

Transforming Workplace Experiences into Vocational Teacher Professionalism through Vocational Teacher Education

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Research Article

Keywords: vocational teacher education, workplace learning, boundary crossing, transformation, vocational teacher professionalism, professional learning

Posted Date: September 8th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10417578/v1>

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Additional Declarations: No competing interests reported.

Abstract

Workplace practice is a defining feature of vocational teacher education (VTE) in Norway. This study examines how vocational teacher students with extensive experience as skilled workers describe the transformation of workplace experiences into vocational teacher professionalism through VTE.

The study draws on survey data from 50 third-year vocational teacher students enrolled in Norwegian VTE programmes in technological vocational fields. Although the survey included Likert-scale items, the analysis is primarily based on students' responses to open-ended questions, providing rich qualitative accounts of their experiences. The analysis is informed by practice theory and boundary crossing theory.

The findings show that students strategically selected workplace placements to strengthen their vocational teacher competence rather than to expand their own occupational expertise. Their choices were informed by what they perceived as relevant for their future teaching, including the needs of their students, the vocational programmes offered by their schools, and the competence demands of local working life. Through active participation in authentic workplace practices, they developed broader vocational understanding and new perspectives on vocational education. The workplace placements became particularly meaningful because, as experienced skilled workers, the students entered practice as active participants rather than novices. These workplace experiences were then transformed into vocational teacher professionalism through systematic pedagogical mediation, including reflection, collaborative learning, mandatory assignments, lectures, teaching exercises, and supervised school practice.. Rather than representing isolated workplace learning, these experiences were continuously interpreted, recontextualised and transformed across workplace, university and school settings.

The study contributes to workplace learning research by demonstrating that the educational value of workplace practice lies in the pedagogical processes through which workplace experiences are transformed into vocational teacher professionalism.

Introduction

At first glance, it may appear paradoxical that experienced vocational teachers, with extensive backgrounds as skilled workers and established careers in vocational education, are required to undertake substantial periods of workplace practice as part of their vocational teacher education. Nevertheless, workplace practice occupies a central position in the three-year bachelor of vocational teacher education (VTE) programme in Norway. This raises an important question: what does workplace practice contribute to the professional development of vocational teachers who already possess extensive occupational expertise and teaching experience?

Within the technological VTE programme, vocational teacher students are primarily recruited directly from industry into teaching positions in upper secondary schools, on the condition that they complete a VTE programme within a specified period (Education Act, 2025; Grande et al. 2014). Consequently, most students enter teacher education after many years as skilled workers and while already employed as

vocational teachers. They therefore represent a distinctive combination of established occupational competence, teaching experience, and ongoing professional learning.

In the Norwegian 2 + 2 model of vocational education and training (VET), students complete two years of school-based education followed by two years of apprenticeship in a training enterprise. Within this model, vocational teachers are responsible for preparing students for the transition from school to apprenticeship. This requires more than teaching curriculum objectives, it also involves supporting students' vocational choices and helping them understand the professional, social, and cultural expectations of working life, while ensuring that school-based learning remains relevant to contemporary workplace practices. This responsibility extends beyond transmitting occupational knowledge and technical skills. Teaching must remain closely aligned with workplaces characterised by continuous changes in technology, work processes, organisational structures, and competence requirements. Vocational teachers must therefore continually renew their professional competence through active engagement with contemporary workplace practices. Because Vg1 vocational programmes encompass a broad range of occupations, vocational teachers must be able to guide students' vocational choices and prepare them for apprenticeship across the programme. This requires a broad understanding of vocational fields beyond their own trade.

For this reason, workplace practice constitutes a core component of VTE. It provides opportunities for VTE students to participate in authentic workplace settings and to engage directly in contemporary occupational practices. Within the VTE programme, these workplace experiences are closely integrated with teaching assignments, coursework, school practice and assessment tasks that require systematic documentation and critical reflection. Workplace practice therefore represents more than participation in occupational activities, it constitutes a structured learning process through which workplace experiences are analysed, discussed, and related to the development of vocational teaching practice.

The VTE students do not enter workplace practice as novices, but with embodied vocational experience, professional judgement and well-established understandings of work. In line with Billett (2009), learning can therefore be understood as emerging through the interaction between the affordances of workplace practice and how individuals engage with these opportunities based on their previous experiences. New experiences are not simply acquired but interpreted, integrated and further developed through students' existing vocational understandings. Rather than examining workplace practice as an isolated learning activity, this study investigates how workplace experiences are pedagogically mediated through mandatory assignments, student presentations and reflections, group discussions, lectures, and supervised teaching practice at the university and in upper secondary school, thereby contributing to the development of vocational teacher professionalism.

