

Associate degree practice trainer in TVET

- the missing link in teaching staff-

DRAFT

TEXT: in progress

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ABSTRACT

A growing need for more technicians, decreasing pupil numbers in (technical) vocational education (potential workforce), shortage of teachers in (technical) vocational education, pressure on schools for (technical) vocational education to increase the training level of teachers (bachelor and even master), decreasing numbers of students in (technical) teacher training colleges, high dropout rates in lower level (technical) vocational education, and lagging participation in further (higher) education are main observations in the world of TVET in the Netherlands. In the context of lifelong learning, the Dutch government takes the problem seriously and contributes by legislation to possible solutions. One of the solutions to a more dynamic system of further education in higher education is the implementation of a new degree, between level 4 (highest level in secondary vocational education) and level 6 (higher education: bachelor). The so called 'associate degree' is a degree in higher education. At the technical teacher training institute of Fontys university of professional education we take up the gauntlet and we expect not only to contribute to lifelong learning but also to positively influence some of the other mentioned observation.

In this article, after a problem definition, we describe the developed associate program for practical trainers in TVET. In the end we will consider the possibilities of expanding the program to a wider range of professions than just the technical area.

KEYWORDS

Further education, associate degree, level-5, short cycle, vocational education and training, teacher training, practice trainer, higher education, lifelong learning.

1. Problem statement

Teaching in (technical) primary and secondary vocational education in the Netherlands requires a bachelor diploma (EQF level 6): a bachelor diploma from a teacher training college, or a subject bachelor supplemented with pedagogical-didactical teacher diploma. Within the relentless discussion on improving the quality of teachers, schools even advocate master diplomas. At the same time, the number of new educational staff in vocational schools does not keep pace with the retirement of old staff. Also the teacher training colleges struggle to keep up with market demands for (technical) vocational educators.

On the side of pupils in vocational education, and especially in technical vocational education, as future workforce, there is also a not to be underestimated problem. As in many European countries, the Dutch labour market requires more technicians while student enrolment in primary and secondary technical vocational education decreases.

Besides decreasing numbers of teachers and an increasing demand for a professional workforce, there is a third important notion: dropouts. To meet pupils differences in developmental capacities, secondary vocational education has different training levels - equivalent with the EQF-levels 1,2,3 and 4, leading to a specific job qualification. The level 1 and 2 pupils are perceived as vulnerable, often special needs pupils, and therefore they require a special pedagogical and educational approach.

In secondary vocational education approximately one third of the pupil population can be found in the levels 1 and 2 and two third in the levels 3 and 4. The dropout percentages in the levels 1 and 2 are disproportionate big as compared to the levels 3 and 4. A lot of research has been conducted to dropouts in vocational education. So called 'push and pull' factors contributing to dropouts are personal traits, school traits and context traits. Research shows many risk factors (Herweijer, 2006, WRR (2009) within these traits. Ecbo (2012) notes something interesting. The report states that there is not such a thing as a one to one relationship. A pupil with only one risk factor can dropout, while a pupil with 8 risk factors can succeed, for instance because of an inspiring and dedicated teacher! (Wijk van, 2012).

To summarize these observations

- (1) A growing need for more technicians
- (2) Decreasing pupil numbers in (technical) vocational education (potential workforce)
- (3) Shortage of teachers in (technical) vocational education
- (4) Pressure on schools for (technical) vocational education to increase the training level of teachers (bachelor and even master)
- (5) Decreasing numbers of students in (technical) teacher training colleges
- (6) High dropout rates in lower level (technical) vocational education

The observations can easily lead to a fatalistic image of “stuck in a cage we created by ourselves”. The observations can also lead to an obligation and challenge to find creative solutions to new dynamics in the world of vocational education and training. In this article, we describe a contribution to a possible solution of the impasse. Before doing so, we want to focus on one more crucial observation.

In Europe as a whole, there is a great concern about the lagging participation in further education, especially in higher education (Rinnooy Kan, 2014). For both employers and employees it is not very appealing to study for 4 more years to obtain a level 6 diploma. In vocational education for instance it is very demanding for adults out of industry to study for 4 years to become a teacher in TVET. On the other hand it is obvious to persuade professionals from industry to start a new career in education to overcome the shortage of teachers. This is observation 7.

