# From Practice to Theory and Back Again: Experiences of VET Students in the Tension Between Vocational and Scientific Learning Processes

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## Abstract

The paper discusses the tension between vocational and scientific knowledge, which often presents itself as a question of theory-practice transfer. The context of the study are VET programs in the initial teacher training in Tyrol, Austria. One dimension of the research question focuses on the students' perspective: How do they perceive and evaluate the different forms of knowledge? A second dimension concerns the integration of learning experiences into the process of professionalization. Using a mix of quantitative and qualitative methods, the paper analyses material from different sources (questionnaires, focus groups transcripts, observation protocols), in which a total of 21-29 students from three VET programs were consulted over a period of four years. The findings display the students' expectations as well as their assessment of the relevance of theory. While the evaluation of scientific knowledge depends on the students (professional) background, the importance of reflection is being emphasized for the development of teacher professionalization. The connection to prior professional experience is expressed less through vocational knowledge or skills, but rather through social competencies. While the integration of learning experiences into the process of professionalization can be explained through reflective competence, the tension between vocational and scientific knowledge remains ambiguous at several levels of the VET programs. The results provide insights into the potentials that can be activated by the VET programs for creating transitions to past or future learning pathways. While many in-service students already are part of a "community of practice" in their professional field, they now become immersed into a new one without completely uncoupling from the old.

## Keywords

learning experience, teacher training, program evaluation, professional development

## 1    Introduction

Learning pathways of VET students tend to be multi-layered; they can be linear, multi-stepped, cross-sectional, or multi-directional (Harris & Rainey, 2012). In particular, the transition from vocational to higher education poses a challenge for many, because this is where educational programs collide in terms of different worlds (Biemans et al., 2016). This is particularly evident in the difference between vocational knowledge, which strives towards holistic task solutions, and scientific knowledge, which is dedicated to the systematic acquisition of knowledge within the framework of disciplinary research processes (Rauner, 2011). Both forms of knowledge are in dialectical tension, according to which they are fundamentally different and at the same time mutually constitutive of each other (ibid., 11). In vocational higher education, this tension often

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presents itself as a question of theory-practice transfer, in which the relevance of scientific knowledge for social problem solving is at stake.

The extent to which the theory-practice transfer is reflected in VET programs can be exemplified by the Austrian initial training of vocational teachers. Here, curricula contain both subject-specific and general educational elements; they not only impart knowledge related to the vocational field, but also comprehensively prepare students for the demands of the pedagogical profession. The integration of theory-practice elements should also make it possible to link up with previous vocational knowledge and to reflect on it critically. The acquisition of competencies is oriented towards professional, methodological, social and personal competencies, which can be adapted to individual professional pathways.

## 2    Research question

Given that many students of vocational teacher training already have relevant work experience or complete several internships during their studies, the question arises as to how the aforementioned theory-practice transfer is perceived by the students. How do they perceive the tension between vocational and scientific knowledge? Does the theory-practice transfer succeed in the sense that different forms of knowledge become compatible? Do students expect courses to always be linked to prior vocational knowledge? Should theoretical content always have a recognizable relevance for practical application and concrete classroom practice (Tynjälä & Heikkinen, 2011)? At the same time, to what extent do students' practical experiences help them to understand the content taught (Broad, 2016)? Or, alternatively, are these experiences re-evaluated in the course of study so that retrospective sense-making takes place (Weick, 1995)?

A second dimension of the research question concerns the integration of these learning experiences into the process of professionalization. What sense is being ascribed to individual learning experiences and how are they embedded along learning trajectories, such as in the transition from vocational to higher education (Harris & Rainey, 2012)? To what extent do scientific contents (theoretical models, conceptual abstractions, analytical categories) contribute to vocational professionalization? It can be assumed that a theoretically grounded, critical-constructive view of practice helps to recontextualize and further develop its knowledge components (Welte et al., 2019, p. 169).

## 3    Context and Methodological Design

The questions described above are investigated in the VET programs of the University College of Teacher Education Tyrol (PHT). The PHT is a centre university for vocational education in the west of Austria, where Bachelor programs of secondary vocational education are located. These are on the one hand full-time studies like "Nutrition" and "Information and Communication", on the other hand teachers of vocational school as well as vocational teachers of theoretical and practical subjects are trained in part-time studies. In the course of a general reorientation of the teacher training in Austria, a curricula reform was carried out in the VET programs, which aims, among other things, at an increased interaction of general and vocational education. Subject-specific courses and subject-specific didactics are complemented by educational science and pedagogical-practical content. The individual elements are interwoven in modules and form the basis of a professionalization that permanently relates knowledge (theory) and skills (practice) to one another.

The new curricula were launched at the PHT five years ago, and their implementation has been continuously evaluated by an accompanying explorative research study. Students were interviewed every academic year about their experiences with the curricula. Using a mix of quantitative and qualitative methods, questionnaires were distributed in the first year, focus groups were conducted in the second and third year, and semi-structured single interviews were conducted after the final fourth year.

**Table 1**
Evaluation design

| Academic year | Data Collection |
| --- | --- |
| 2016/17 | Questionnaire survey of first-year students of the three study programs (total = 29 students) |
| 2017/18 | Three focus groups with students in the second-year program (total = 28 students) |
| 2018/19 | Three focus groups with students in the third-year program (total = 21 students) |
| 2019/20 | Semi-structured single interviews with students after completing the study-program (total = 12 students) |

The evaluation design as displayed in Table 1 is an extract of the comprehensive evaluation study, which explores the relevance of the new curricula on different levels. On the micro level, it evaluates the concrete design of didactic settings that enable a sound connection of theory and practice. On the meso level, it analyses the curricula (structure, relevance) and their balance between academic and professional field orientation. The macro level, finally, focuses on the interlocking of the different educational institutions. According to these levels, the evaluation study was complemented by periodic interviews with lecturers, the analysis of curricula as well as concluding interviews with school heads and mentors. The present contribution concentrates on the students' perspective and thus evaluates the collected material from different sources and methods (questionnaires, transcripts, observation protocols), in which a total of 21-29 students from three VET programs were consulted. The qualitative analysis is based on thematic analysis. As the results of the final data collection (semi-structured single interviews) are not finalized yet, they cannot be considered in the following.

