in-service training is provided for teachers based on gap analysis and occupational standards and this has been done since 2010 (MOE, 2010). Thus, professional development has been provided on continual bases in response to the dynamic nature of the needs and labor market demands.

Nevertheless this doesn't mean that the country is able to afford TVET teachers both in quality and quantity as well as all necessary training materials are put in place. Even the analysis of previously conducted evaluative study and qualitative data collected for illustration demonstrate that TVET teachers were not utilizing relevant pedagogies in their teaching despite these all endeavors. In general, the following are challenges hampering the progress of the professionalization of TVET teachers as well as the effective implementation of teaching at TVET colleges and industries:

- lack of competent candidates for TVET trainers, particularly B-level trainers,
- high shortage of industry-based trainers,
- unavailability of universities and institutes that supply A-level and B-level trainers,
- students and community which lag behind in internalizing the value of TVET and its strategy,
- underemphasizing the role universities could have in professionalizing TVET teachers,
- weak relation between universities and TVET institutes (right now their relation limited to absorbing trainees for apprenticeship) and
- requiring certificate of participation in Training Methodology that going for competent performance.

So, what should be done in order to face the above mentioned challenges and enhance the professionalization of TVET teachers? The following two points are presented as the way forward:

- universities need to work cooperatively with National TVET agency, Regional TVET commission, and TVET colleges to solve the prevailing problems as

well as meeting the five year national plan regarding professionalization of TVET teachers;
- like educational qualification and technical competence to teach at a given level, competence in applying training methodology should also be considered as mandatory.

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