The existing body of research on this topic appears to be limited, highlighting the need for further investigation. In particular, little is known about how experienced vocational teachers transform workplace experiences into vocational teacher professionalism through the systematic pedagogical mediation of VTE. Against this background, this article addresses the following research question:

How do vocational teacher students describe how workplace experiences are transformed into vocational teacher professionalism through vocational teacher education?

The study draws on survey data collected from 50 vocational teacher students employed within technological VTE programmes at a Norwegian University. Combining Likert-questions and open-ended questions, the survey investigates how participants experience and reflect upon the contribution of workplace practice to the development of their own professional competence.

The analysis is informed by Gherardi's (2006) practice theory, which conceptualises learning as emerging through participation in practices. Billett's (2009) conceptualisation of workplace learning complements this perspective by explaining how individuals actively engage with and learn from workplace experiences. To examine how these experiences are subsequently interpreted and recontextualised across workplace, university and school settings, the analysis further draws on Akkerman and Bakker's (2011) theory of boundary crossing. Together, these perspectives provide a coherent analytical framework for understanding how workplace experiences are transformed into vocational teacher professionalism.

The article begins by outlining the VET structure, then the Norwegian VTE and the relevant research context. It then presents the theoretical framework and methodological approach. The findings are organised into three analytical sections that examine different dimensions of students' experiences and reflections on workplace practice, I) Strategic orientations in workplace breadth practice, II) Expanding occupational understanding through workplace participation, III) Boundary crossing in vocational teacher education. Finally, the findings are discussed in relation to the theoretical framework and previous research before the article concludes by outlining its principal contributions.

The Norwegian Context

Vocational Education and Training in Norway

VET constitutes a substantial part of upper secondary education in Norway. For the 2026/2027 school year, 55% of young applicants selected a vocational education programme as their first choice, representing the highest proportion ever recorded (Norwegian Directorate for Education and Training, 2026). Norwegian VET is organised into ten broad vocational education programmes at Vg1, leading to more specialised pathways at Vg2. In most vocational fields, vocational education consists of two years of school-based education followed by two years of apprenticeship in a training enterprise, culminating in a trade or journeyman's examination.

Vocational Teacher Education in Norway

There are two principal routes to becoming a qualified vocational teacher in Norway. One route is the one-year (or two-year part time) Practical Pedagogical Education for Vocational Subjects (PPU-Y), which requires 1) a trade or journeyman's certificate, plus a bachelor's degree and a minimum of four years of relevant occupational experience, or 2) a trade or journeyman's certificate, plus a higher vocational

education (Fagskole) and a minimum of two years relevant occupational experience. The second route is the three-year bachelor of VTE, which requires a trade or journeyman's certificate and a minimum of two years of relevant occupational experience. VTE comprising 120 ECTS credits in vocational subjects and 60 ECTS credits in pedagogy and vocational didactics (Regulations on the National Framework Plan for Vocational Teacher Education, 2013).

The present study focuses on the bachelor's VTE programme. The students are primarily experienced skilled workers, most of them already recruited from working life and employed as vocational teachers while completing the programme. In accordance with the national framework regulations, the programme includes 70 days of supervised school placement and 60 days of mandatory workplace practice. The programme is built on active student participation and supports a coherent and integrated process of professional development. Learning is closely connected to students' vocational backgrounds and workplace experiences within their VET programme.

A central feature of the programme is the combination of broad workplace placements in vocational fields beyond the students' own trade, in-depth practice within their own profession, and supervised teaching practice in upper secondary schools. At the university, teaching combines lectures with student-centred learning activities, including reflection on practice logs from workplace and school practice, group discussions, practical teaching exercises, and mandatory assignments. Throughout the programme, students are encouraged to revisit and critically re-examine earlier workplace and teaching experiences in light of new theoretical perspectives and practical contexts, enabling these experiences to be progressively recontextualised and integrated into their developing vocational pedagogical competence.

Students study in groups within their education programme and join peers from all the four technological education programmes in the professional studies component (pedagogy and didactics). The four programmes in technological VTE are Building and Construction,- Electrical Engineering and Computer Technology,- Information Technology and Media Production,- Technology and Industrial Production. Mandatory assignments and examinations are supervised and assessed through interdisciplinary collaboration, ensuring the integration of vocational, pedagogical, and didactic perspectives throughout the programme.