(7) Lagging participation in further (higher) education

2. Associate degree as option?

It is time to stop observing and to value the 7 observations to come to solutions. In the Netherland, in the context of lifelong learning, the government takes this problem seriously and contributes by legislation and projects to possible solutions. One of the solutions to a more dynamic further education system in higher education is the implementation of a new degree, between level 4 (highest level in secondary vocational education) and level 6 (higher education: bachelor). The so called ‘Associate degree’ is a degree in higher education between level 4 and level 6. The program holds a particular favourable position in the Dutch education system. The program 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 the labour market for all the (new) jobs where level 4 is insufficient or not specialized enough and where level 6 is not absolutely necessary. It also is a pathway to progress up towards the Bachelor level. In European perspective, programs at EQF level 5 are attributed much potential (CEDEFOP 2014a; CEDEFOP, 2014b). It contributes at the same time to potentially a more dynamic further education system; a two year higher education program is appealing for employers and employees. The Fontys teacher training institute for technical teachers in TVET has embraced the possibilities of the associate degree to develop a new training for educators in TVET. What makes the associate degree an unmissable opportunity?

3 Associate degree as gift from heaven?

Before, we mentioned that in the Netherlands the bachelor level (EQF-6) is required for teachers at VET schools. A part of the teaching staff does not meet this qualification, as a significant part of the practical skills training (especially in EQF level 1 and 2) is provided by instructors, mostly senior experienced technicians (EQF 4) without substantial further

pedagogical or technical training. Vocational schools apparently need these instructors. 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 (often) has (too) limited practical skills and experience for the vocation. On the other hand we have the skilled experienced technician from industry, who is vocationally skilled but has often (too) little pedagogical knowledge and too little higher conceptual technical knowledge. Upgrading the instructors in a further education program to the level of teachers is an option but proves to be difficult as instructors are not always eager or capable to do so. The education level of associate degree, between the teacher (EQF 6) and the skilled technician (EQF 4) could be a feasible solution to upgrade trainers in vocational education to a higher education degree and to improve pedagogical, didactical and technical competences. That is one! But there is another important option. The associate degree also offers great opportunities to be able to differentiate between educators of different levels of pupils in vocational education. It offers opportunities to differentiate in teaching functions in vocational education.

4. 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. Consequently, not all (beginning) teachers are capable, willing or ready to work with these groups as the focus is mainly on practice training and pedagogics instead of teaching technical concepts. In secondary vocational education approximately one third of the pupil population is mainly a practice trainer domain group (EQF level 1 and 2) and two third is typically a 'teacher domain' group (EQF level 3 and 4).

It has not been investigated, and therefore maybe it is premature, but it seems justifiable to ask the question if the very high dropout rates in level 1 and 2 could partly be explained by a 'mismatch' of educator and pupil. We are not the only ones who ask this question. At a symposium on vocational education in Windhoek, Namibia in September 2016 it was one of the issues. Discussions, among others, focused on 'over educated and under skilled' teachers alongside discussions on 'back to skill training instead of main focus on theoretical concepts.

Table 1 shows that the dropout percentages in the levels 1 and 2 are disproportionate big as compared to the levels 3 and 4.

Table 1

Dropout rates per level and type of secondary vocational education in 2010

Level	1	2	3	4
Bol	34%	13%	5%	4%
Bbl	43%	13%	4%	4%

Type of education: Combined with a job (BBL; part-time) or not (BOL: full-time)

The levels: 1) assistant training; 2) basic vocational training; 3) professional training, and 4), middle-management training. The courses take up to four years (level 4).

Source: Ecto 2012

The differences in pupil capabilities require different educational approaches! Groenenberg and Hermanussen (2012), call teaching level 1 and 2 pupils 'a special art'. Given the specific characteristics of the pupil population in vocational 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 as well as conceptual technical knowledge as compared to teachers have been recognized.

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

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 programs improve the flexibility of the higher educational system in supporting further education in VET and lifelong learning in higher education.

