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## Theory and methodology in vocational education

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### Abstract

Vocational schools focus on bridging the gap between theory and practice. The concepts of theory and practice are often discussed in debates about how to address them in the classroom, particularly as they pertain to vocational and technological learning. This research adds empirical evidence to the ongoing debate over vocational education philosophy and methodology. Starting from the heterogeneous phenomenology of the lived world, this study seeks to answer questions about the theoretical and practical experiences of supervisors, instructors, and students in vocational education concerning the teaching and learning process. Thematic analysis has been applied to the narratives of students, instructors, and supervisors gathered via qualitative interviews, with an emphasis on information pertaining to theory and practice. The findings point to both theoretical and practical experiences with a more interconnected perspective and a more typical dualistic one. A more nuanced and thorough comprehension of the concepts allows for their handling in a more integrated fashion.

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## 1. Introduction

The development of practical problem-solving abilities, practical experience, and craftsmanship are the objectives of higher-level vocational education [1]. The objective of the program is to "prepare people for careers in higher-level technical, professional, and managerial positions through the provision of job-specific skills." The goal of higher education is to provide students with the information, skills, attitudes, and abilities they need to have a successful profession, as well as to encourage them to be critical thinkers and learners who continue to study throughout their lives [2]. Despite the fact that all programs that fall under the category of vocational education possess the qualities of being "vocational," "occupational," or "professional," the variety of vocational education in terms of its objectives, participants, and programs has resulted in varied

understandings of the field. Because of this, it has become difficult to establish a single, all-encompassing explanation of vocational education, and it has increased the likelihood that claims of effective vocational training are not true [3, 4].

Lucas, Spencer, and Claxton introduced the term "vocational pedagogy" as a means of describing successful ways of teaching and researching what works in this sort of program. This was done in an attempt to build a theoretical framework that is applicable to this environment. In accordance with the findings of CAVTL, [5] the following are some of the most significant elements that contribute to the provision of high-quality vocational education: the availability of state-of-the-art industry facilities and resources; a direct path to employment; cooperation among employers, trainers, and providers in the development and implementation of vocational programs; "dual" professional educators who possess both occupational and pedagogical expertise; and the availability of a direct path to employment [6].

Upon further investigation, it has been shown that vocational pedagogy is concerned with the following areas: the outcomes of vocational education; the identity of vocational teachers; the models and parallels of vocational education; teaching skills; teaching connections; teacher reflection; and the teaching environment [7, 8].

Furthermore, since vocational education is "hands-on, practical, experiential, real-world" placed and context-bound, it takes place in official vocational and technical school programs, training centers or institutions, as well as on and off the job in the workplace. This is because vocational education is location- and circumstance-bound. In order to put this information to use in a different setting, it is important to reframe the material, the pedagogy, the workplace, and the learner [9, 10].

In addition, in order for vocational instructors to be able to make well-informed judgments and practices that are conducive to successful learning, they need to have knowledge of the most recent occupational information as well as an understanding of the disciplines and topics that support work knowledge and practices. Because of their mastery of the pedagogical topic, they are able to adapt their pedagogy to coincide with the subject [11, 12].

The majority of research on teachers' knowledge, on the other hand, has concentrated only on their subject and pedagogical expertise, neglecting other aspects such as their comprehension of students, technological advancements, educational environments, and curricula (as Cochran, Deruiter, and King have pointed out). The two schools of thought that are most commonly discussed in relation to effective vocational education are as follows: (1) the school of thought that considers learning to be nothing more than the acquisition of vocational knowledge, and (2) the school of thought that considers learning to be the contextualized application of knowledge [13].

In contrast to the qualitative school of thought, the deep learning approach from Saljö and the quantitative school of thought are also taken into consideration. As a result of the change from methods that are teacher-centered to approaches that are learner-centered, situated learning has been linked to effective vocational learning. This is due to the fact that it gives students the opportunity to develop their occupational knowledge and abilities by interacting with members of their community of practice. These members include trainers and workers in the workplace, as well as classmates and instructors in the classroom. Learning that is effective in the vocational field is typified by experiential learning, problem-based learning, and inquiry-based learning. Hands-on activities are the facilitators of effective vocational learning, which is supported by reflection and feedback [14].