The growing of young applicants to Norwegian VET has increased the demand for qualified vocational teachers. Recruitment challenges are particularly evident within the technological vocational programmes, where schools manage to recruit a sufficient number of VET-teachers by hiring them directly from the industry, on the condition that they complete their VTE within a given time limited period (the Education Act, 2025). To support recruitment, the Norwegian government also provides national scholarship schemes for vocational teacher students, many of whom are adult learners with family and financial responsibilities (Norwegian Directorate for Education and Training, 2026).

Full-time teachers who are simultaneously enrolled as full-time students require close collaboration between the schools and the university. Each student teacher is assigned a mentor teacher at their

school who provides ongoing guidance and support. At the technological VTE, all teaching practice, with the exception of a ten-day placement in a lower secondary school, is carried out at the student's own school. The schools are responsible for facilitating the students' participation in workplace-based practice, attendance at university seminars and study sessions, as well as providing opportunities to complete coursework and sit examinations. Despite these support structures, the three-year VTE bachelor's programme remains highly demanding for the students due to the combined responsibilities of full-time employment and full-time study.

Research Context

Strong connections to working life have long been regarded as a defining characteristic of VTE (Lyckander, 2022). However, research specifically examining workplace practice as an integrated component of VTE remains limited. Existing studies have primarily focused on programme structures, vocational teachers' competence base, and the significance of prior occupational experience, whereas vocational teacher students' own experiences of workplace practice have received comparatively little attention.

Spetalen (2014) demonstrates that vocational teachers working within the broad vocational first year VET (Vg1) programmes face a particular challenge. They are expected to prepare students for a wide range of occupations, many extending beyond their own occupational backgrounds. This highlights the need for vocational teachers to continually update their occupational knowledge and understanding of working life through ongoing engagement with diverse workplace practices.

Several studies have described the organisation of Norwegian VTE and highlighted the importance of workplace engagement for professional qualification. In a longitudinal study, Rokkones et al. (2018) found that VTE students regarded workplace practice as one of the most valuable components of their education. Participants particularly emphasised increased insight into different occupations, a stronger understanding of the relationship between school and working life, the development of practice-oriented teaching, improved career guidance, and the establishment of professional networks. However, the study provides limited insight into how workplace experiences are pedagogically processed and transformed into vocational teacher professionalism.

More recent research has focused on vocational teachers' occupational experience as a foundation for professional learning. Sarastuen (2020a, 2020b) and (Reference omitted for blind review) (2024, 2025) demonstrate how craft knowledge develops through participation in workplace practices and how embodied, experiential, and tacit forms of knowing constitute a foundation for vocational teachers' professional competence. (Reference omitted for blind review, 2026) further show how this knowledge is continually reconstructed through the interplay between prior occupational experience, teaching practice, and professional reflection. Collectively, these studies deepen our understanding of how occupational experience shapes vocational teachers' professional development, yet they do not investigate workplace practice as an integrated component of VTE.

Internationally, workplace learning has been widely examined across vocational contexts. Billett (2001, 2011, 2014) demonstrates how occupational competence develops through participation in authentic workplace practices, while Fuller and Unwin (2003, 2004, 2011) show how workplace organisation creates expansive or restrictive conditions for learning. Andersson and Köpsén (2018) further demonstrate that maintaining active engagement with one's occupational field is essential for sustaining vocational competence throughout a teaching career. Despite this substantial body of research, relatively few studies have examined how mandatory workplace practice contributes to vocational teacher professionalism of students enrolled in VTE.

The present study addresses this gap by focusing on vocational teacher students who are already experienced skilled workers and practicing as vocational teachers. For this group, mandatory workplace practice does not constitute an introduction to occupational work. Rather, it provides opportunities to develop their teacher professionalism through engagement with contemporary workplace practices and systematic reflection within VTE.

Theoretical Framework

This study draws on Gherardi's practice theory (2006), which conceptualises learning and knowing as emerging through participation in practices. To examine how workplace experiences move across workplace, the university, and teaching practice in upper secondary school, the analysis is further informed by Akkerman and Bakker's (2011) theory of *boundary crossing*. Together, these perspectives provide an analytical framework for examining how workplace practice contributes to the development of teacher professionalism among vocational teacher students.

