

## PROFICIENCY FORMS AND VOCATIONAL PEDAGOGICAL PRINCIPLES

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**Abstract:** *This article is based on research on experiential learning and vocational teachers. The author describes his analysis of curricula for the vocational teacher education and explains the education's purpose, content, and methods. In 1975, education dramatically changed from an academic tradition with dissemination of many disciplines to a holistic education with focus on educating teachers who would function in practice, not only have theoretical knowledge of pedagogy. The author discusses important aspects of learning, as usability and relevance, distance in time and space between theory and practice, and the use of different proficiency forms. Furthermore, the author discusses three key, vocational educational principles (VEP): experiential learning, vocational adaptation of theory, and integration of theory and practice. These principles are important for all learning and especially for the education and training of vocational teachers and of vocational students.*

**Key words:** Proficiency forms, vocational educational principles, dropout from school, curriculum analysis

### Introduction

In this article, I present the vocational educational principles (VEP) as they were described in the formal curricula in vocational teacher education and training (VTET). I have analyzed the formal curriculum documents (Goodlad, 1979) and investigated by interviewing vocational teachers how they experienced the curriculum. I used a qualitative approach. This article is based on data from my doctoral dissertation (Inglar, 2009).

I also describe and discuss various proficiency forms that are central to education and particularly vocational education and training, and important vocational educational principles such as experiential learning, vocationally adapted theory, and the integration of theory with practice.

In recent years, there has been an increased focus on the flow of students in school, particularly in vocational education and training (VET). "Drop-out" is a term

often used to refer to those who do not complete their education. The concept drop-out indicates that the responsibility for not completing belongs to the vocational students. They "do not manage". It might just as well be that the current VET is not suited for the vocational students. From this opposite perspective, I would rather call it "push-out" or "ejection". It may be that vocational teachers do not focus sufficiently on the connections between the students' learning abilities and the vocational educational principles. Thus, there might be a link between content and methods in VET and the ejection mechanisms (Dahlback & Haaland, 2014; Hiim, 2013; Inglar, 2009). The main point of this article is to describe and enhance the importance of different and practical proficiency forms to prevent drop-out.

### Curriculum Analysis

In Norway we have two kinds of VTET. I have studied the one called Practical Pedagogical Education (PPU) through practical and inductive analyses of the

substance, the meaning of the text, in the formal curricula in the period 1975-2003 (Inglar, 2011). Inductively, I tried to find and reconstruct what was contained in the curricula, their intentions and educational ideology, their description of the content, and their priorities of teaching and learning methods. A practical-inductive approach therefore provides a subjective description from the researcher's interpretations of data.

Since its establishment in 1947 until 1975, the analyses show that VTET was characterized by an academic, theoretical teaching tradition (Inglar, 1996a, 34-35) with disciplines such as psychology and pedagogy, Norwegian language, writing, physical education, arithmetic and mathematics, school management, and work organization. There were also practical teaching exercises, micro teaching. Since 1975 the curricula has been characterized by experiential learning and certain vocational educational principles (VEP), and this curriculum has had a dominant influence on all subsequent plans.

The analyses of all the curricula since 1975 resulted in three categories: purpose, content, and working principles. I have densified the substance in selected curricula until 2003 and then extracted the essence of the densifications. The essence of the category "purposes" was experiential learning with a focus on the goals of the VET. Dissemination of educational theory was not important. The curriculum emphasized the need to adapt theory to practical tasks by stating: "It is not a fixed curriculum. The literature should be organized according to the ongoing learning work/training assignments" (Pedagogisk [curriculum], 1975, p. 9) The plan also emphasized that the study should build on the individual student teacher's own experiences.

The essence of the category "content" was that it should be based on key tasks for a vocational teacher in relation to the individual student teacher, the class/group, the school/school community and the society. There was no established curriculum, and the students were co-responsible in selecting relevant topics. Most of the students had practiced as teachers two or more years, so they knew from experience what relevant knowledge in the occupation was.

The essence of "working principles" were key tasks for vocational teacher, such as planning, teaching, counseling and evaluation. The students should train in practical activities, analyze their experiences, and conduct self-assessment. This means that the learning methods should be both theoretical and practical but with practice as a fundamental part. The term "working principles" instead of teaching methods also points out a perspective aimed at practical rather than only a theoretical education.

