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Approaches towards enhanced praxis-orientation in vocational teacher education (VTE)

1 Preliminary remarks

When TVET teacher training is the subject of discussions at any conference around the world, not much time elapses before it becomes patently clear, that there are many unresolved issues to do with this sector of the educational system. The self-same impression occurs upon browsing the current literature. One is left pondering just why the list of issues is so extensive compared to teacher training in general education or the same in academic professions such as medicine, law, maths and IT. I am to mention here but one of these problems, related to the curriculum of vocational teacher education (VTE or TVET TT).

The core VTE university curriculum and the practical world of teaching involve a major subject (sometimes called vocational discipline), which does not belong to the traditional university mainstream and is not a standard subject like maths, physics or chemistry. At least in the technical disciplines, emphasis is placed on a combination of basic science and essential technical knowledge such as strength of materials, statics, electrical/electronic technology and material science as well as applied subjects such as design, assembly, installation (hydraulic, mechanical, electrical/electronic), measurement & test and so on. Thus it is extremely difficult to design a homogeneous curriculum which can be delivered easily by the university lecturers and readily absorbed by the students. This curricular dilemma situation is not only typical for some very traditional major subjects like “Mechanical Engineering” or “Civil Engineering” but also for others like “Health and Social Care”, “Agriculture, Food and Nutrition” or “Home Economics/Domestic Science”.

There are no simple solutions at hand, and no ideal TVET teacher exists, capable of teaching a full range of subjects, expected of a teacher in primary education. Differentiation by function is the most common approach worldwide, not only in industry (division of labour), but within general and vocational/technical schools also. However before continuing on to a discussion of the teacher categories (chapter 2), it is important to briefly mention another serious problem which affects TVET teaching, and that is teacher shortage, however, it is not possible within my contribution, to discuss the reasons why such a shortage exists.

Almost every nation around the world practicing technical vocational education and training (TVET) to any significant degree at an institutional basis (in the public or private sector) or within a formal framework of laws, curricula, etc. (which is incidentally, by no means the case in all countries; the traditional apprenticeship as an informal vocational training model is very common in Africa and in some other regions across the globe), suffers from a shortage of TVET teachers and trainers. In some cases this shortage reaches serious proportions.

Shortages occur irrespective of the principal organisational model (school-based, work-based or dual/cooperative). The models exist in parallel (mixed systems) in most countries even if the percentage breakdown varies. Only a few countries exist in which one model/system prevails.

In response to criticism of the current situation and teacher education and training outcomes (insufficient number and quality of teachers), many proposals have been put forward to redress the shortcomings (the quantitative factors will not be discussed here). The primary aspects addressed are as follows: Teacher types in TVET (chapter 2), the theory-praxis revolution (chapter 3), modern teaching and learning (chapter 4), recruitment of practitioners within the VTE context (chapter 5) and, quite crucially: practical vocational competences (chapter 6). The final chapter 7 finishes my speech with a short summary (chapter 7).

Generally speaking, the quality of VTE depends on a number of different factors and circumstances:

a) Quality/qualifications of lecturers at the universities and colleges: the "core input factor of TVET delivery" (RCP 2011, 41);

b) Structure and quality of the curricula at these institutions;

c) Quality of teaching and learning methods at the universities and other teacher training institutions (UNESCO/UNEVOC 2009, 11);

d) Lab facilities (number of labs, equipment and materials provided) for the natural sciences and technological disciplines (ADB 2010, 46): for teacher training in these disciplines to be on a sound scientific footing (research-based teaching and learning), the availability of up-to-date equipment in labs is essential.

e) Libraries must be stocked with an up-to-date and extensive collection of international sources (books and journals). This is absolutely essential for self-study and scientific work, particularly in the field of pedagogy.

Aspects c), d) and e) are subjects that are either greatly neglected or totally ignored in many countries; nonetheless they are simply crucial in determining the quality aspects of VTE.

TVET teaching is a highly differentiated profession: the following section presents profiles of various teacher types.

2 Teacher types in TVET

In the on-going debate of the past ten years particularly in ASEAN countries, one specific type of teacher has been the clear favourite, namely the theory-practice teacher. This teacher represented the best fit with the TVET curricula. The pedagogic strategy clearly at the forefront was integrated teaching. It was the favoured pedagogic concept for combining theoretical and practical aspects within the teaching and learning processes. Integrated teaching, however, must take place in the classroom/at the student interface. This presupposes the provision

of suitable curricular and pedagogical strategies, instruction materials and learning facilities. All of these have to be of a high standard (e.g. project instruction). Properly trained teachers are just one prerequisite in this scenario, albeit a vital one.