Practice as the Basis for Vocational Teacher Professionalism

Practice theory positions practice as the primary unit for understanding how knowledge is developed, shared, and transformed (Gherardi, 2006). Rather than viewing knowledge as something individuals acquire before applying it in practice, practice theory conceptualises knowing as emerging through participation in socially and materially organised practices. Practices comprise more than the technical performance of work. They encompass established ways of acting, communicating, collaborating, and solving problems, while simultaneously evolving through participants' ongoing engagement. Participation provides access to the norms, values, language, technologies, and routines that constitute a particular practice. In workplace placements, students engage bodily in these practices by using tools, handling materials, interacting with technologies, and performing authentic work tasks alongside experienced practitioners. This embodied participation activates a finely woven interplay of sensory perception, bodily action, language, emotions, and practical judgement, allowing students to develop tacit and practical forms of professional knowledge that cannot be acquired through observation or theoretical instruction alone (Billett, 2001; Reference omitted for blind review, 2024). Artefacts, tools, machines, digital technologies, and materials are not passive resources but active elements that shape both practice and learning. Professional knowledge therefore develops through the dynamic interplay between people, tasks, embodied participation, and the social and material conditions of work. This

perspective is particularly relevant to workplace practice in VTE, where students actively participate in authentic workplace practices rather than merely observing them. Through this participation, they engage with contemporary technologies, work processes, organisational arrangements, and occupational cultures, thereby extending and renewing their professional understanding.

The participants in this study, however, occupy a distinctive position. Unlike novice learners entering an occupation, the students are experienced skilled workers who are already employed as vocational teachers. Workplace practice within their own occupational field therefore provides opportunities to update and further develop existing occupational competence. At the same time, the programme also includes workplace practice in other occupations within the same vocational education programme. These experiences enable students to engage with occupational practices beyond their own vocational background, thereby broadening their understanding of the diversity of occupations for which they prepare future apprentices. As Spetalen (2014) argues, such breadth of occupational knowledge is a central requirement for vocational teachers working within Norway's broad vocational education programmes.

Within Gherardi's (2006) perspective, professional competence is never regarded as complete. Continuing changes in technologies, work organisation, and occupational practices require even experienced practitioners to participate in new practices and continually reconstruct their professional knowing. Professional competence is therefore understood as an ongoing process in which experiences acquired through participation are continually interpreted, transformed and integrated across practices. While Gherardi (2006) explains how professional knowing develops through participation in practice, Billett's (2009) concept of personal epistemologies helps explain how these experiences become part of individuals' developing professional understanding. Learning emerges through the interplay between what practice affords and how individuals engage with these opportunities based on previous experience.

For VTE students, experiences from workplace practice therefore become professional resources that are continually drawn upon and further developed through university coursework, peer discussions and teaching practice.

Boundary Crossing Between Workplace and VTE

As VTE students move continuously between workplace practice, university studies, and school teaching, experiences are not simply accumulated but are continually interpreted and enacted across different practices. This dynamic is captured in Akkerman and Bakker's (2011) theory of boundary crossing, which conceptualises learning as emerging through movement between practices characterised by different purposes, forms of knowledge, and ways of working.

Two boundary-crossing mechanisms are particularly relevant to the present study. Reflection refers to how encounters between different practices generate new perspectives on one's own professional practice, while transformation describes how knowledge and experiences developed in one practice are

recontextualised and applied in another. Together, Gherardi's (2006) practice theory, Billett's (2009) conceptualisation of workplace learning, and Akkerman and Bakker's (2011) theory of boundary crossing provide the analytical framework for examining how workplace experiences are pedagogically mediated through VTE and transformed into vocational teacher professionalism.

Method

This study is based on a questionnaire survey conducted among third-year students enrolled in the bachelor programme in VTE within technological vocational fields at a Norwegian university. Data was collected in spring 2026 and included 50 participants from both campus-based and online programmes.

The questionnaire comprised 26 items, including closed- and open-ended questions as well as seven Likert-scale questions containing a total of 35 statements measuring students' levels of agreement. Combining quantitative and qualitative questions enabled the collection of both descriptive information about the participants and more detailed accounts of their experiences and reflections.

The questionnaire was organised into three sections. The first collected background information, including participants' vocational specialisation, vocational education programme, current employment as vocational teachers, breadth subjects completed during the programme, reasons for selecting these placements, and how workplace placements had been arranged. These questions provided contextual information about the participants' professional backgrounds. An overview of the participant group is presented in Table 1

Table 1. Characteristics of the participants.

Characteristics	Description
Participants	50
Year of study	Third year
Study mode	Campus-based and online
Employed as vocational teachers	49 of 50
Average age	35–40 years
Geographical distribution	8 counties
Education programmes	Building and Construction; Electrical Engineering and Computer Technology; Information Technology and Media Production; Technology and Industrial Production
Occupations represented	25

The second section focused on students' experiences of workplace practice, particularly learning outcomes associated with vocational breadth and depth placements. Through a combination of Likert-scale and open-ended questions, participants were invited to reflect on their learning experiences, their encounters with other vocational fields, and the contribution of workplace practice to their development as vocational teachers.