### **Vocational Forms of Proficiency and Learning**

The term knowledge is often used in school subjects and academic disciplines when referring to laws, rules, and relationships. In a positivistic view of knowledge (Popper, 1972), one also tries to achieve similar predictable and controllable knowledge in the social sciences. With such a view of knowledge, one will try to understand vocational knowledge in the same way, by verbalizing explanations of what a vocation consists. Prior to 1975, the formal curriculum in the Norwegian VTET was characterized by this positivistic tradition, and it consisted of a number of separate disciplines (Inglar, 1996a) as said before. It was believed that one could extract professional knowledge by skimming off the vocational theory in the same way as

the cream of non-homogenized milk is skimmed off (Einarsen, 1947). By vocational theory, I mean the knowledge that is necessary and relevant to the vocation like knowledge of materials, Health, Safety, and Environment (HSE), regulations, pathology, and other necessary knowledge. If one can separate the theoretical part of vocational knowledge, the pupils may learn vocational theory in the classroom and practical techniques in the workshop. They may learn vocational theory in the school and later transform the theory into practical execution of a profession.

Research shows doubts about this positivistic view of knowledge. Mjelde (2002) detected that some of the students in vocational education do not see the purpose of theoretical knowledge in practical work. The same is detected with regard to VET and professional education (Dahlback & Haaland, 2014; Hiim, 2013; Inglar, 2009; Jordell, 1986; Schön 1983). When there is a distinction between vocational theory and practice, vocational theory may live "its own life" regardless of practice. When a mechanic leaves his overalls in the workshop and brings his Powerpoint presentations into a classroom, he gives the vocational theory a different structure. Then he is not carrying out a concrete and practical task but conveying a logical and understandable knowledge structure. There will be no "logic of action", but "logic of understanding" (Callewaert, 1999; Inglar 2009). It might be that those who do not see the meaning in verbalized theory will learn more easily and better when the teacher uses logic of action, when he demonstrates and explains simultaneously.

### **Usefulness and Relevance**

Hovdenak (2005) studied 149 pupils who attended the 9<sup>th</sup> and 10<sup>th</sup> grades in general and vocational study programs for a period

of five years. These pupils articulated criticisms about the subjects in school and underscored that they had little relevance to their lives outside the school. Thus, students experience the content and the teaching approaches as neither meaningful (Inglar, 2009) nor motivating. Another interesting finding in Hovdenak's research is that students used the term "theory" when they talked about the lack of relevance of school content for the practical everyday life. The students did not combine the learning of theoretical knowledge with forms of knowing or learning by experiences. Such approaches will function as "ejection" mechanisms.

### **Distance in Space and Time between Theory and Practice**

When students are taught the theory in a classroom and are supposed to apply it in the workshop later on, some of them will experience the theory as "empty" words, words without meaning and relevance. One factor is that a classroom is often associated with the teaching of theoretical matter without something to make it practical and concrete. In an interview with a teacher at a Florist Apprentices Learning Centre, she said that some apprentices "pulled down the blind" when they had mathematics in a classroom at the training office, while they did it perfectly well when they worked in a shop (Inglar, 2013).

Another factor is the time between the learning of theoretical material and its practical application. If the time gap is wide, many of the vocational students do not see any connection and will not experience the theory as relevant. Nilsson (1992) conducted research and developmental work in Sweden. From his data he divided students into three groups. Group 1 consisted of students to whom it was important that the theory would be useful there and then. Group 2 consisted of

those who wanted to learn something that was useful, either for themselves or for others. Group 3 was those who wanted to learn something they could benefit from later. This means that some students, especially in Group 1, lose motivation when they do not see any immediate usefulness of what they learn. Repeated experiences of meaninglessness and lack of relevance reduced the students' motivation.

Informants in a semi-structured interview survey that I conducted among vocational teachers believed their students were more practitioners than theorists (Inglar, 2009). *Meaningful learning* occurs when theory and practice are woven together, when the students can abstract the concrete experiences to more general reflections, and can apply theoretical principles in practical tasks. One of the informants put it this way:

That they (vocational students) can, based on the theory I've gone through, create a drawing, and connect a (electric) circuit after it. Then verify that it works and be able to tell me what they have done and why.

Therefore, it is not a question of doing everything practical; it is a question of combining theory and practice into meaningful learning. That was one of the intentions of the curriculum from 1975, as described earlier.