After a pilot period of 5 years, the EQF level 5, the so called 'associate degree' became part of Dutch higher education system in 2013, facilitating higher education institutes to develop level-5 programs. The teacher training institute of Fontys developed a higher education program for training practice trainers in VET schools.

From the beginning in the year 2000, we have been struggling with the relatively strong bachelor connection. 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. This strong connection is understandable because the associate program should guarantee easy access to the last two years of the bachelor program. On the other hand the associ-

ate program for practice trainers is intended not only to eventually continue a teacher training program, but especially to deliver competent practice trainers. We have found ourselves in a quandary. We have quite a lot of experiences in training programs for trainers in vocational education. 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. Those experiences convinced us that it is necessary to design an autonomous program with elements of special practice trainer competences. The program until now is a mix of both. We still guarantee a relatively smooth entrance in the bachelor teacher training program and at the same time we focus as much as we can on the practice trainer competences, tasks and roles. As foreseen in 2018 a new legislation will provide new possibilities in designing a more autonomous associate program. We will come to that later in the article.

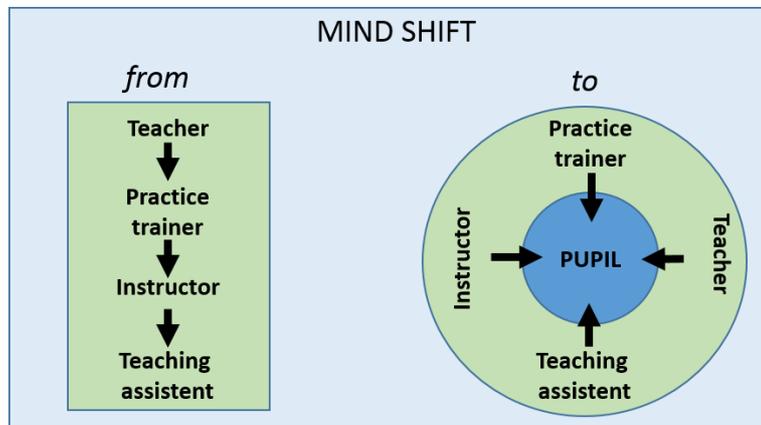
6. Considering status, roles and tasks of instructors and practice trainers in TVET

After 17 years of experiences with instructor programs, the development of an associate degree program was a natural next step. The instructors program 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 for the schools and for the pupils, 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'. What is more, many instructors are not part of the so called education staff but they are considered as part of the supporting staff. In reality, however, the instructor has a lot more responsibilities than just 'helping and supporting' the teacher. In many cases they develop, prepare and carry out educational programs in practice situations, on and off the job, and even they carry out theory lessons. They often have a great responsibility in teaching practice skills and in pedagogical guidance. According to Adams (2013) this leads the instructors to experience a large degree of uncertainty about their role and tasks. "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" (Adams, 2013, pp. 20).

In contrast to the instructor program, the associate degree program for practice trainers aims at both pedagogical and technical further training. In addition to this higher level, the program also aims at improving the positioning of the practice trainers in schools. The associate practice trainer is a member of the teaching staff and has a higher education diploma. Clarification of the status, roles and tasks of the practice trainer contribute 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.

Figure 1: A mind shift in professional identity



7. Practice trainers in the light of further education in TVET

For the further education in VET, this new associate degree program 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 that it is an easy job for VET instructors to complete this further education route. On the contrary, many of them have to re-invent studying! The associated degree is a higher education program which demands high levels of studying texts, writing papers, conceptual thinking, working in groups, doing practical research etc. As developers of the program, in all our enthusiasm and plea for lifelong learning, we must underline the importance of a good program 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'.

