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**CORNELIS VAN DORP**

Fontys University of Applied Sciences, The Netherlands

**PIET LEM**

Fontys University of Applied Sciences, The Netherlands

**FONS DEHING**

Fontys University of Applied Sciences, The Netherlands

## **WIDENING THE DUTCH TEACHER TRAINING PORTFOLIO WITH A NEW (SHORT CYCLE) PRACTICE TRAINER SUITE: IMPROVING ENROLLMENT FIGURES AND PEDAGOGICAL COMPETENCE ACROSS VOCATIONAL SKILL LEVELS**

### **Abstract:**

In this paper the authors present an educational solution to counter the lack of technical trainers in Dutch vocational education and in-company environments. In the Netherlands, thousands of challenging jobs for hands-on vocational graduates are waiting to be filled-in, whereas the number of (practice) trainers essential to accommodate for the training of these technical prospects, lag behind. The part of the higher education system, designated to the training of teachers, has not been able to provide a solution for this problem. Authors indicate that the problem at hand is complex, multilevel and extends to the coverage of adequate numbers of technical trainers over the different (higher en lower) vocational skill levels. Authors propose to widen the Dutch higher education teacher training system with a new (short cycle, EQF-5) practice trainer programme, which is able to deal more effectively with the challenge. From a macroeconomic perspective, the challenge for the new programme is to draw sufficient numbers of new (technical) trainers. From a pedagogical perspective, the challenge is train the new trainers in such a way that they are able to educate different types of vocational students: obtaining competence and coverage over different vocational skill levels. In the paper, the main requirements are discussed and different parts of the proposed training programme explained. Authors draw conclusions from their experience with the delivery and evaluation of the practice trainer programme, an official associate degree (2 year) programme.

### **Keywords:**

Higher education, practice trainer, vocational education and training, associate degree, technical occupations, vocational skills.

**JEL Classification:** I21, I25, I29

## Problem statement

The Dutch labour market witnessed an increasing demand for technicians on level 4 of the European Qualification Framework (EQF). Satisfying demand on this level has proven difficult, due to the drop in enrolment figures of vocational education (ROA, 2011). In response, the Netherlands across its regions and sectors, has launched important initiatives to stimulate the generation of skilled technicians (OCW, 2013a). Prerequisite for successfully generating more and qualified technicians, is the availability of technically and pedagogically skilled teachers and (practice) trainers. Technical teachers and practice trainers are especially needed in view of the fact that many qualified (technical) teachers and trainers, about to train the so needed technical potentials, are opting for retirement. Such development puts pressure and priority on the delivery of (new) technical teachers on level EQF-6 as well as practice trainers on level EQF-5. A substantial number of new teachers and trainers providing theory and (lab) practice skills must be accounted for, in order deal with expected shortages. Moreover, and notwithstanding the importance of technical teachers and trainers to vocational schools, also industry for reasons of retirement and competitive growth, is affected by the shortages of technical trainers: in view of training its own (technical) personnel. Conclusion is: there is an increasing demand from vocational education and industry for technical teachers and trainers.

## Technicians and trainers

Although the Dutch education system produces tens of thousands of skilled people: the numbers are not sufficient. Towards 2020, in the Netherlands, more than 70,000 technicians on EQF-4 level, will be retiring, annually. This number includes: construction workers, installers, electricians, metal workers, engineers, system analysts, et cetera (OCW, 2013a). The trend is worrisome to the Brainport region<sup>1</sup>. This region is located in the South East of the Netherlands. Marked by the city of Eindhoven, it is home to world-class businesses, knowledge institutes and research institutions. Within the Brainport region, thousands of challenging jobs for hands-on vocational graduates as well as engineers and talented academic researchers, are awaiting fulfilment. And exactly this foresight causes problems on the labour market. With the focus on deficits in the Brainport

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<sup>1</sup>Brainport is a top technology breeding ground for innovation: approximately one third of all Dutch private R&D expenditure is issued in this region.

region, it is estimated by ROA (2011), as described in the Dutch Technology Pact (OCW, 2013a), that approximately 30,000 additional technicians are needed annually, to satisfy demand of the South-East. Satisfying this requirement causes friction, given the current state of affairs with respect to the enrolment of students in (vocational) education. Up to now, the numbers of vocational graduates in (general) secondary vocational education have not increased sufficiently enough in the Netherlands.