The third section explored workplace practice as a component of vocational teacher education more broadly. Questions addressed the relationship between workplace practice and vocational subjects, mandatory assignments, studies in pedagogy and vocational didactics, practice in school, and students' perceptions of programme coherence.

The qualitative material varied considerably in depth and level of elaboration, ranging from short comments to more extensive reflective accounts in several hundred words.

At the time of data collection, all participants had completed the programme's mandatory practice components, including school practice, workplace practice within their own occupational field (depth placement), and workplace practice in other occupational fields within their vocational education programme (breadth placement). Consequently, all participants were able to reflect on the contribution of the programme's full practice component to their professional development.

Analysis

The qualitative data were analysed using an interpretive thematic approach inspired by Malterud's (2001) principles for the systematic analysis of qualitative text data. The analysis proceeded through several iterative stages. First, all responses were read repeatedly to establish an overall understanding of the material. Second, meaning units related to workplace participation, learning, and professional development were identified and coded. Third, related codes were grouped into broader categories. Through repeated discussions among the authors, these categories were refined and developed into the three analytical themes presented in the findings section. Discussions focused particularly on the interpretation of ambiguous responses, the development of themes, and the exploration of alternative interpretations in order to strengthen analytical rigour.

The analysis was informed by Gherardi's (2006) practice theory and Akkerman and Bakker's (2011) theory of boundary crossing. These perspectives provided analytical concepts for examining how workplace experiences were interpreted, transformed and integrated into vocational teacher professionalism.

The authors

All three authors are teacher educators in the VTE programme and conduct research as part of their academic appointments. This insider position provided valuable contextual knowledge of the programme and participants' educational experiences, while also requiring ongoing reflexivity regarding data interpretation. Throughout the analytical process, the authors engaged in critical discussions of

emerging interpretations in order to challenge assumptions and minimise the influence of preconceptions.

The study was conducted in accordance with the ethical guidelines of the Norwegian National Research Ethics Committees (NESH, 2023). Participation was voluntary, responses were anonymous, and informed consent was obtained from all participants.

The findings are organised into three analytical sections: I) Strategic Orientations in Workplace Breadth Practice, II) Expanding Occupational Understanding Through Workplace Participation, and III) Boundary Crossing in Vocational Teacher Education.

Strategic orientations in workplace breadth practice

The participants' accounts of why they selected particular occupational fields for their workplace practice reveal that these choices were rarely incidental. Rather than reflecting personal preferences alone, the responses indicate deliberate professional considerations related to their development as vocational teachers. The 50 vocational teacher students represented 29 occupations across 4 vocational education programmes. Collectively, they selected workplace placements in 55 different occupations, illustrating both the diversity of their occupational backgrounds and the wide range of vocational practices they wished to explore.

A first pattern concerns the students' aspiration to develop their own vocational teacher profile. The most frequent reason for selecting a particular workplace was a desire to broaden their occupational knowledge beyond their own trade. Many explained that they deliberately chose occupations in which they had limited previous experience, or areas they considered important for their future teaching. Expressions such as *"learning something new"*, *"broadening my competence"*, *"gaining insight into another trade"*, and *"strengthening my vocational knowledge"* occurred throughout the material.

Interestingly, these responses do not indicate a desire to become more specialised craftspeople. Most participants had extensive occupational experience before entering vocational teacher education, and almost all were already employed as vocational teachers while completing the programme. Their choices therefore appear to reflect a different ambition, to strengthen their professionalism as vocational teachers.

A second pattern is characterised by a strong orientation towards the VET students' future vocational choices. Many participants explicitly related their selection of workplace placements to the occupations their own students typically enter after the first year of upper secondary education. They wished to understand these occupations more thoroughly in order to provide more relevant teaching and better-informed guidance. Several explained that greater familiarity with different trades would enable them to discuss vocational opportunities more confidently and support students when choosing vocational direction in Vg2 and apprenticeships.

These reflections suggest that the participants approached breadth practice primarily from a pedagogical rather than an occupational perspective. Their intention was not simply to learn another trade but to understand the vocational landscape their students encounter. Workplace participation was therefore viewed as a way of strengthening vocational teaching through richer examples, more authentic guidance, and a broader understanding of the educational pathways leading from school to apprenticeship.