### **Proficiency Forms**

Practical knowing is the competence to perform intentional actions and corresponds to what Polanyi (1966) and Schön (1983) refer to as, respectively, "knowing" and "knowing-in-action". Practical knowing is an intertwining of several proficiency forms, both theoretical and practical. The informants in my empirical study said that for some of the

students, and for themselves, it is necessary to employ several proficiency forms and especially practical. I consider "vocational knowing" as the proficiencies needed for the tasks to be handled. The practitioner must first define what the task involves (Schön, 1983) and then analyze how it can be handled. In the analysis phase, one seeks the vocational theory that is relevant, and those actions that have given good results in the past. Some examples of proficiency forms are

- Theoretical knowledge, knowledge about regulations, materials, physics, calculation etc.
- Visual performances. A skilled artisan is able to visualize what he is going to make, instead of reading a description.
- Construction, embodying. A skilled mechanic feels the temperature of a machine by touching it, listens to the machine working and may correct what is wrong only using his senses – and thinking.
- Interpersonal relationships. Many craftsmen mingle and communicate with customers in a trustworthy manner without thinking about it, without being able to tell why, and how they achieve this effect. I have observed laboratory technicians who take blood samples. They change their social behavior in response to how they interpret the patient's verbal and nonverbal communication. A timid user is shown care and concern, while a tough and assertive is met in a challenging way.
- Values, attitudes, and actions will say that you do not cheat or do a bad job on purpose. You do not charge the customer more than you should.
- Ethical and aesthetic skills and assessments. A skilled craftsman recognizes the value in performing a good job, and he wants a product

that looks pretty without being able to articulate which criteria guide the judgment.

### **Vocational Educational Principles (VEP)**

Through my analyzes of the curricula after 1975, I was able to categorize some vocational educational principles regulating the education of vocational teachers. I will explain and discuss three of them that I find relevant to this article: experiential learning, vocationally adapted theory, and integration of practice and theory. The reason is that I consider these three principles particularly relevant in VTET and VET in terms of motivation and prevention of dropout.

#### **The Principle of Experiential Learning**

##### **Experience Orientation**

VTET after 1975 has emphasized that student teachers should learn through their experiences both at the University College and in the practical part of their education and training. It represents a constructivist view on learning. In Dewey's (1916) theories of learning as experimental or exploratory processes (see the phrase "that attempts" in the quote below), the learners develop their own personal knowing. He describes experiential learning as a cyclical process consisting of three phases: activity, consequence of the activity, and meaningful change of knowledge:

When we experience something we act in relation to it, we do something about it, so we are prone to or suffer the consequences. Activity ... alone creates no experience. Experience ... as an attempt involves change, but change is a meaningless transition unless it is consciously connected with the wave of consequences which turn back from it ... when change

happens ... (is) full of meaning. We learn something.

In Norway Dewey is associated with the slogan: "Learning by doing". This slogan I have not found in what I have read of what Dewey wrote. However, he has written: "Learn to do by knowing and to know by doing" (Vaage, 2000). To compare, I have defined "meaningful learning" by saying: "Meaningful learning occurs when one can perform actions derived from theoretical knowledge, or reflect on one's practical experiences so that it can be abstracted and articulated" (Inglar, 2009). Dewey himself says quite the opposite of the slogan "learning by doing" when he in the above quote says that "activity alone creates no experience" and "change is meaningless transition unless it is consciously connected with ... the consequences ... We learn something." Therefore, learning is not either or, it is practice and theory interwoven to meaning. Teachers in the VTET had opinions that coincided with ideas that were in the core of Dewey's writings: reform pedagogy, emphasis on practical and utilitarian learning, experiential learning, democratic values, and cooperative learning.

The objectives of VTET (Pedagogisk, 1975) states: "The education ... aims at creating teachers who are proficient in action." The curriculum stressed practical competence rather than knowledge of educational theory. Furthermore, it was important that the students should acquire knowledge, experiences and attitudes and not "get" knowledge and skills from a book or a lecturer. The formal curriculum thus emphasized the vocational pedagogical principle of experiential learning.

The principle of experiential learning is well suited to VTET and VET since occupations are characterized by knowledge, *actions*, and *embodiment*.

Knowledge alone is not enough. To show ability, the knowledge must result in actions. Some students in VTET need action and physicality, like sensing, feeling, and touching to turn the volatile and short-term experiences into lasting learning. When the students in VET do not experience such intertwining of theory and practice, it may lead to lack of motivation and they dropout or begin at another study program.