Table 1 provides a recapitalisation of (decreasing) pupil numbers in senior vocational education by year, excluding one level: level 1.

Table 2 provides a recapitalisation of the pupil numbers in the technical sector. The number of (vocational) pupils choosing occupation in the technical sector has decreased (as opposed to the number of pupils in the non-technical sector, which has increased).

**Table 1: Pupil numbers in senior vocational education x 1000 (OCW, 2013b; OCW, 2013c).**

Education route	2009/10	2010/11	2011/12	2012/13	2013/14
Bol <sup>2</sup>	321,9	327,1	328,1	334,6	342,9
Bbl <sup>3</sup>	155,4	152,9	142,3	136,5	125,9
Dt-bol <sup>4</sup>	8,8	8,6	7,5	5,1	4,1
Total	486,1	488,6	478,0	476,2	472,9

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<sup>2</sup>Full time education programme.

<sup>3</sup>Part time education programme and part-time working programme.

<sup>4</sup>Limited programmes in part-time equivalent.

**Table 2: Pupil distribution in the technical sector x 1000 (OCW, 2013b; OCW, 2013c).**

Education route	Sector	2009/10	2010/11	2011/12	2012/13	2013/14
Bol	Technical	72,5	74,6	74,4	78,1	81,5
Bbl		67,6	66,6	61,8	55,8	49,5
Dt-bol		1,8	1,7	1,4	1,1	0,8
Total		141,9	142,2	137,7	135,0	131,8

The provision of technically and pedagogically skilled teachers is a prerequisite for successfully generating more and qualified technicians for the Brainport region. However, its realisation is complicated by the fact that many qualified (technical) teachers, about to train the so needed technical potentials, are opting for retirement. Numbers show that the ratio of teachers per student is decreasing (CentERdata, 2013). All this puts pressure on the production of (new) technical teachers and trainers. Regarded from an international perspective, the Netherlands is said to hold the highest (relative) share in teachers older than 50 years i.e., within upper level secondary education and secondary vocational education (OCW, 2013d). Within (senior) secondary vocational schools, the need for teacher replacement is particularly high due to retirements (viewed in constant demand). Within (preparatory) secondary vocational schools, the expectation is that the number of (new) teaching vacancies will slightly grow, whereas explicit teacher replacement is not expected to become a point of considerable attention.

### Substantive educational drivers

Apart from a macroeconomic rationale for technical teachers and trainers (Dorp Van, Dehing and Lem, 2014), there is also an intrinsic and substantive *educational* driver in training new teacher groups, and in particular on EQF level 5. In Dutch secondary vocational education students are prepared for a wide range of occupations. Courses are given at four different levels of training, each leading to a specific job qualification: level 1 (assistant

training), level 2 (basic vocational training), level 3 (professional training), and level 4 (middle-management training). The programmes take up to four years (level 4). Demand for skilled workers on all levels is expected to increase. In the Netherlands approximately 50% of the student population in secondary vocational education is typical a 'teacher domain' group (EQF level 3 and 4) and 50% is mainly a practice trainer domain group (EQF level 1 and 2). As a consequence, a large portion of the student population in the technical vocational education will be guided primarily by trainers and practice teachers. Nevertheless, teacher education programmes mainly focus on teacher training (Bachelor, EQF level 6). Not all of these student teachers however, are willing or ready to teach the more vulnerable special needs pupils of level 1 and 2. Groenenberg and Hermanussen (2012), in their publication about teaching level 1 and 2, call it 'a special art'. There is a need to consider a relevant practice teacher education programme, parallel to a 'normal' teacher training programme. These 'low level' vocational students need teachers with strong pedagogical competences and with an understanding of, and an open mind to, the needs of these pupils: a skilled and devoted practice teacher can make a difference.