## 4 Selected and preliminary results

### 4.1 Expectations of the study program

According to the results of the initial survey, which asked for expectations of the study program and an evaluation of the starting period, subject-specific contents and their relation to teaching practice are first priority for the students. This expectation is followed by the desire to be able to apply scientific knowledge directly in practical exercises. In the evaluation of the first term, results are rather ambivalent. On the one hand, it is quite clear to the fresh students that most of the content is relevant to application, on the other hand, they perceive the contents as too abstract or without recognizable relevance for the design of lessons. Concerning the theory-practice linkage, which was asked in several items of the questionnaire, the opportunity to bring in prior vocational knowledge is rated as positive. Similarly, practical experience is perceived as being helpful for understanding the content.

### 4.2 The relevance of theory

In the focus groups, students discussed the structure of the curricula and their composition – starting with theoretical modules in the first year, followed by more and more practical ones in the second. For some, initial theory lessons just become meaningful somehow afterwards by the practical teaching exercises, others would like to have teaching-relevant "information" or application-oriented assistance for classroom orchestration from the very beginning. "Theory" mainly refers to the curricular parts of educational science, which are often perceived as being isolated from other parts. While didactic theories are judged to be central to the profession and close to practice, general pedagogical questions are judged to be theoretically detached and unhelpful. Furthermore, the extent to which academic competence and the qualification to work scientifically is relevant to their teaching is questioned by some of the students.

## 4.3 Knowledge and reflection

In the understanding of the necessity of scientific knowledge, differences between the full-time students and those of the in-service studies become apparent: While students who are already working as vocational teachers repeatedly demand knowledge to be directly applicable in their daily teaching, the full-time students emphasize the importance of (meta)theoretical knowledge and basic didactic models for their later teaching practice.

Reflection assignments, which are a continuous element in the curricula, are seen by the majority as positive and important for the development of one's own teacher professionalism. This refers especially to occasions in which practices (rather than theoretical concepts) should be reflected. Reflection is experienced as something that is not only taught and learned, but also "done" and implemented. It helps to find a different approach to what has just happened. Moreover, it helps to find out what you actually think and to develop a justified point of view:

> Yes, just because of that, that we write so many reflections and we deal with it so much afterwards, because of that I really learn: How do I justify something? How do I get my point of view? I think that reflection and discourse just dwell into each other. (FG01/18-19)

At the same time, students do not always see the sense behind reflecting according to a theoretical perspective. A "simple" scheme (e.g., the 3-W-Questions Why? Who? What?) sometimes would seem easier and more helpful than searching for literature to justify the experiences one has made: *"Why does it always have to be theory-driven? ... and it doesn't have to mean that the theory always fits where I am, how I think." (FG03/18-19)*

## 4.4 Professionalization and role-taking

The connection to prior professional experience is expressed less through vocational knowledge or skills (thus the backgrounds of the students probably are too heterogeneous), but rather through social competencies such as cooperation and collegiality. These categories are transferred to the new role as educator and discussed as a requirement for professionalization.

> In my professional life, it can happen that I have to work with someone with whom I actually have nothing to do personally. And that's where collegiality really starts for me. Because for me, collegiality is not friendship or anything, but cooperation. (FG01, Z189ff)

Team teaching experiences and exchanges with support teachers are perceived as very positive because they are opportunities for students to settle into their new roles without pressure. Above all, the occasions for dealing with one's own ethos as a teacher as well as with the experiences made in the pedagogical-practical studies are judged to be significant for the personal development.

## 5 Discussion

The results display the tension between vocational and scientific knowledge on several levels, one of them being the acceptance of theoretical content and its "usefulness". While scientific knowledge in general is recognized in terms of its practicability, assessments of educational science depend on the study group – for some it is a necessary meta-knowledge, for others an isolated canon of knowledge. The integration of learning experiences into the process of professionalization can be explained through reflective competence. Its promotion and implemen-

tation is central to linking theoretical and applied knowledge (Griffith & Guile, 2003). Professionalization also takes place in the practical components promoted by the curricula. They enable "legitimate peripheral participation" for the young teachers in the new pedagogical context (Lave & Wenger, 1991). While many in-service students already are part of a "community of practice" in their professional field, they now become immersed into a new one without completely uncoupling from the old.

Certainly, the results presented are only initial results and need to be deepened and expanded in many ways. Several questions still remain unanswered and are to be addressed in the final part of the analysis of the material as well as beyond. One of them being the mode in which the different forms of knowledge become compatible, another how the sensemaking shapes the re-evaluation of experiences. Yet, the results already provide insights into the potential that can be activated by the VET programs and the extent to which they create transitions to past or future developmental phases. In particular, it shows whether students are not only enabled to develop their competencies in the sense of professionalization, but also to strengthen their individual development in the context of lifelong learning (Biemans et al., 2009). If we assume that the process of acquiring competencies takes place over the entire professional pathway, then it is precisely in the tension between theory and practice, between general and vocational education, and between scientific and vocational knowledge that decisive hurdles and obstacles to further development can be found. Mastering them would be the goal of comprehensive professionalization along the pathways.

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## Biographical notes

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