### Tasks Orientation

VTET resembles the master-apprentice tradition in that it is experience-oriented and task-oriented. The customer's needs defined the task to be done. In the plans for the VTET it has been, and it still is important to let the content of the education be based on the tasks a teacher encounters in his or her professional practice. Drevvatne (1976) stated the following about the experimental activities that started in 1972:

The aim was to facilitate learning situations that were based on professional teacher's various tasks. The essence of teaching was, first, observe in the classroom in order to identify and clarify major issues related to vocational teacher's functions and roles. In our opinion this could best be done through observations and experiences ... Then we would, through discussions, group work and literature studies try to elucidate, analyze, discuss and possibly resolve the issues that were raised. The literature study was thus selected by means of the experiences students had in the past and the new experiences they received through among others, work and training tasks.

In my opinion, Drevvatne describes a process of abstraction from the experiences to reflections. This inductive

process of abstraction coincides with the reflection work Føli (2012) conducted with her students in VET. Her students wrote blogs about their professional knowledge. The blogs were electronic. They also put in pictures of what they worked with. She found that students were able to reflect on their professional knowledge through blog writing and that they considered others' blog entries as a source of knowledge. In particular, they appreciated the teacher's comments. Through writing the blogs, the vocational students reflected on experiences and considered entries from others as theory. As Dewey might have said: making meaning of my activities and their consequences and comparing with the meanings of others.

### The Principle of Vocationally Adapted Theory

The statement above about experiential learning shows that the VTET since 1975 has been vocationally adapted. It has reduced the importance of the educational theory as a *structuring element* in the education. Before, they had theoretical topics like development psychology, learning psychology, sociology, and teaching techniques. From 1975 the structure was given by the tasks or the cases to be analyzed, discussed, and handled. It is important to note that the curricula do not say that one should avoid educational theory. One should reduce the theoretical dissemination and let the professional functions structure the selection of current and relevant educational theory. I will therefore argue that the education and training, was and is *task oriented and vocationally adapted*.

One may ask whether the VTET thus emphasizes fragmentary and situated "practical advices and tips". Strøm (1994) has investigated possible effects of differences in the cultural background of teacher educators and student teachers. He

found that this is not so. He concludes: "[VTET's] reputation among students is not related to the amount of "tips and tricks", but more to the extent that [VTET] manages to maintain their strengths and challenge them as *teachers and people*."

The principles of experiential learning and vocational adaptation are also of great importance to VET. In a reform called "Reform 1994", 150 basic vocational courses were merged to 13, which meant a broader orientation of vocational training. Broader orientation meant that students should become familiar with several, similar vocations. The idea was that, for example, a pupil studying carpentry might also need to learn about bricklaying and plumbing. A drawback was that some students experienced other vocations to be of little relevance for their primary career choice. They lost the motivation to fulfil a VET. Such broader orientation may provide a broader proficiency platform, but it may also become an ejection mechanism.

One result of this reform is that vocational teachers do not feel qualified to teach several vocations where they have little or no experience, and that the schools sometimes cannot offer qualified education and training by experienced teachers in the vocation each student wants. Dahlback and Haaland (2014) organized the VET in several schools so that the students could move from one school to another where there were qualified teachers. Their research showed that occupational adaptation is important in creating motivation for learning of the theoretical matter. Interest in learning increases when students can see the transfer value of what they are going to do as practitioners.

Borander and Loftås (2012) developed a teaching plan for the VET in "service and transport" consisting of assignments that

the pupils should carry out, for example practical exercises where students had to justify their proposals and it was not sufficient just to read a book. They found, through their research, that the students perceived the assignments as engaging and practical.

### **The Principle of Integration of Practice and Theory: Holistic Proficiency Development**

#### **Two Learning Contexts**

In the curricula for the general teacher education in Norway, it has been customary to distinguish between pedagogical theory and practice, as students experience respectively in the university college and in the practice arena. To denote the part of VET in the university college as theory arena, stigmatizes the two contexts in which education takes place and gives the impression that one is a theoretical arena while the other is a practical arena. The concepts "practice" and "theory" were not mentioned at all in the earliest curricula of VTET. They had a holistic perspective, as mentioned earlier. It is important that, in both arenas, the students in VTET are challenged to convert theoretical consideration into actions and to systematize experiences into reflections.

The same applies of course also for VET. Often theory lessons are held in old, large school buildings while the workshops, in Norway, are small "temporary" barracks that are often poorly equipped and maintained. It would be better if the "theoretical arena" were located in or adjacent to the workshop.

## Narratives and Professional Language

When I asked the informants in my empirical survey to evaluate their teacher education, group discussions scored highest. They said they learned a lot from hearing what other teachers did in their vocational work, what worked well, and what did not. They told narratives, stories that were chronological, detailed, and on specific events and materials. Narratives are packages of specific theoretical and practical forms of proficiency. They are a combination of practice and theory. Sharing fragmented and situated experiences (Lave & Wenger, 1991) promotes reflection.