A distinct preference for any particular type of teacher is no longer apparent. In recent discussions in some countries in Asia (e.g. Vietnam; Le Vinh 2010), the current predominant view is that three types of TVET teachers are needed:

a) Theory teacher

b) Practice teacher (trainer)

c) Teacher for theory and practice

In many countries, vocational schools have a fourth type of teacher, as general educational contents such as foreign languages, politics, economics, etc. also form part of the curriculum in most TVET systems:

d) General knowledge course teacher

A fifth type of teacher, capable of teaching vocational subjects at a very high level, should also be added:

f) Advanced skills theory teacher

In particularly demanding occupational specialised fields (e.g. technical assistants, chemical lab assistants, material testers, mechanical engineering assistants), the theory teacher should have a Master's degree (this requirement however is confined to a very limited range of vocational subjects/major subjects).

The different teacher types are illustrated by the following diagram:

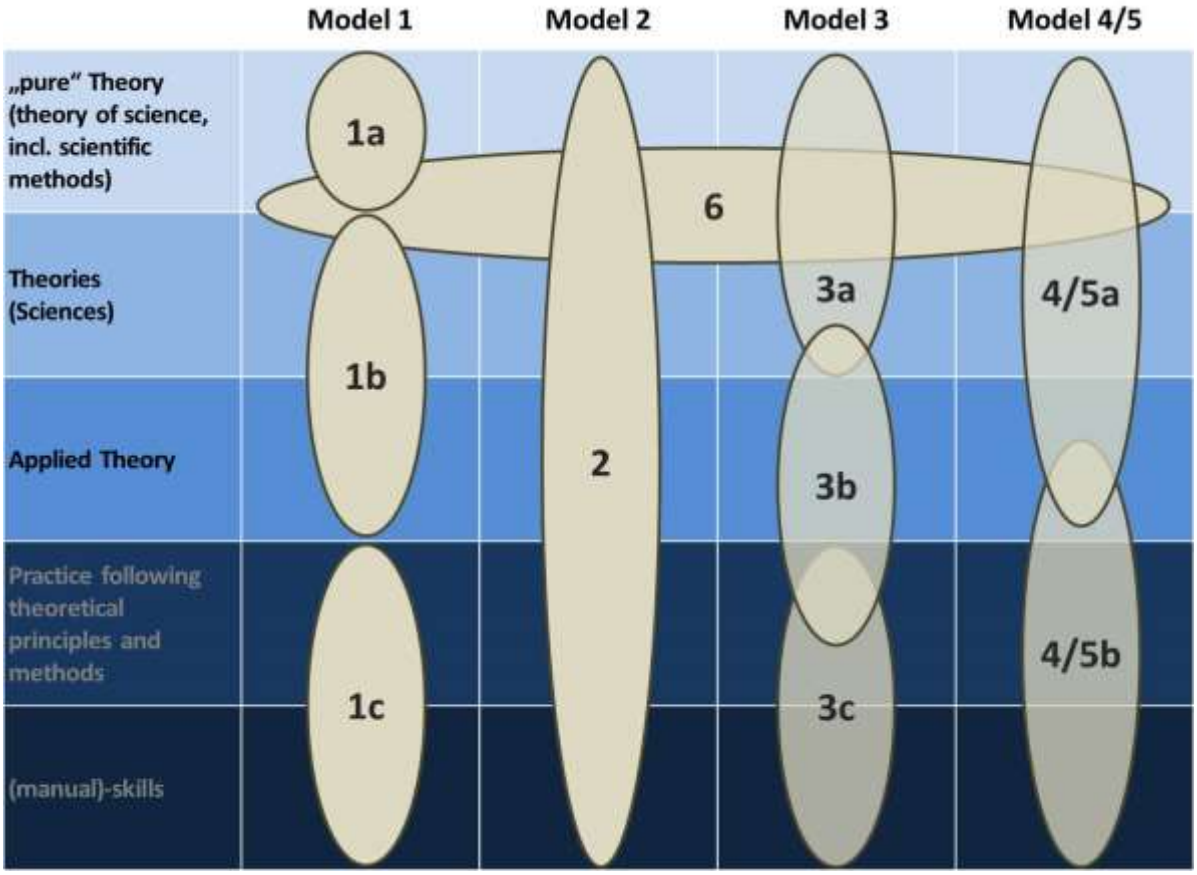

Figure 1: Differentiation of teaching at TVET Institutions according to professional tasks