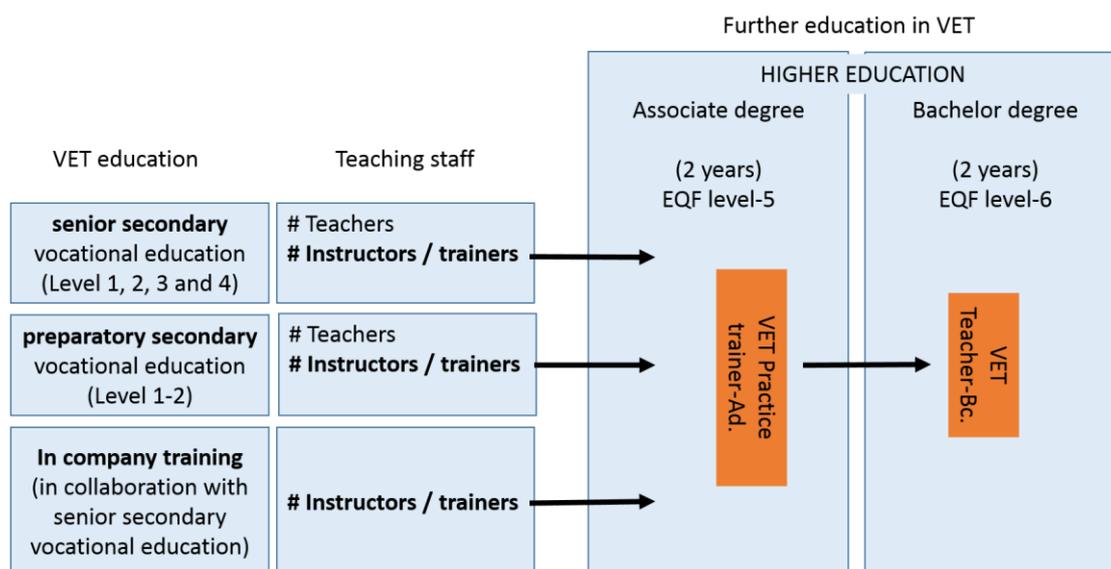
In figure 2 the Ad is positioned in the educational possibilities next to the bachelor.

8. 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.

Figure 2: Further education possibilities for VET educators



9. Design requirements

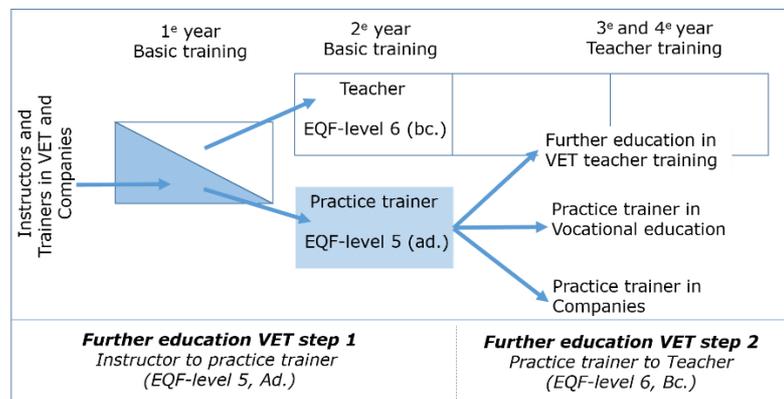
We concluded that the further training for instructors to the level 5 practice trainer should respond to the needs of the educational vocational levels 1 and 2 as well as the specific pedagogical needs care of pupils. We were able to define ten design parameters for this level 5 training (Dorp van, Lem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

- 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-faceted 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

10. Course design and implementation

The training program for practice trainers and teachers consists of two closely connected components: (1) an on-the-job program at the workplace (VET-school or company), and (2) an off-the job program at the Fontys teacher training institute.

Figure 3: Two-step Further education for educators in VET



The first year is a basic training year for both student practice trainers and student teachers. Trainers and teachers are part of the same group, working on productive learning tasks, and develop the same competences for vocational education. These activities are, however, tailored as much as possible to the setting in which the student works and learns. Typical curriculum components are developing educational actions (lessons, instructions, demonstrations), classroom management, guiding pupils, collaborating in a team etc. Workplace learning takes place from the start of the program for at least one day a week.

After the first year, there is propaedeutic exam. In fact it is an assessment to estimate the best route for further development. Most student practice trainers stay on track for the 'practice trainer route'. Some of the student teachers however switch from the 'teacher route' to the 'practice trainer route'. Investigation of these 'switchers' shows that many of them (merely adults) experience a 4-year program as too heavy and demanding, and/or feel much more confident and 'at their place' in practice education settings instead of more theoretical settings.