According to the constructivist approach, the most effective way to understand vocational education is as a process of active learning, in which students actively develop their own professional knowledge rather than passively obtaining it from instructors [15, 16]. Because of the tight connection that vocational education and training programs have with the labor market, many people have turned to performance-oriented outcomes as a means of determining whether or not these programs are successful [17].

Because the skills, knowledge, and understanding that vocational education imparts are essential to economic growth, productivity, and competitiveness, it has been the primary goal and concern of policymakers, social partners, and providers of vocational education to ensure that vocational education is responsive to the labor market [18, 19]. As soon as trainees enter the profession and put their acquired knowledge into action, the value of vocational education to both society and enterprises is evaluated. Because of this, countries are hurriedly drafting outcome-based certification frameworks in order to oversee and manage the delivery of education; vocational training and education are regarded as successful if they satisfy the requirements for competence [20, 21].

## **2. Research Methodology**

To the ongoing debate on technical vocational education's philosophy and practice, this article offers an empirical contribution. The following research questions serve as a starting point for an investigation into the experiences of individuals participating in technical vocational education with regard to the integration of theory and practice:

- In the context of technical vocational education, how do students, instructors, and administrators perceive the relationship between theory and practice?
- How are the narratives of students, instructors, and administrators shaped by the interplay between theoretical and practical considerations?

Therefore, the purpose of this research is not to provide universally accepted definitions of the terms, but rather to detail the relationships between theory and practice as they pertain to technical vocational education, as told by the respondents.

### **2.1. Theory and Method**

This study's theory and methodology are based on the narrative tradition and life-world phenomenology. This phenomenology states that while all humans share a common reality, our individual perceptions of it are colored by our unique viewpoints, backgrounds, and circumstances. Consequently, the inquiry is centered on the lived and experienced world. If we wish to make an informed statement on a phenomenon in the real world, we must first meet with the individuals

who are directly engaged in the area of life we want to investigate. Results are based on empirical evidence gathered from semi-structured group interviews and individual interviews in this research. Content pertaining to theory and practice has been the primary focus of the thematic analysis of the interviewees' narratives.

## **2.2. Sources of information**

For three years, the informants in this research include students, instructors, and supervisors from vocational education businesses. Interviews with two instructors, four administrators, and two students provide the paper's empirical data by highlighting the participants' theoretical and practical experiences.

## **3. Results and Discussion**

The findings are presented with a synthesis of the informants' stories on theory and practice. In order to be true to the empirical evidence and give the informants a voice, the following explanation of the topics is interspersed with quotations from the interviews. The quote marks denote the locations of these quotations. "These themes have developed out of the data and are an attempt to show how the informants' stories about theory and practice have shaped their lives. There was no effort to predetermine the issues, and the end product does not pretend to explain vocational education but rather presents the stories of those who have been there.

### **3.1. Application in Contrast with Theory**

#### **3.1.1. Using Your Body and All of Your Senses, Practice**

Several instances of practice as engaging the body and several senses, are provided in the study. Observation, contact, and capture are all possible aspects. An understanding of "that you cannot get from a theory book" is imparted via hands-on experience, according to supervisor Ernst. Working with one's hands is often associated with practice. "What they do with the hands, starting the machines" is what supervisor Ingemar calls practice, whereas student Emanuel describes working "with the hands" as practice for him.

#### **3.2. Work Out Like a Strenuous Physical Activity**

Several of the respondents described practice as physically taxing. This is a recurring motif in the stories told by the plumber supervisors at the energy program. It is critical to maintain strength while working practically, according to Supervisor Ernst. He stated that it's impossible to lower a big furnace down a flight of stairs "if you don't have the body for it," drawing a comparison between a theoretical person "who will fail" and this real labor.

#### **3.3. Rehearse Until You Can Use What You've Learnt**

Applying theoretical knowledge to real-world situations is one definition of practice. According to student Isak, "theory" refers to both the knowledge gained from formal education and the practical skills acquired through on-the-job training. Putting the theory into practice is what really matters. If you've read about something, it doesn't mean you know it; supervisor Ingvar adds, "but if I have done it a couple of times, then at least I know better," while discussing the relationship between theory and practice.