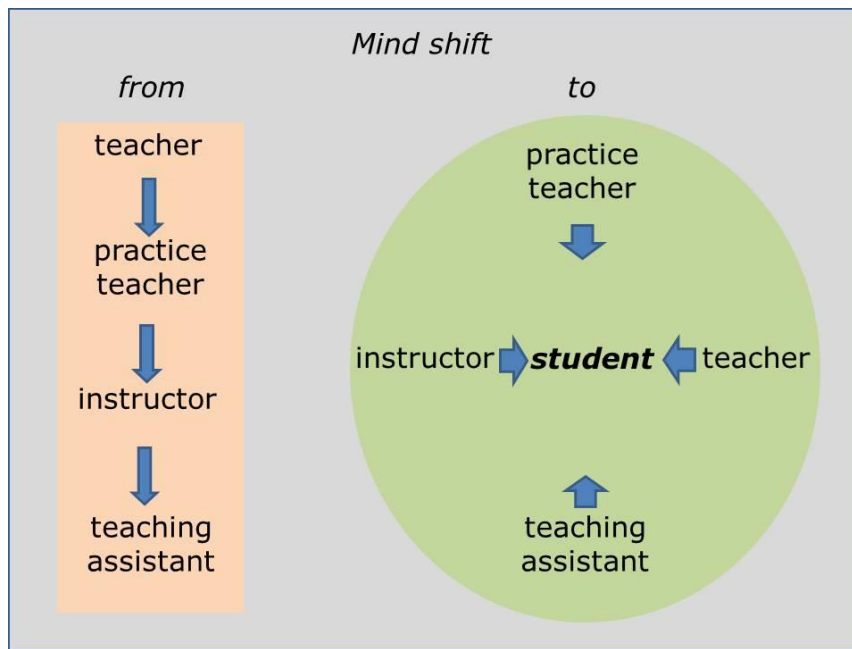
Imaginative measures are needed on the one hand, to stimulate (more) students to enrol in technical studies, and on the other hand to recruit (new) teachers and trainers for (educational) work in technical domains with associated deficiencies. Mechanisms ought to be developed so as to guarantee that relevant workplace skills, both within industry and VET institutions, remain up to date on all relevant levels and can benefit from continuous growth. New and attractive programmes must be developed for recruitment of new practice trainers. To satisfy demand in the short term, consideration must (also) be given to complimentary solutions, such as the training of contemporary professionals and practitioners from industry, and encouraging them to opt for the combination of working and (part-time) teaching: a dual professional perspective. Hence, teacher training programmes must be designed to prepare industry recruits for their (new) techno-pedagogical role. In developing attractive training solutions, teacher training institutes should engage employers effectively, so as to develop attractive programme portfolios, with attractive study horizons and transparent lifelong learning (progression) pathways, in reference to recognised vocational qualification frameworks and acknowledged assessment methods.

## Requirements derivation

In general, practice trainers and instructors in Dutch vocational education focus on developing, preparing and carrying out educational programmes mainly in practice situations, on and off the job. Also, they operate in a team together with the responsible teacher and others from the teaching staff. In many cases they have a great responsibility in teaching practice skills and in pedagogical education. However, all may know that defining 'the practice setting' in a single definition is difficult. A practice setting can take on many forms, both in the school and in the workplace. Also, the formal responsibilities of the practice trainer may vary from total personal responsibility for the whole teaching process to 'just' helping or assisting the teachers. There is a large degree of uncertainty about the role and tasks of the practice trainer.

According to Adams (2013) this confounds the professional identity of the practice teacher and affects the recognition that practice teachers 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 teacher role.

In developing an associate (higher education) trainer programme for practice teachers aimed at serving vocational education, one of the challenges the developers face is the development of, and agreement about a clear description of the role, tasks, and competences. Another important element to consider is status. Until recently the programmes which were offered to train technical trainers and practice teachers, had no official ground and legal status in the Dutch educational system. As a consequence, the practice teacher in a vocational school is often considered to be the helping hand of the teacher. A mind shift is necessary (Figure 1). Students will benefit from 'the 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 student.

**Figure 1: A mind shift in professional identity**

To effectively support the supply of qualified (technical) teachers and practice trainers, differentiated to the necessary vocational levels and special needs care of pupils, an initial requirements framework can be composed for educational solutions or programme suites to be developed. As a result of the research performed, the authors have been able to formulate twelve spearheads, which assist in the design of a potential training solution, a new entry into the higher education portfolio:

1. The solution must be made attractive for both employers and employees by characteristic of a feasible study horizon: a 'short cycle' programme;
2. The solution needs to be responsive to (professional) labour market requirements (i.e., adaptability and flexibility);