The second year (and already the final stage for the student practice trainers) differs from the second year for student teachers. Although for both routes the same competences are developed, the practice trainer program is much more focused on the educational setting of the practice trainer. In fact this stage is the core training part of the practice trainer.

11. Curriculum and methodology of the program

Assumptions of practice trainer performance

1 The practice trainer, in most cases, works as an educator with the lower level pupil groups in vocational education and in training settings in companies.

2 The practice trainer is merely a pedagogue. The (most vulnerable) pupils need him or her as an educator with notion and understanding of their needs.

3 The practice trainer can make a difference in learning output and in creating a safe learning environment for these pupils.

4 The practice trainer is a skilled professional who is seen by pupils as a real role model craftsman.

5 The practice trainer functions in the educational organisation as a full staff member who contributes to school improvement.

These assumptions triggered and forced us to develop a special training program and a setting in which the student practice trainer is able to develop and to demonstrate the needed competencies. As compared to the teacher training program, this program is more tailored to practice education settings especially for EQF level 1 and 2 pupils.

At the end of the program 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 program for welding for level 2 pupils. In the program 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. Parallel to the project the student carries out practical research. For instance the student investigates in different schools and companies the comparable educational programs 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.

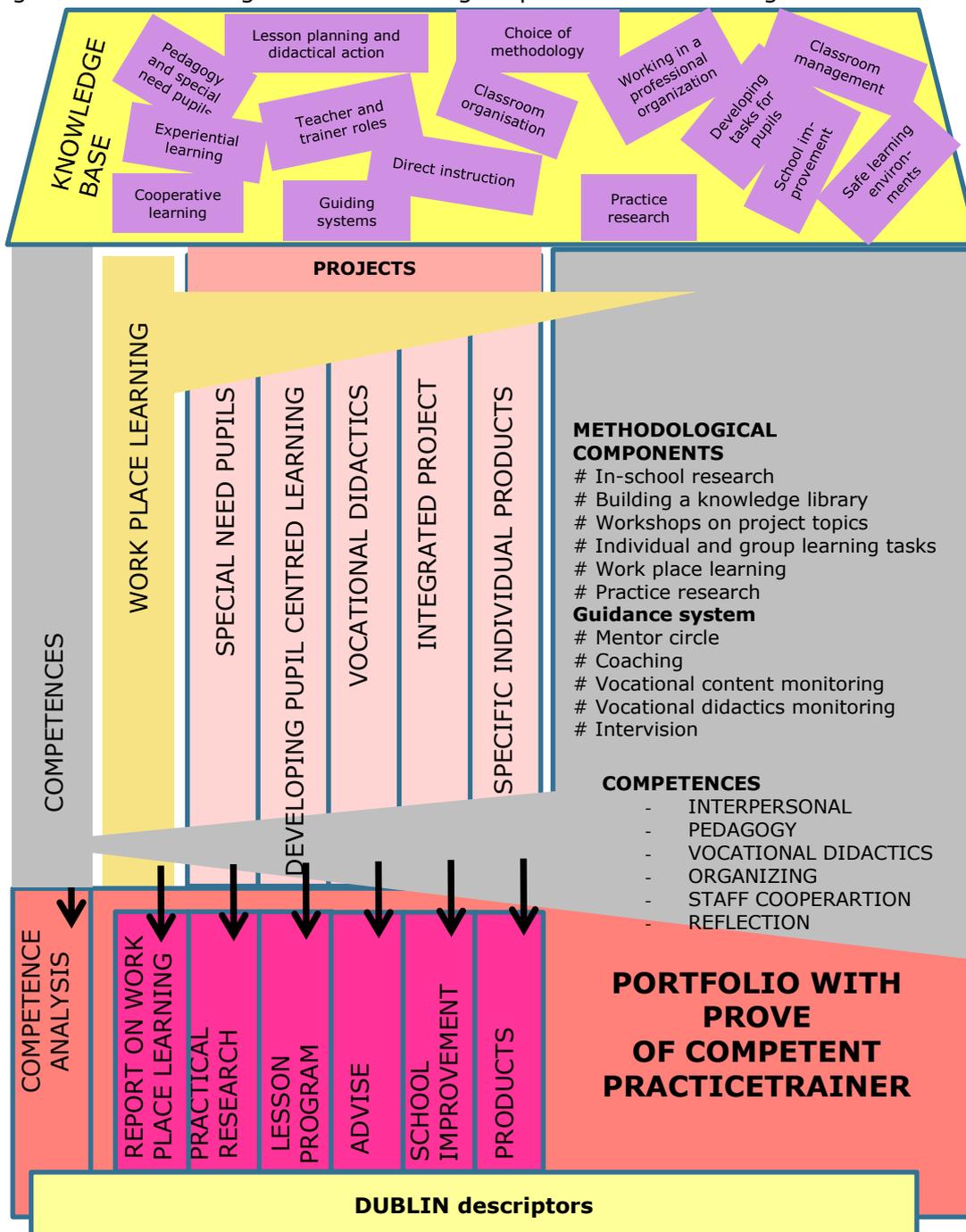
Off the job learning

During the training at the Fontys institute the students are coached and workshops are carried out. An important element in the program is the concept of 'the mentoring circle'. The program 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 in consultation with the Fontys educator and the workplace coach.

On the job learning

These student practice trainers are coached by their coaches in their school or in the company. As much as possible the student carry out real practice trainer tasks. In most cases the students are already part of the educational staff. The minority works in the school in an internship setting.

Figure 4: Second stage of Associate degree practice trainer at a glance



Mentoring circles

Parallel to this formal coaching another coaching process is established: mentoring circles. 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 small group, 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).

12. Evaluation

The program has been designed

- (1) on the design requirements for an official (practice trainer) associate degree (2 year) program (see before: 'design requirements'),
- (2) The program 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.
- (3) The program is designed as much as possible with the assumptions of practice trainer performance in mind.
- (4) The program offers different specialisation routes: automotive, construction, metal, electro and installation, and catering and hospitality.
- (5) The program holds a particular favourable position in the Dutch education system. The program 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, programs at EQF level 5 are attributed much potential (CEDEFOP 2014a; CEDEFOP, 2014b).