Legend for Figure 1:

1a	=	("Higher")Theory-teacher (Theory-teacher I)	(traditional division of labour)
1b	=	("Lower")Theory-teacher (Theory-teacher II)	(the same)
1c	=	Trainer / Instructor	(the same)
2	=	Integrated Teacher (Theory and Practice)	(a dream)
3a	=	("Higher") Theory-practice Teacher I	(modern ICT-driven occupations)
3b	=	("Lower") Theory-practice Teacher II	(traditional manual intensive occupations)
3c	=	Trainer / Instructor	(practice and related theory)
4/5a	=	Theory-practice Teacher I	(overlapping two or three occupational fields)
4/5b	=	Theory-practice Teacher II	(overlapping two or three occupational fields)
6	=	General Knowledge Course Teacher	

3 The theory-praxis revolution

Regarding the five teacher types, it is important to keep in mind the pervasive role IT now plays in the modern industrial workplace. As a result, the realm of theory continues to expand both quantitatively and qualitatively, while the practical realm of (manual) skills contracts in many traditional jobs and occupations. A number of studies by WB, EU, ILO and OECD and other international organisations indicate that the transition from a traditional manual-intensive economy to a cognitive-intensive economy is underway, and a large body of scientific evidence confirms that this is indeed the case. This trend bears the following consequences: "As countries move up the value-added chain of production, employment shifts away from jobs involving routine cognitive and manual tasks toward jobs requiring tasks such as critical thinking and complex communication" (Jagannathan/ADB 2012, 5). The effects of this transformation extend to VTE as well. Naturally many occupations remain, in which manual skills are very important (e.g. blacksmith, confectioner, goldsmith, mason). The type of basic skills (manual dexterity and operation of conventional machine tools such as lathes or milling machines), which are taught during the initial phase of vocational training, still play a major role in many types of work. For that reason, the need for practice-teachers (usually called trainer or instructor) will persist, but not in all occupations. Trainers who also teach theory directly relevant to the practical skills must have a high level of practical competence. By international standards, that means two to three years of vocational training (apprenticeship) supplemented by one to two years of real work experience in industry.

In many occupations and types of work, theory and practice are so closely intertwined that separating theory and practice makes no sense for vocational teacher education (VTE) or TVET. This applies to many modern occupations and types of work involving electrical/ electronic systems, mechatronics, machinery, design, production technology, material science, automation processing, production organisation, quality management, quality control, etc. However, even in these occupations, "practical" does not equate to the traditional context in which manual skills and a routinization of machine operation play the dominant role. Instead, the emphasis is now on planning, management and control of production processes. In the VTE context, traditional workshop-type activities should be deemphasised both quantitatively and qualitatively. The emphasis on practical work has to be shifted towards integrated lab-based simulations and experiments featuring expanded/intensified theory content. This brand of (modern) theory-practice teacher embodies the new ideal of integrated training and education at the university (VTE) and vocational training level (TVET).