Through an analysis of the representational systems used by the informants, I found about 10 auditory expressions (I can hear what you are saying, to hear about their experiences), 20 visual (get insight, find new perspectives), and 40 kinesthetic/action (get rid of something, reach the goal). This indicates that vocational teachers often use narratives that contain knowledge about specific experiences and that they use words of action, "logic of action".

All professions have a professional language, which may not be understood by the unskilled. In vocational education and training and in professional performance, the students and the professionals use a narrative language consisting of occupation-specific concepts and common words that bind it together. Vocational teachers have three such languages. A basic vocational used with other professionals and vocational students; another is the vocational teacher language used with colleagues with the same professional background, and the third with colleagues from other disciplines. The first contains many occupational terms, the next professional educational,

and last general pedagogical without many vocational terms. The first communication forms are more precise than the general, reducing misunderstandings.

## Situated Learning and Transfer

In a situated view on learning, the importance of the *practice arena* is justified by the fact that it is the "real" context and that the practice mentor has vocational expertise (Lave & Wenger, 1991). The mentors are experienced vocational teachers who work as counselors for the student teachers when they are practicing as teachers as part of their education. They are "the extended arms" of the VTET. The students actually see the importance of practice even though some mentors might not be particularly good (Fagdidaktikuttvalget ved universitetet i Tromsø, 1985). This evaluation is expected. It confirms the importance of the situated perspective on learning and the importance of not only learning "about" but also learning "by". One learns through experiences in the real school context.

If there is a gap between the teacher education and the start of the career as a teacher, the students may experience a "practice shock". Vocational teachers do not experience any practice shock (Hiim & Hippe, 1991; Inglar 1996b). They are well prepared for the everyday work as teachers. They do not perceive the transfer from student teacher to teacher as an unexpected situation. Part of the reason may be the use of the vocational educational principles in the VTET, but also the fact that vocational teachers have often already worked in the school for a few years before they begin their VTET. A reason for this positive assessment is thus the principles of experiential learning and vocational adaptation.

It is also important that the practice mentors (experienced teachers counselling the student teachers) have an education in counseling at the university college, they have learned and they use the same pedagogical concepts and models as the students. Then the student teachers develop their practice-theory through the experience that learning tasks at the university college and in the school are interlocked.

### **Practitioner or Theorist?**

The informants in the empirical part of my doctoral research believed their students were more practitioners than theorists (Inglar, 2009). They also said that both the students and they themselves learned well by non-verbal learning methods, using practical proficiency forms. One of the informants puts it this way:

*The pupils learn well when they are handling tools and machines; they prefer that I show them instead of telling them, and when they can feel it. I believe that many of those who choose vocational courses are practitioners rather than theorists. It happens that pupils are very good in practical subjects and that they think it is fun to work in the kitchen. They have trouble with both reading and writing, they have literacy difficulties, are restless and, therefore, lose concentration.*

It will be motivating for students in VET that theory and practice are intertwined, and that theory and the learning situation are adapted to the practical work situation. It will be motivating and might prevent exclusion or change to another study program. Since all the vocational teachers have been students in VET, they also are practitioners.

### **Conclusions**

The curriculum analysis showed that the educational foundation of the VTET has been and still is based on experiential learning. The VTET should not be a theoretical, university study in miniature, with dissemination of theory and divided into separate disciplines. It should be based on experiential learning with focus on a teacher's functions, the practical problems he may encounter in his work.

The student teachers ought to acquire experiences, and through own reflections and discussions with others, abstract the experiences into meaningful knowing. In this learning process, the student teachers shall work with the literature related to the current problems one might encounter in a vocational teacher's workday. This means that the literature studied should concern these problems, and thereby be adapted to the practical challenges.

I have accounted for three of the vocational educational principles: experiential learning, vocational adaptation of theory, and integration of practice and theory. These principles, I believe, are particularly important in VTET and VET, and data from my research (Inglar, 2009) support this when the informants in the empirical part of the research believe their pupils are more practitioners than they are theorists. They said that many vocational students preferred demonstration to verbal explanations.

I therefore suggest a stronger emphasis on the vocational pedagogical principles. This will enhance students' intrinsic motivation and reduce ejection from the vocational education and training. Another important challenge to be dealt with is the situation that not all students may learn the profession they want from a teacher who is competent in that vocation.

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