# Integration of the theory of vocational didactics with school practice: observations of vocational teacher students

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## Summary

Didactics, the theory and practice of teaching and learning, has a subdivision referred to as vocational didactics (Gessler & Moreno Herrera, 2015; Unt, 2013). Vocational didactics (VD) focuses on the planning, implementing and assessing of competence-based vocational education and has played an important role in vocational teachers' education (Duch & Andreasen, 2015; Gessler & Moreno Herrera, 2015; Nore, 2015; Paju, 2008) and also, helping them to act consciously and scientifically in their working lives. In addition to theoretical studies in VD, vocational teacher training includes practices that help students integrate the theory of VD with school reality.

VD is looking for answers to the core questions of the learning theory – what is the subject of learning, why and what to learn, how, when and where to learn (Engeström, 2009; Ott, 2000). Therefore, the research on VD focuses on the objectives, contents, methods and media for training in a specific occupation.

VD is based on the outcome-based orientation of vocational education and training (VET), which means that the aim of learning is to achieve the competence – the coherent knowledge, skills and attitudes necessary for coping successfully in a specific vocational area (Baartman & de Bruijn, 2011; Gessler & Moreno Herrera, 2015). Besides, it has to reflect the specific cultural characters of a VET system. The horizontal structure of VD reflects the diverse and constant change content of vocational education, aligned with a professional domain. VD has to take the different requirement levels of occupations into account. Therefore, the content of vocational education has a vertical structure. It also has a temporal structure related to the particular phase of working life, as a vocational orientation, initial vocational education, and further vocational training or re-training. In conclusion VD has to be oriented to the changing nature of work. (Gessler & Moreno Herrera, 2015)

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The framework of a powerful vocational learning environment (de Bruijn & Leeman, 2011) suitably describes the didactical conception of competence-based VET and gives the answers to the central questions of VD: *Content of vocational training* - focuses on supporting the development of vocational identity, which means that besides domain-related theory and specific skills, social skills, vocational values and ethics are included; the authentic task and materials and realistic contexts are important; vocational theory and subjects-oriented contents are integrated. *Learning activities of students* includes constructive, cooperative and reflective learning, which means that students have opportunities for exploration, formulating and solving problems and seeking solutions. They have opportunities to plan and organise activities themselves and reflect their learning and work experiences together with peers and teachers, also students can develop autonomous work attitudes and vocational *habitus*. Learning activities like integrating and generalising are expressions of reflective learning. *Instruction and coaching* supports the students' understanding of the learning contents. Teachers act as role models regarding the acquisition of vocational competence. Important teaching activities are related with stimulating understanding through the contextualisation, generalisation, integration and modelling with respect to either practical or cognitive skills. The teacher's role is to guide students in explorative, reflective and cooperative learning using flexible methods of instruction and teaching methods according to the peculiarities of the students. In addition to instruction, teachers should also support the development of students' self-regulation skills, helping them to develop and maintain self-discipline and motivation. *Assessment of competences* is organised using different types, functions and methods of assessments (Ingle & Duchworth, 2013), assessment can also focus on competences or knowledge and skills that need to be assessed in terms of separate components. The quality of performance in authentic situations must be assessed in the context of project work, simulated practical assignments or work placements (Baartman et al., 2007).

But studies suggest that vocational teachers do not think about VD as a conception (Nore, 2015) and outcome-based VET has not been completely implemented (Cedefop, 2015). This shows that it is important to support vocational teachers in integrating the theory in practice and it could be done during their teacher training.

Therefore, the aim of the study is to identify the skills of the vocational teacher students to integrate the theory of VD with the schools reality. The qualitative study was based on the notices and created connections with theory that twelve students carried out in four VET schools, during the observational practice in the non-participating observations (Creswell, 2012). The qualita-

tive thematic content analysis of 55 observational protocols was based on the framework of a powerful learning environment (de Bruijn & Leeman, 2011).

The analysis revealed that the notices by vocational teacher students were mainly descriptive but diverse and related mostly to the aspects of the theory of VD which were simultaneously acquired. Thus, in the content of vocational studies the formation of vocational identity (Cedefop, 2015) was noticed through the vocational teachers role modelling and acquired knowledge and skills with vocational values, such as quality of work and vocational ethics. Authenticity (de Bruijn & Leeman, 2011) emerged during the theoretical and practical training using real tasks and tools. The key competences integration (ibid.) was seen in both general and vocational studies, but these were named without any explanation about their implementation.

Many collaborative and individual traditional learning activities, such as listening, writing, and observing (Lucas et al., 2012) were seen in the lessons. In some cases passive students were reported. Constructive learning activities (Cedefop, 2015; de Bruijn & Leeman, 2011; Lucas et al., 2012) were noticed mainly in practical training where took place experiential learning and problem solving. Reflection (ibid.) was noticed in general studies and practical training through the feedback given in the lesson, the presentation of the completed work and discussion about it, but also in mapping and drawing schemes, generalising and structuring learning. Anyway, the learning activities were mainly named without a longer explanation of how the learning methods were implemented or how noticed practices were related with theory of VD. So we can conclude that, at the time of observation, students did not have the systemic theoretical knowledge and theoretical relations with those aspects which were directly learnt.

The guiding activities of teachers (de Bruijn & Leeman, 2011) were described in detail. However, students noticed a diversity of learners in practical studies and described age, experience, learning speed and motivation. But it also emerged that there were difficulties in giving meaning to the diversity of learners. Constructive guiding (ibid.) was noticed by students when they observed general and theoretical studies. In practical studies observers noticed that vocational teachers provided autonomy for learners, guided individually or collectively according to need and supported learners' self-regulation skills. The students were able to associate their observations with some aspects of theory acquired in their VD courses, such as the structure of lessons, the learner/teacher centredness of lessons and the use of demonstrations as a teaching method.

Notices related to assessment described mainly the cases of formative assessments by vocational teachers, but were not associated with theoretical aspects

of assessment functions, types or methods (Baartman et al., 2007; de Bruijn & Leeman, 2011; Ingle & Duckworth, 2013). In general and theoretical studies students noticed the assessment of knowledge and skills, but in practical studies were seen as an assessment of competencies. However, the uncertainty in the understanding of the concepts of assessment emerged several times.

In conclusion, the students' ability to integrate the theory of VD with school reality was quite low and skill needs targeted support during the teacher training. The notes were simplified, mostly unrelated to theory, which shows that students did not understand the holistic concept of VD when the observation took place and aspects of VD were not always seen or experienced in practice as also previous studies have shown (de Bruijn & Leeman, 2011; Nore, 2015). In this study it appears that the temporal shift in theoretical studies and observation makes it difficult for students to notice and integrate the theory of VD with school reality. The theoretical studies that take place at the same time as practice support the integration of theory with practice. It shows the development needs of VET teacher training. There is the possibility to actualise previously acquired knowledge before observations, but it is also possible to apply diffused practice simultaneously with the whole theoretical studies of VD. The limitations of the study may be the lack of students' observation experience and the observations in the field not being related to the students' vocational background, which may have made it more difficult to notice and associate practice with theory.

*Keywords:* vocational education and training, vocational didactics, vocational teachers, vocational teacher training