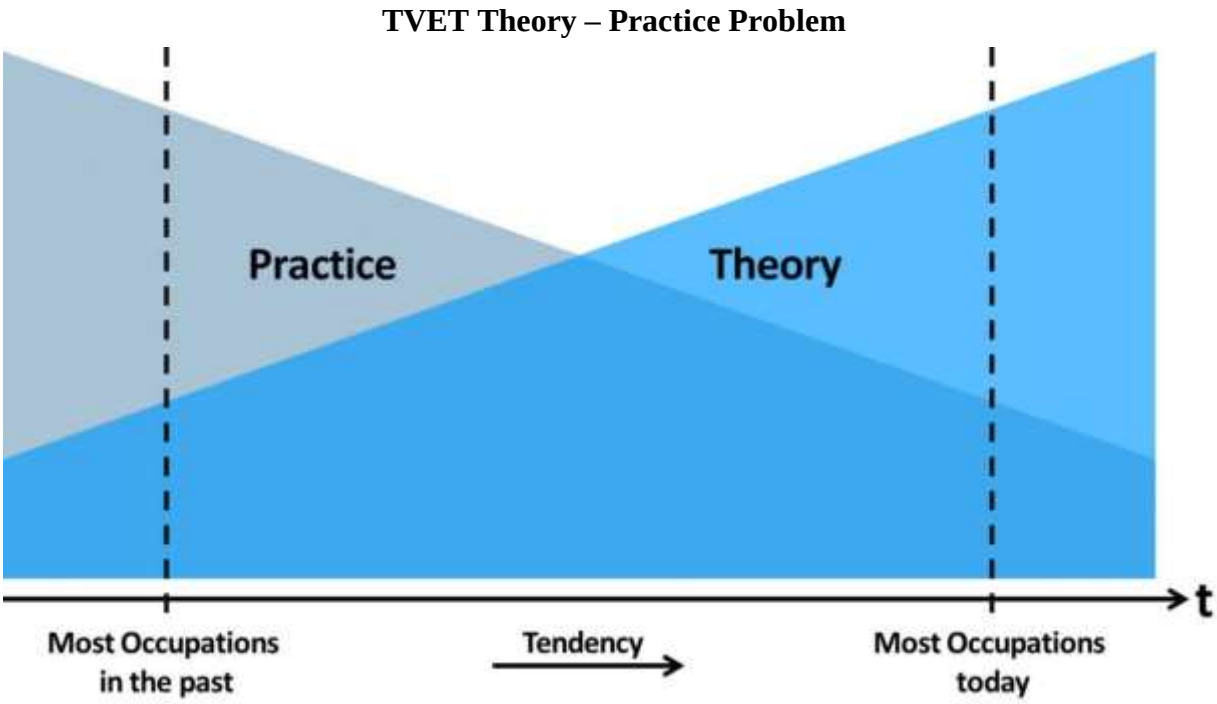

Figure 2: Change of theory and practice ratio in TVET occupations throughout time

These changes in the world of work demand a profound reaction in the teaching and learning processes of TVET institutions:

4 Modern teaching and learning

In many countries the combination of theory and practice in TVET is regarded as the ideal concept of teaching and learning in pedagogical terms as well as meeting the needs of industry. A proper organisational structure and teaching materials has to be in place, as briefly mentioned above in Chapter 1. However, modern learning does not simply mean the introduction of innovative new methodologies such as e-learning and group teaching and learning. It brings with it a totally new perspective to learning. This new perspective on education is closely linked to what is going on in society, as indicated by the 1996 UNESCO report: "Education cannot be satisfied with bringing individuals together by getting them to accept common values shaped in the past. It must also answer the question as to what for and why we live together and give everyone, throughout life, the ability to play an active part in envisioning the future of society. The education system has therefore the explicit or implicit task of preparing everyone for this social role…. Schools must therefore prepare people for this role by instructing them in their rights and duties, and also by developing their social skills by encouraging teamwork. Preparation for active participation in the life of the community has become, for education, a more and more widely recognized task as democratic principles have spread throughout the world" (UNESCO 1996, 61 ff). In this context ILO talks about "liberalizing learning of teachers and trainers" (ILO 2010, 13), and Qureshi/UNESCO cites "new philosophical beliefs" (1997, 94).

But there are other strong influences emanating from the changes in industry. A new set of generic skills is demanded by many emerging work places which include critical and creative thinking, innovation and problem-solving strategies, abstract reasoning, analytical skills along with other key competencies (Majumdar 2011, 51f).

Two pedagogical/methodological categories have played a dominant role in the recent debate on integrated teaching and modern learning for TVET, namely action orientation and work-process orientation. Dung tells us (2011, 36): "Vocational training is closely related to occupational activity. Therefore the job profile with task description in required knowledge and skills will be the basis of learning objectives, development of learning modules, design of training programme as well as for implementation of learning process".

All is easily said but becomes somewhat more complex when putting it into operation. One suggested approach is the VTE-curriculum of the Hangzhou (2004)/Bandung Declaration (2008).