#### **3.4. Training in the Workplace Via Practice**

The term "practice" is often used to describe workplace training in Swedish vocational schools. According to student Isak, he is not allowed to weld during workplace "practice" but is permitted to do it in the classroom. He recalls learning to weld in class but says, "In workplace practice, I don't do that," and, "Here at school, in the beginning, we had a lot of theory, and then I was able to weld a lot." Both of these statements are true. Practice in this area is tied to location rather than action. While students "can go out to workplace practice directly, without knowing anything," Erik reminds them that it's beneficial to have some background information first.

### **3.5. Differences Between Theory and Practice**

#### **3.5.1. Applying theory in the real world**

A common thread running through this section is the idea that you need to study up on theory before you can put it into practice. Your ability to study is also affected by your level of theoretical knowledge. Theory "goes more in depth," according to Supervisor Ingemar, who also notes that pupils' learning styles vary based on their prior knowledge of the material. According to student Emanuel, theory is all about getting ready, and theory is a process that requires time. He continues by saying that you should "theory, yes it is, just sitting at school reading about heating and sanitation" as a means of preparation for the profession.

#### **3.6. Viewing Theory Through the Lens**

The need to put theory into practice is a common thread throughout the field. Ivan, the instructor, explains that his pupils need to "get out to see and to hear the differences" since, "it gets a bit abstract for them [the students] at the beginning" while studying certain topics in class. If pupils only learn something "in theory" and "are not able to use it quickly enough," they will forget it, according to Supervisor Ingemar, who agrees that "it must be experienced" for information to be remembered. Teaching pupils theory also entails a lot of speaking, demonstrating, and explaining. Because Erik "always talks to them [the students]" and tells them, "look; now I do it like this," Erik reveals that the school's workshop hall is a place of theory.

Although he "asks a lot" and the focus of theory is on "things we point at and talk about," Emanuel, a student, says that they also discuss theory at work when time permits.

### *3.7. Theorizing as "Doing Nothing"*

Theory and practice do not have clear definitions. The notions can be easily defined, according to Erik, the instructor, but later on, Erik changes his opinion and indicates that it may be hard. He attempts to describe theory as "when you don't get sweaty," even if separating them in his instruction is not a matter of course for him. The students who "probably are better suited for theory" are the ones who Supervisor Ernst says can't manage the physical labor.

### *3.8. Thinking About Something in Terms of Theory*

Theory as knowing something, understanding something, or learning something new is a recurrent thread throughout the stories. "They have a lot of courses here [at the workplace] sometimes too, then all are gathered together and learn something new, and if it is new, then it is a bit of theory, I suppose," student Isak explains, stating that workplace theory is all about learning something new. In addition, Ingemar, the supervisor, adds that there is theory in the workplace, even though he associates theory mostly with academia. "Things you do" include reading designs and keeping track of the whole process from start to finish when you get a product at work. "Or in my mouth," says Teacher Ivan, when asked where theories mostly reside. The information that the pupils need to know in the event of an emergency is included in the books.

### *3.9. Integrating Theory and Practice for Optimal Health*

#### *3.9.1. Concepts And Applications in Several Fields*

When people talk about how theory and practice are separate, they usually mean the two distinct settings in which these concepts are put into play: the classroom and the workplace. "At school, there is more theory" compared to "just practice" here, according to Supervisor Ingvar. A lot of the time, theory is the first thing you should do, according to Ingemar, a supervisor. "You learn in the first semesters at school" when it comes to the theory, which is the main thing. In addition, according to Ivan, the class "gets the basics at school." Ivan goes on to say that students need this foundational knowledge so they may "develop further in their workplace learning."

### *3.10. In Their Entirety, Theory and Practice*

A combination of theory and practice is required to grasp the concept of completeness. While "at school, we can use paper and try to check the drawings and how it should be done," student Emanuel explains that "the first thing you need to understand is how it works" while working in a professional setting. If you want to do your education the way you want, but you can't afford it, says Supervisor Ingemar. According to Ingemar, "we would like to have a machine" for practicing programming at the company, but "unfortunately, it is not possible in reality." As a result, "we have to do the practice and theory in relation to that we run [the machine] with a product that we will have to get paid for." This highlights how theory and practice often alternate in vocational education that is mentioned in this study. Additionally, there are several ways to approach the introduction of particular learning information." You may begin with the theory or the practice. There are two ways to approach explaining complex concepts to pupils, according to Erik, the teacher. One is to begin with the theory, and the other is to start with the practical aspects. Even so, having two input keys is an excellent idea.