A third pattern concerns the relationship between vocational education, schools, and local working life. Many participants explained that they selected occupations represented within their own schools or those closely connected to existing Vg2 programmes. Several emphasised that broader occupational competence would allow them to contribute more flexibly within their departments and support stronger continuity between the first and second years of vocational education.

Others related their choices directly to regional labour market needs. They selected occupations experiencing high demand for apprentices or representing important sectors within local industry. In doing so, they sought knowledge that would enable them to provide VET students with realistic information about employment opportunities and current competence needs. Their workplace choices therefore reflected an awareness that vocational teachers operate at the intersection of school and working life.

Only a few participants described pragmatic reasons for their choices, such as existing personal contacts or easy access to companies willing to receive students. Although such factors influenced where some placements took place, they appeared to function primarily as practical conditions rather than as the main reasons behind the occupational choices.

Overall, the analysis suggests that occupational practice is experienced as considerably more than a compulsory component of VTE. The participants' choices reveal a professional orientation in which personal development, VET students' future vocational opportunities, school needs, and labour market demands are considered simultaneously. Rather than expanding competence within their own occupation, the participants used workplace practice strategically to develop the broader professional knowledge required of vocational teachers. This finding provides an important point of departure for the following analysis, which examines what participants learned through their participation in unfamiliar occupational practices.

Expanding Occupational Understanding Through Workplace Participation

Although the participants entered workplace practice as experienced craftspeople and vocational teachers, many described how participation in unfamiliar vocational settings positioned them as learners once again. This did not imply returning to the role of apprentices or acquiring proficiency in a new trade. Rather, the reflections show how experienced practitioners deliberately entered unfamiliar occupational communities in order to develop a broader understanding of vocational practice. Workplace participation was therefore not directed towards mastering additional occupations, but

towards understanding how neighbouring trades organise work, make professional judgements and contribute to broader production and service processes. Their prior vocational expertise became a resource for interpreting unfamiliar practices rather than a competence to be replaced. One participant reflected:

It has been really valuable to gain insight into other, but closely related, trades and to see how they connect with my own field. It also makes it easier to advise my students about the breadth of vocational opportunities and how the different trades work together across occupational boundaries.

This reflection illustrates that workplace participation was valued not because it produced competence in another trade, but because it enabled participants to understand vocational relationships that later became pedagogically meaningful.

Several students emphasised that this understanding could only be achieved through active participation in everyday work. Rather than observing from the sidelines, they followed experienced workers throughout complete work processes, participated in practical tasks and discussed vocational decisions as they unfolded. One participant described following an electrical installation *“from the moment the order arrived until the work was completed,”* while others participated in concrete casting, CNC machining, aircraft maintenance, telecommunications, website development and cable installation. Across the reflections, participation itself, not the acquisition of technical skills, was consistently described as the foundation for understanding unfamiliar vocational practices.

Learning emerged gradually as students became familiar with the rhythm and organisation of another occupation. Several explained that they initially observed experienced workers before progressively participating in ordinary work tasks. Informal conversations proved to be just as important as the practical work itself. Watching experienced craftspeople explain their decisions, negotiate alternative solutions and respond to unforeseen challenges provided forms of knowledge that could not easily be accessed through descriptions or demonstrations alone. As one participant reflected, *“it was not enough to know what they did. I needed to understand why they worked that way.”* Another explained that active participation enabled him to recognise relationships that had previously remained invisible.

Several students described how this broader understanding only became possible through participation in complete work processes. Rather than learning isolated vocational tasks, they gradually recognised how occupations were organised through sequences of interdependent activities. One participant explained that workplace participation made it possible to understand the *“entire process instead of only individual tasks”*, while another emphasised that it provided insight into *“how the different trades complement one another.”*

Interestingly, the participants rarely described themselves as novices. Although the occupational contexts were unfamiliar, they already possessed extensive vocational experience from their own trades. This shaped both what they attended and how they approached learning. Rather than asking elementary questions about tools or techniques, they sought to understand work organisation, production

processes, quality requirements and collaboration between occupational groups. Several explained that years of experience as skilled craftspeople made it easier to identify similarities between occupations, even when technologies and work tasks differed considerably. They already knew how to observe work critically, identify significant processes and engage in professional dialogue. Workplace participation therefore became less a process of learning a new occupation than of interpreting unfamiliar vocational practices through an already developed vocational perspective.