However, I have serious doubts that this curriculum can actually function. What is at stake here is a common thread of social and occupational science including aspects such as HRD and work-process orientation/occupational analysis. This approach is not wrong per se, but to get it to work effectively requires highly skilled teachers with a solid background in pedagogy and the social sciences blended with expertise in business/industry and the world of work. Songthanapitak &Schröder have highlighted very clearly the essence of the underlying problem (2012, 5): "The excellent implementation of modern learning and teaching methods such as action-orientation, work-process-orientation, work-task-orientation and project-orientation can only be processed successfully by teachers, who have profound practical and vocational competences gained from experiences in the very real world of work". For my part, I favour curricular designs that largely segregate the teaching of technical subjects in the vocational disciplines based on the "systematic of subjects" (RCP 2011, 32) from the teaching of vocational pedagogy. In my opinion a partial convergence of the two core components of VTE in the curriculum under the aspect of work-process orientation and action-orientation (Nyhan 2002, 111) should take place mainly during the teaching of occupational instructional science (Fachdidaktik).

5 Recruitment of practitioners within the VTE context

In many countries, pupils that enrol into the university education system (normally after 12 years of schooling) are reluctant to take up programmes of study which primarily lead to a qualification as a TVET teacher. We are referring here to degree courses designed specifically (and exclusively) to prepare students for a career in the formal TVET system.

The study curriculum generally includes (as a minimum) the learning of

- one major subject/vocational discipline; in rare instances (but quite common in Germany) a minor subject also and

- vocational pedagogy/vocational didactics including teaching skills and methods of teaching and teaching practice
- in most cases a school and/or company internship based on a very broad diversity of concepts, duration and modes of organisation

5.1 The concurrent (or parallel) model

In all of its very different manifestations, many countries call this main model simply the TVET teacher model. The terms "concurrent mode/model" (e.g. used in Vietnam) or "parallel model" are more precise and easier to understand, but (unfortunately) they are not yet generally accepted in the international context.

With this model, a major subject/vocational discipline and vocational pedagogy form part of the course content either right from the outset (relatively rare) or after one or two years of general studies (e.g. natural science and basic technical/technological subjects such as maths, physics, mechanical engineering, materials science, strength of materials).

A general consensus exists in the international debate, that the concurrent (or parallel) model is the preferred option, principally because students who enrol in a course designed specifically for TVET teachers can identify with a career in TVET teaching at an early stage. Expectations are also, that this course of studies will contribute to a desirable level of professionalization in TVET teaching. Another aspect deemed attractive to this curricular approach is the early linkage which can be created between technical subjects and vocational pedagogy that is deepened by a special "technical subject-related pedagogy" (in German: Fachdidaktik). The integration of specific technical and occupational instructional science into VTE is very important for two reasons. Firstly, it builds a curricular bridge between two subjects that otherwise exist in isolation from one another, and secondly that it adds a teaching dimension to the course of studies, (hopefully) acting as a motivational factor.

However, as acceptance for this degree course model is low among the target group in most countries (including some ASEAN countries and Germany), ministries and universities are compelled to develop and offer alternatives in order to satisfy the need for TVET teachers. The list of major alternatives includes the following:

5.2 The consecutive model

In this model, students who have earned a Bachelor's Degree (even a Master's Degree in isolated cases) in, for instance, mechanical engineering, go on to obtain an additional teacher qualification in the major occupational specialities or vocational subjects. The additional training, usually in vocational pedagogy (in the broad curricular range mentioned above) and vocational skills, can be acquired prior to commencement of teaching work (duration: 3 months to 1 year) either on campus or through a distance study programme (pre-service programmes). Alternatively, qualifications may be obtained while working as a teacher at a school (in-service programme where teaching and attainment of teacher qualifications take

place in tandem with partial release from teaching duties). The consecutive model has become the major model in many countries, nowadays it is the "main stream".

What the two models mentioned above actually provide is training for theory teachers. In both cases the curriculum is heavily weighted towards theoretical subjects. As the emphasis in educational policy is given to practice-oriented and contextual learning (practical skills training at the university and – if at all – in an industrial setting) it is insufficient, and the teachers cannot perform as trainers in the traditional sense and provide instruction in practical, hands-on skills.