3. The solution must focus on pedagogical-didactical skills, alongside technical and managerial skills;
4. The solution should prepare future trainers for a multi-faceted professional identity: dealing with training in different practice situations, whereas roles, tasks and responsibilities may vary;
5. The solution must create sound pedagogical competence in trainers to serve different vocational skill levels and special needs care of pupils;
6. The solution is to support vocational competence building by industry needs on employment numbers;
7. The solution must provide a first entry into the labour market (an official higher education qualification);
8. The solution must allow positioning of the training solution as an intermediate qualification (EQF level 5);
9. The solution is to enable conscious career planning in line with one's professional development opportunities;
10. The solution should include a lifelong learning perspective: flexible access & learning pathways;
11. The solution should allow for interconnected pathways in the education system (from level 4 towards level 6);
12. The solution is to be inclusive to non-traditional and adults returning to the higher education system (social mobility).

### **Implementation: practice trainer suite**

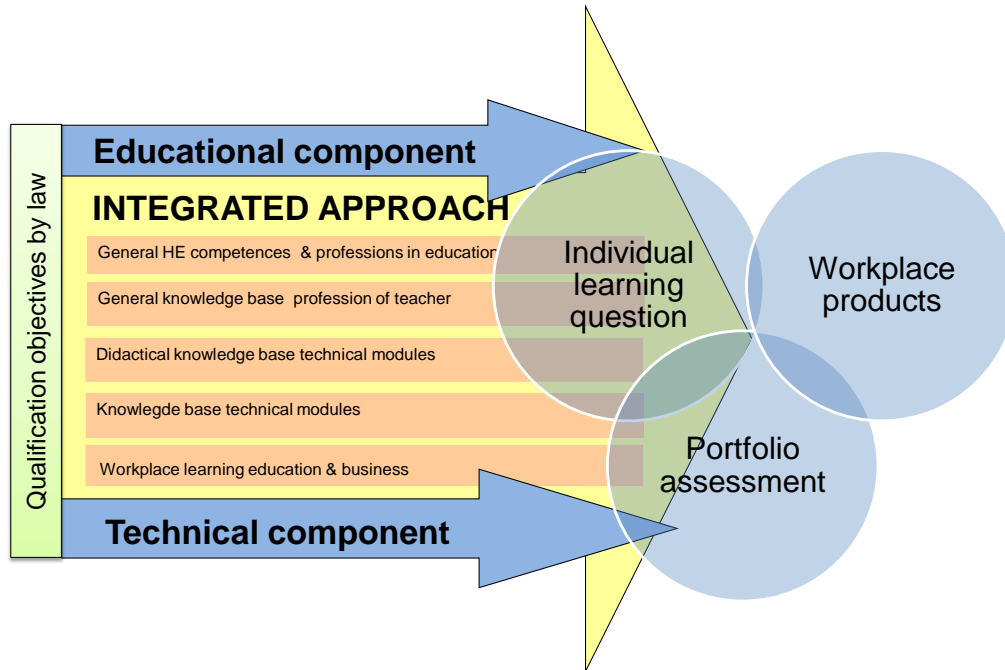
The practice trainer suite with different specialisation routes, which is developed by the teacher trainer institute of Fontys, is configured on the listed design directives as an official (practice trainer) associate degree (2 year) programme. To enrol in the programme, one requires a techno-vocational background on level 4 of the EQF and two years of work-experience. 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 (Figure 2). 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. Once enrolled in the programme, each student starts with the development of an individual learning question and plans a learning strategy accordingly. Knowledge is acquired in conjunction with the creation of authentic professional products, within one's own specific educational environment, be it school or industry. In this way and along the programme, students create their own evidence-based portfolio of learning achievements. With regard to student-learning, all necessary competences are constructed from school assignments, instructions and lectures, as well as from interaction with workplace-related products. Altogether, it constitutes a very attractive and feasible study programme, effectively building on a person's prior learning and workplace experience. With regard to the programme constraints by law: these are met by the implementation of different knowledge bases and competence requirements frameworks:

- (1) the national knowledge base on education competences and competences required within professions of education;
- (2) the general knowledge base for the profession of teachers;
- (3) the didactical knowledge base dedicated to the technical profession;
- (4) the technical knowledge base dedicated to the technical profession;
- (5) the competence framework for workplace-learning achievements within educational environments.

The above knowledge bases and frameworks are implemented in curricula, modules and assignments for students to develop their competences successfully: technically, pedagogically, and didactically.