Theorizing is often associated with academic pursuits, reading, and training for the profession in this research. In addition, applying what you have learned in the classroom is closely tied to practice, as is physical labor, utilizing your body and hands, and being in the workplace. On the other hand, it's more intricate [22]. It is not clear how to distinguish between theory and practice when delving deeper into the topic. That is why this research has two tiers: theory and practice. Prior research has shown a dualistic split along one dimension (see, for example, Berglund [23]), but when we go into greater depth with the ideas, we see them becoming increasingly integrated in the informants' stories along the other dimension [24, 25].

The dualistic divide of theory and practice is reflected in some of the story motifs. For instance, the learning venues provide a foundation for the idea of differences, as in Theory and practice on separate arenas. Theorizing also serves as a foundational component of curriculum development in the areas covered [26, 27]. Theory is the body of information on a topic, while practice is the process of putting that knowledge into action within a specific context [28, 29]. Work on applying what you've learned via practice. On a more personal level, there's a split over which body parts are utilized for which ideas: "Practice" here means engaging all of one's senses, and "Practice" as something physically demanding means employing one's entire body in a manner that isn't apparent in the theme of "Theory" as non-perspiring labor. According to the narratives, it is crucial to establish this separation from the outset of students' learning, when the preparatory and foundational information is associated with school and portrayed as a need for students to pursue higher education and enter the workforce [30-33]. The more in-depth the conversation and the more advanced the education, the more intertwined the ideas of theory and practice seem [34-36].

## **4. Conclusion**

Some themes provide a more complex understanding of the relationship between theory and practice. Considering both theory and practice in their entirety, and theory as an experiential framework, provides a more comprehensive understanding of these ideas. Deepening the discourse regarding the topics allows the informants to provide more complex experiences. For example, although theory is present in the workplace and practice is present in the classroom, they may be seen as distinct "entry keys" to the learning process. It has been my experience that students are often given more opportunities to engage and try out new things in the classroom than they would in an actual job setting throughout their training. This suggests that

acquiring labor-intensive skills that require hands-on experience isn't always best accomplished in the classroom. This study's findings suggest that formal education should be supplemented with more informal, conformal settings, particularly in areas that are seen as practical, even if previous studies have advocated for the benefits of real learning in the workplace.

#### 4.1. Findings of the Study

The study provided a rich understanding of the theory and practice of vocational education. At the manifest level, most participants offered a dualistic perception of theory by relating it to schoolwork and practice to workplace training. What was remarkable was that theory was viewed as knowledge in the reader's mind and acquired through reading and thinking, whereas practice was identified with working with one's hands and using learned concepts.

However, analysis of the students' financial knowledge revealed a different story at a deeper level. Concerning the classification of theory and practice, participants acknowledged that such processes can take place in school and workplace contexts. They agreed with the preoccupation of putting into practice what was learned at the theoretical level and the recognition of the theoretical learning at the practical work. Consequently, the study concluded that the integration of theory and practice becomes more conspicuous as the students advance in their level of study and acquire more insight in their area of specialization.

The practice was also characterized by showing and using with body experience, which was revealed by the research. Notably, some participants described the situation whereby some practical skills, in some ways, are actually more effectively taught in school since students have adequate time and the liberty to explore as they wish. This goes against the belief that all practical learning is most effective if it is conducted within workplaces.

#### 4.2. Scope For Further Research

This study creates pathways for subsequent research in vocational education. One of the intervention points would be to look at the development of the knowledge and perception of theory and practice in the learner across their educational career and even into their early careers. Longitudinal studies could be considered useful in explaining this developmental process as well. Thus, another important research avenue is the search for the best practices for linking theory and practice, both in schools and in vocational environments. This could include reviewing the way assignments are done to promote the way the perceived theory-practice divide in the teaching-learning process is thought to occur.

Future research could also seek to expand on the ways in which technology is influencing the transition between the theoretical and the contextual in vocational education. It is important to examine how, as technology for implementing tools and simulations becomes more sophisticated, the nature of the encounter with theory and practice is changing, and how this alters the form of their pedagogy. Finally, comparative work in other vocational disciplines and cultures could enlighten the current understanding of the theoretical and practical articulation of theory and practice in professions and cultures other than the American or European. It could lead to a better understanding of these basic notions in vocational training.

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