This distinction is evident throughout the material. Students repeatedly explained that their purpose was not to acquire occupational competence in neighbouring trades, but to understand the vocational fields that their own VET students would later encounter as secondhandbutikker year (Vg2) students, and apprentices. One participant wrote that the purpose of workplace practice was *“to gain broader vocational competence based on mapping my own competence,”* while another explained that the placement made it possible *“to explain the different occupations more accurately to my students.”* Others deliberately selected workplaces because they lacked sufficient knowledge of occupations represented within their own educational programme. Their ambition was therefore not occupational mastery but a level of professional understanding that enabled them to represent, explain and discuss these occupations confidently within school-based vocational education.

Viewed through Gherardi's (2006) practice-theoretical perspective, these reflections illustrate how vocational knowing develops through participation in socially organised practices rather than through the acquisition of decontextualised knowledge. Understanding emerged as students engaged with colleagues, technologies, tools and materials and everyday work activities, allowing them to experience how vocational practices are enacted rather than merely described. However, the findings also suggest that participation acquired a particular character because the participants were already experienced craftspeople. Rather than participating in becoming members of another occupational community, they participated to develop a broader understanding of vocational practice itself. In this sense, workplace participation became a process of professional reinterpretation, through which previous occupational experience was mobilised to make sense of unfamiliar vocational contexts.

Participation did more than broaden the VTE students' understanding of individual occupations. Across the material, the reflections demonstrate how active engagement gradually changed the way participants understood vocational work itself. Instead of perceiving occupations as separate entities, workplace participation enabled them to recognise vocational practice as collaborative, relational and organised across occupational boundaries.

Several students described becoming increasingly aware of how different trades depend upon one another to complete complex work processes. Participants from construction programmes explained how concrete work, carpentry and plumbing installations were interconnected, while students from industrial programmes described production as dependent upon cooperation between specialised occupations. One participant summarised this insight by writing that *“you understand why one occupation has to finish before another can continue,”* while another concluded simply that *“we all depend*

on each other." Rather than expanding knowledge of individual occupations, workplace participation enabled the students to understand how vocational work is coordinated through relationships between occupations.

This broader perspective also included technological developments that were transforming contemporary working life. Artificial intelligence, CNC technologies, digital documentation systems, advanced measuring equipment, sustainability, quality assurance and health and safety procedures were frequently mentioned throughout the reflections. Yet these developments were rarely described as isolated learning outcomes. Instead, students explained how technologies shaped communication, planning, documentation and decision-making across occupational boundaries. One participant reflected that digital technologies had changed *"the entire workflow rather than only the technical task,"* while others emphasised that new technologies required closer collaboration between occupational groups and greater attention to documentation and traceability. Technological development therefore appeared not as a separate dimension of vocational learning but as an integral part of contemporary vocational practice.

The broader understanding developed through workplace participation did not remain confined to the workplace itself. Across the reflections, students repeatedly described how these experiences became pedagogical resources that influenced how they understood their role as vocational teachers. Rather than viewing workplace practice as an end in itself, they emphasised how participation enabled them to represent vocational education more accurately and meaningfully within school. Several participants explicitly linked workplace participation to their ability to communicate vocational opportunities more confidently in the classroom. One participant reflected that workplace practice meant *"I can now explain what the different occupations actually involve,"* while another wrote that *"I now understand where my students are heading."* Others described becoming better able to explain how different occupations relate to one another and to illustrate vocational pathways with authentic examples drawn from their own experiences. Practical participation therefore strengthened not only their occupational understanding but their confidence in presenting vocational education as a coherent and meaningful educational pathway.

These reflections are particularly interesting because they illustrate a qualitative shift from occupational knowing to pedagogical knowing: *"I can now talk with and guide students with much greater professional confidence."*

The participants did not simply acquire knowledge about neighbouring occupations, they developed ways of translating workplace experiences into explanations, examples and guidance that were relevant for their own students.

Several students also highlighted another consequence of workplace participation that extended beyond their own professional learning. Establishing contact with workplaces outside their own occupational field was initially described as a practical necessity for completing workplace placements. However, the reflections indicate that these relationships gradually developed into valuable professional networks that

could support future collaboration between schools and local industry. These networks have particular significance within the school-based part of Norwegian VET, where vocational teachers are responsible for securing and following up workplace placements for their own students in the subject Vocational Specialisation. As one of the largest and most practice-oriented subjects in upper secondary vocational education, its quality depends upon close collaboration between schools and local workplaces. The findings therefore suggest that workplace participation contributes not only to individual professional learning but also to strengthening the institutional relationships that underpin vocational education. Through participation, students gained access to occupational communities that later became important partners in supporting VET students' workplace learning and vocational development.