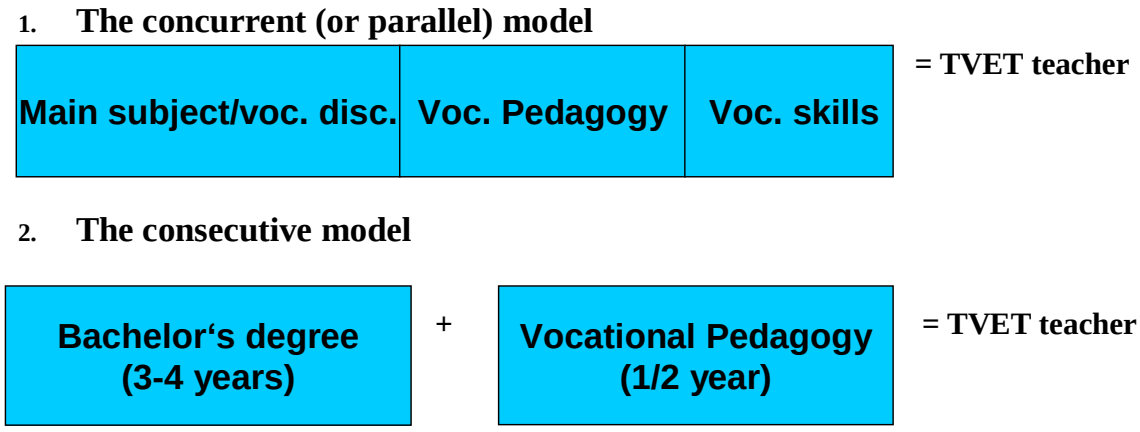

Figure 3: Two main models of VTE

However, even with these two models, most countries are unable to train teachers and provide the quantity to satisfy political needs. As a result, other options for recruiting teachers have to be explored, but only a few choices are available. A realistic possibility is the recruitment of practitioners.

5.3 Recruitment of practitioners from the world of work (transfer models)

A number of different terms are used to describe this type of recruitment including associated programmes, articulated programmes or transfer models.

This approach provides a path to TVET teaching for a very diverse target group. The different programmes create new opportunities to meeting the demand for TVET teachers, but it also involves several problems discussed below. However, what appears to be a stopgap measure – and is common practice in many countries around the world – also opens up new horizons. Experience and expertise from the practical world of work flow into TVET. Vocational education and training can be enriched with new curricular elements and teaching methods (new content, new strategies, new methods). Practitioners can introduce innovative ideas into the essential TVET reform process. ILO concurs with this view (2010, 15). People with practical experience introduce a new perspective to ongoing in-service training programmes, or at least have the potential to do so. Nonetheless, pre-service or in-service programmes must be put in

place to impart the qualifications these practitioners need to carry out their teaching duties in a professional manner. The programmes usually impart skills in vocational pedagogy. However, it has be said, that people are sometimes simply "thrown in at the deep end" without proper preparation for their role as teachers. Needless to say this is not the ideal solution for either the teacher or the student.

For experienced skilled workers or technicians (professional secondary school graduates), recruited into TVET teaching, an opportunity opens up to them for social advancement, which is extremely welcome from a social policy standpoint. In spite of this the welcome socio-political aspect, the true potential of this group is the fact that their practical skills and real-world experience can make a vital contribution to the contextual vocational educational experience. It is precisely that set of skills and experience that is frequently cited as lacking in the TVET teaching profession in the ASEAN region (ILO 2010; RCP 2011). A possible example is the "Trainer Metalworking" in Vietnam: After three years of training in a vocational college (and with practical experience in industry) upgrading courses are offered (vocational pedagogy and advanced skill development courses) of about 800 hours, promoting the participants to qualified trainers (Lipsmeier/Beckmann 2012):

Trainer Metalworking, Level 1

Prerequisite	Vocational Pedagogy	Advanced Skill Development Courses		
3 years	400 hrs.	120 hrs.	120h	120h
Vocational College	• Pedagogical Framework Curriculum of Vocational Training according to Circular 19/2011/TT-BLĐTBXH	• Hand-guided tools (Enlargement and enrichment of knowledge, skills, didactics and methods)	• Conv. Lathe (Enlargement and enrichment of knowledge, skills, didactics and methods)	• Conv. Milling Enlargement and enrichment of knowledge, skills, didactics and methods)

Figure 4: Upgrading model for practitioners for becoming a trainer

But we are not proposing a dead-end solution. In our model too, particularly well qualified trainers would be given the opportunity to enhance their qualifications and advance the level as a theory-practice teacher by following the articulation pathway based on recognition of prior learning. Possible measures could be the "introduction of associate degrees for TVET and applied bachelor's degree programs" (Jagannathan 2012, 7).