**Figure 2: Main components of the practice trainer suite**

The practice trainer suite offers different specialisation routes: automotive, construction, metal, electro and installation, and catering and hospitality. With regard to a profession(al) outlook and labour market perspective: the programme makes way for different (career) perspectives: technical, managerial, educational and business-training. With regard to career planning, qualification possibilities and (continuing) perspectives on lifelong learning: the programme has the advantage of flexibly connecting with other educational offerings which are available as part of the Dutch (national) education system. 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. On successful completion of the practice trainer programme, a mere part of the Bachelor programme is still mandatory. In European perspective, programmes at EQF level 5 are attributed much potential (CEDEFOP 2014a; CEDEFOP, 2014b).

## Programme evaluation

In 2013-2014, the practice trainer programme was promoted in different technical sectors and vocational schools in the Brainport region, with the main objective to stimulate the enrolment of non-certified practice trainers into the official associate degree (2 year) programme, and realise their training and professionalisation. A qualitative evaluation of the practice trainer programme was performed under the enrolled student population. Both the macro-economic and pedagogical perspective were reviewed.

(1) From a macroeconomic perspective, the challenge for the programme was to draw sufficient numbers of new trainers. Designated information sessions were organised and interest for the programme reached about 50 participants over two years. However, only a third of participants of the information sessions decisively enrolled in the programme. An analysis performed as to the background of the enrollers showed that about 20% of actual enrollers originate from business, whereas the vast majority, some 80%, registered from job positions in vocational schools. It implied that inflow from industry lagged behind. The technical associations indicated that the inflow should be increased so as to effectively counter the shortages. As regards the vocational schools, the number of school trainers also was (still) low, and needed to increase. Considering the intensive (promotion) campaign for the new practice trainer programme, and the low numbers of participants actually enrolled, authors raised the question as to whether vocational schools and technical businesses actually included the position of practice trainer in their organisational function mix/map explicit enough? The authors consider this essential for human resource managers in schools or industry to have the mandate to recruit personnel on the positions. Authors relayed the question back to the council of vocational schools and technical business associations and requested more incentives.

(2) From a pedagogical perspective, the challenge was to train the new (technical) trainers in a way that they would be able to educate different types of vocational students: obtaining competence and coverage over different vocational skill levels. Were the participants satisfied? An evaluation was performed on the organisation of the lectures, the quality of the curriculum and the study materials, the performance of the teacher, and the nominal and actual time investment. Participants indicated that the duration of the programme i.e. short cycle, and the programme delivery

mode i.e. part-time, was very appealing. However, it remained quite a challenge for many, to combine study with work. Additionally, participants were satisfied with the outline of the programme and especially with the spectrum of pedagogical competence they obtained. Participants however were critical of the modules and subjects in the technical fields. It is assumed that this had to do with the variety of (professional) disciplines and the difference in knowledge levels both occupational and vocational, with which the participants entered the programme.

## **Conclusions and recommendations**

Against the background of some thousands of challenging (technical) jobs to filled-in and the retirement of much (technical) personnel ahead, there is an increasing demand from Dutch vocational education and industry for technical teachers and trainers, so as to account for the training of (new) technicians. In Dutch (high-tech) regions such as Brainport, an increasing number of technicians is needed, and demand for technical trainers is high. In face of the shortages for trainers and the relative low share of trainers graduating from Dutch education, appealing measures are to be taken to attract new inflow. To address the lack of especially (technical) trainers in vocational education and in-company training, the (2 year) practice trainer (associate degree) programme has been designed. Participants that successfully complete the programme, receive a formal (professional) higher education certificate: a (labour-market) entry qualification for practice trainer.

It was investigated whether the programme would effectively deal with the challenge of obtaining sufficient enrolment numbers and appropriate pedagogical coverage over different vocational skill levels. 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. This will help enable HR managers to hire practice trainers more swiftly, implement uptake and consolidate articulated demand. As with regard to the pedagogical coverage: the number of participants which actually choose to teach on pupil skill levels 1 and 2, also lagged behind. The authors realise that the enrolment number must (also) improve in face of market demand. To stimulate this, the authors recommend downstream

connectivity of the practice trainer programme with the instructor (teaching assistant) programme. This will allow (level 4) instructors, already accustomed to working with pupil levels 1 and 2, to continue their professional education in (more) larger numbers, towards a (level 5) practice trainer certificate.

Authors conclude that although improvements within areas of the practice 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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