The program has been evaluated in 2016. Some main points from the evaluation: the practice trainers underline that the study program meets their world of interests, skills and experiences, and, consequently the students were only very limited affected by a 'praxis-shock' in education. The practice trainers mentioned acceptance by the pupils and by staff leading to more confidence. This is in contrast to what is heard in general by starting teachers. As we all may know, many student teachers experience a praxis shock during their first

steps as teacher. In many cases they have difficulties in overcoming that situation. It can lead to all kind of dilemma's which frustrate the development of a professional identity (Pillen, M., 2013). The reason for a less heavy praxis shock lies in a suitable educational setting: (1) practice trainers know the world of the practice part of their profession, (2) practice trainers are not (as compared to teachers) afforded for theoretical lessons with complex technical concepts, and (3) practice trainers in many cases understand the pupil population. They have been working with these kind of pupils and have guided them as interns during their professional live. As developers of the program we are glad with these remarks in the light of the importance of developing of a professional identity. It even triggers us to consider a redesign of the teacher training. While the student population of the teacher training route and the practice trainer training route are comparable it is to consider to focus more on practice teaching situations in the first two years of the teacher training.

Methodologically the competence based program was high rated. Students stressed that the program offered many 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 program. 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 program.*" However, the students criticized the part of the technical subject program. In general they rated that part of the program 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 program offers not only a readiness profile for practice trainers, but also a readiness profile for further education into a bachelor program. In the beginning of 2018 a new law in higher education will give opportunities to overcome this last issue by possibilities of developing an associate degree program which is more specialized and a more independent course.

13. 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) program has been designed. Participants who successfully complete the program, receive a formal (professional) higher education certificate: a (labour-market) entry qualification for practice trainer. Main objective of the Ad program 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 vocational pupils, especially in EQF level 1 and 2. The participants perceived the 2 year duration of the program 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 program 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 program 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 program 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 program are still needed, the program is a necessary entry on the EQF level 5. The program represents a formal training program 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 program 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 program: (1) by its position on EQF level 5; the program provides (upward and downward) connectivity with both instructor and bachelor programs, and (2) by its short cycle and part-time delivery mode; the program allows alignment of professional career planning and manageable study horizons.

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