In all the cases: attractive incentives (including salaries) should be offered to trainers who continue to provide practical vocational instruction to offset the risk of them seeking alternative employment in industry.

6 Practical vocational competences

Different terminology is used to describe these competences: practical skills, vocational skills, occupational skills, practical knowledge. However, since the term skill is mostly used in the

narrow sense of manual proficiency, it does not convey the right meaning when discussing VTE. Teachers are asked to do far more. Undoubtedly, many occupations still exist that require practical proficiency and manual ability (the use of hand-guided tools, welding, assembly work, etc.) and machine operation (conventional lathes, etc.) which are all very important. Teachers who pass on these proficiencies to students or trainees need to be experts themselves. Such a level of expertise cannot be imparted by simply bolting it onto an academically challenging teaching degree course, at least not within the framework of a teacher training scheme limited to 3 to 5 years. As a result, Germany has long since given up the vision of an ideal TVET teacher who is responsible for teaching both theory and (this kind of) practice. The teaching of traditional practical skills should be the domain of expert practitioners and well-qualified trainers/instructors. As mentioned in Chapter 2, these trainers/instructtors should - of course - teach the theory directly related to the specific practical work. However, as pointed out in Chapter 3, the theory-practice problem takes on a totally different dimension in many modern occupations such as electrician, electronics technician, mechatronics technician, etc. Excluding a small set of manual skills, it is impossible to separate theory and practice. Fabricating an artificial distinction e.g. teaching theory and practice separately makes no sense in terms of either curriculum design or content delivery. A (modern) theory-practice teacher embodies the ideal vision of integrated teaching and learning both during VTE and throughout the teaching career. The general consensus is that teachers only have limited vocational skills; this refers primarily to traditional skills. However, the shortcomings become even more apparent when you include non-academic work experience (ILO 2010, 22 ff) and industrial experience. This set of competences and experience is absolutely essential for modern learning where action orientation and work-process orientation play an important role (Section 4). This was made expressly clear at the recent 3rd UNESCO World Congress on TVET 2012 in Shanghai (Songthanapitak & Schröder, 15/5/2012).

Even if a general consensus were agreed on this issue in the debate on instructional science and methodologies, the problem remains as to how one acquires these competences. The essential (but in many cases inadequate) learning of occupational skills and acquisition of industrial experience takes place worldwide using different organisational models and is based, to differing extents, on different sets of regulations (European Commission, 18/4/2012):

a) A complete vocational training course (traineeship; duration: 2 to 3.5 years) prior to the commencing VTE: this is a dream of many VET experts and politicians of TVET, which is somewhat optimistic and cannot easily be made a reality. And, as mentioned above: it is not necessary for every teacher in TVET, but rather for those, who are working in traditional occupational fields.

b) Inclusion of a short internship (6 to 9 months) before starting a VTE programme or within VTE (as it is the case in many countries); the European Commission has recently published the Quality Framework for Internships to provide a legal basis for agreements with companies and achieve an improvement in the situation which is unsatisfactory in many countries (European Commission, 18/4/2012).

c) Internships in industry while working as a teacher on a contractual basis (obligatory in some countries).

Other alternatives exist, however. The feasibility of the various options depends to a large extent on whether regulations can be issued governing placements for teaching interns and student teachers as well as the terms of the internship agreements. Naturally, financial incentives can increase a company's willingness to participate in internship programmes. Internships could be made mandatory for students. But to have teachers taking part, as a requirement by law, is a political issue to be handled very differently worldwide. Dung arrives at a sobering conclusion (2011, 4): "There are no mechanisms and policies for enterprises and vocational institutions to create conditions for vocational teachers to go on fact-finding tours to production, business and service establishments annually". Also, to make the internship an experience with genuine educational value going beyond mere factory visits, the interns/ teachers should submit reports, that document learning progress. The portfolio method would be a suitable vehicle for that purpose (European Council 2012).

Other possibilities include:

d) Internships in companies with high sophisticated integration of the learning and work-infrastructure and employment of workflow embedded methods of learning:

- Group-work: relief of traditional assembly lines (e.g. in automobile industry and other assembling industries). Group-work has proved an effective instrument for enhancing productivity and quality through flexible work patterns and the delegation of responsibility to the groups and their individual members. This includes participation in the organisation of labour and reflexion on work processes.

- Work and learning tasks: a work task-based form of learning with the primarily focus on work as the constitutional element. Work- and learning tasks aim at the enhancement of individual competences of learners in fluid work processes as often found in trade or in IT-professions. The anticipatory planning of work processes as well as problems and their solutions during the implementation are documented and afterwards reflected on (see Schroeder 2008).

- Learning factories: this term refers to in-company facilities where real, productive work can be combined with a genuine learning experience. This is very efficient but cost-intensive and would have to be subsidised from public funds.

- Learning islands: a similar but significantly less cost-intensive approach; a small group of experienced workers (3 – 5) provides a working and learning experience for trainees or interns under real conditions but with reduced time pressure (learning by doing at its best)

- Quality circles: an idea which has its origins largely in Japanese production philosophy and is intended primarily to improve product or process quality but is also a vehicle for further education. It can provide another opportunity for interns to participate and learn.

e) Internships in production schools by expanding and/or establishing these schools. The idea of production schools has been put into practice worldwide including many ASEAN countries. It has advantages and disadvantages. On the one hand, it provides a way of bringing the real world of work into the school environment on the other there is a real temptation on the part of schools, teaching staff and students to emphasise the economic aspect and concentrate on routine work and mass production. Naturally this does not enhance learning outcomes (Hoppers 1994; McLaughlin 2002).

f) Internships in research institutions (govermental and private ones).

7 Short summary

Giving due consideration to the international situation, let me begin by acknowledging the fact that educational policy in many ASEAN countries has produced some impressive results over the past ten years. The favourable educational policy framework (e.g. articulation pathways) makes it easier to introduce reforms, and this includes VTE.

Nevertheless, TVET continues to suffer from a serious shortage of teachers and trainers, and the quality of existing staff is often questionable. Considerable effort is needed to alleviate or eliminate these shortcomings. In quantitative terms, only two strategies are relevant. Firstly, working conditions (outfitting of school laboratories, workshops, libraries, etc.) have to be improved and these professions have to be made more attractive (career advancement opportunities, pay, incentives). Secondly, better access articulation pathways to these professions will have to be created for practitioners. In terms of the qualitative aspect, a whole range of (concrete!) measures will be needed. One main point for the improvement of TVET teacher qualification is - without a shadow of a doubt - the enlargement of praxis-orientation within VTE.

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Abbreviations

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
BIBB	Bundesinstitut für Berufsbildung (Bonn)
BRD	Bundesrepublik Deutschland
CEDEFOP	European Centre for the Development of Vocational Training (Thessaloniki)
CPSC	Colombo Plan Staff College for Technician Education
EU	European Union
InWEnt	Internationale Weiterbildung und Entwicklung gGmbH (Bonn)
ISCED	International Standard Classification of Education (UNESCO)
ITB	Institut Technik und Bildung / Institute of Technology and Education (Bremen)
KMK	Konferenz der Kultusminister (BRD)
GDVT	General Directorate of Vocational Training (Hanoi)
GIZ	Gesellschaft für Internationale Zusammenarbeit (Eschborn)
GTZ	Gesellschaft für Technische Zusammenarbeit (Eschborn)
HCMC	Ho Chi Minh City
HRD	Human Resource Development
ILO	International Labour Organization (Geneva)
KIT	Karlsruhe Institute of Technology/University of the State of Baden-Württemberg
MoLISA	Ministry of Labour, Invalids and Social Affairs (Hanoi)
OECD	Organization for Economic Co-Operation and Development (Paris)
PDR	Peoples Democratic Republic
RCP	Regional Co-Operation Platform for Vocational Teacher Education and Training (Shanghai)
SR	Socialistic Republic
TVET	Technical and Vocational Education and Training
TVET TT	Technical and Vocational Education and Training Teacher Training
UNESCO	United Nations Education, Scientific and Cultural Organisation (Paris)
UNEVOC UN	International Centre for Technical and Vocational Education and Training (Bonn)
UTE	University of Technical Education
VET	Vocational Education and Training
VTE	Vocational Teacher Education
VTTE	Vocational Teacher and Trainer Education
WB	World Bank (Washington)

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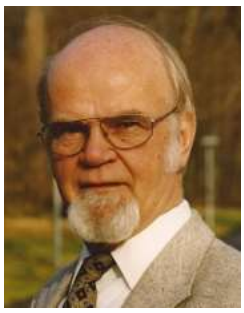

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