From Billett's (2009) perspective, these findings illustrate how workplace participation provides affordances that extend beyond immediate occupational learning. The opportunities offered by workplaces became educationally significant because the participants actively engaged with them, interpreted their experiences and subsequently mobilised them within new professional contexts. Learning was therefore not located in workplace participation alone but emerged through the interaction between workplace experiences, individual engagement in the context of developing vocational teacher professionalism.

Overall, these findings suggest that workplace participation does not merely broaden occupational understanding. Rather, it provides experiences that become professional resources when they are interpreted across workplace, university and school contexts. In this way, workplace participation becomes the point of departure for developing vocational teacher professionalism.

The following chapter examines how this transformation occurs through the pedagogical processes of vocational teacher education.

Boundary Crossing in Vocational Teacher Education

The VTE students describe how embodied workplace experiences, developed through active participation in workplace practices, continued to evolve beyond the workplace. Through mandatory assessments, group work, collaborative discussions and teaching practice in school, these experiences were revisited, interpreted and gradually transformed into vocational teacher professionalism.

The process begins through participation in work. Although the participants are experienced vocational teachers with extensive occupational backgrounds, workplace practice places them in unfamiliar vocational settings where they once again become active participants. They describe using unfamiliar tools and technologies, handling new materials, observing experienced workers and discussing professional decisions with colleagues. Several also emphasise the embodied nature of participation. They lifted, carried, assembled, measured, documented and solved practical problems together with skilled workers. Workplace practice was therefore not primarily about observing another occupation but about participating in its everyday practices. One student explains: *"I have learned what the working day actually looks like in these occupations, making it possible to explain to my VET students what a normal*

working day may involve instead of only listing typical work tasks.” Another reflects: “I became much more confident talking about plumbing with my students,” while a third explains: “I have expanded my professional terminology, which is important when communicating with students.”

Taken together, these reflections suggest that workplace participation did not simply provide additional occupational knowledge. Rather, it enabled students to develop a more differentiated understanding of vocational practices that could be translated into explanations, concepts and examples for their own students. What changed was therefore not only what they knew, but how they were able to communicate vocational work pedagogically.

Rather than describing the acquisition of new knowledge, these accounts show how participation expanded the students’ existing occupational repertoire. By engaging directly with work processes, technologies and collaboration across occupations, they encountered aspects of vocational practice that had previously remained outside their own professional horizon. One participant described how understanding quality assurance, deviations and competence requirements changed the way vocational students should be prepared for working life, while another concluded that *“the industries depend on each other in different ways.”*

The students nevertheless emphasise that these experiences did not become vocational teacher competence through participation alone. They became educationally meaningful when they were revisited after workplace practice. One participant writes: *“The assignments connected to workplace placement made me reflect on what I had actually experienced and done.”*

Several participants similarly described how writing assignments required them to articulate experiences that had initially remained tacit and embodied. Explaining workplace situations in writing made them reconsider why particular work processes mattered, how vocational decisions were made and how such experiences could later be used in teaching. In this way, assignments functioned not merely as documentation but as an arena for developing new pedagogical understandings. Experiences that had initially been lived through action gradually became objects of professional reflection.

This process continued through collaborative work with fellow VTE students. As one participant explains: *“Working together gives different perspectives and allows us to benefit from the broader experience and competence of others.”* The student groups became more than opportunities to complete assignments. They enabled workplace experiences to be interpreted through the professional biographies of other experienced vocational teachers, allowing established understandings to be questioned and expanded. Rather than simply sharing experiences, collaborative discussions exposed workplace experiences to alternative vocational perspectives. Because the VTE students represented different trades and teaching contexts, their workplace experience was interpreted through multiple professional biographies. Several participants therefore described group discussions as opportunities to challenge their own assumptions and broaden their understanding of vocational education.

The VTE students further describe that workplace experiences continued to develop when they were brought into their own classrooms. Rather than reproducing what they had observed in industry, they adapted these experiences to the needs of their own VET students. One student summarised this development:

As a student, it has given me a greater understanding of several vocational fields, work processes and the demands of working life. As a teacher, it has made me better equipped to see connections between the trades, adapt my teaching and provide relevant and practice-oriented education that prepares students for working life.

Teaching itself became another arena for developing workplace experiences. One participant highlights the value of teaching exercises: *“Teaching exercises. Here you practise planning and delivering teaching, and you have someone to discuss it with, both beforehand and afterwards.”* Another participant explained that workplace participation meant that *“I can now talk with and guide students with much greater professional confidence.”* A third participant described how experiences from workplace practice had provided *“concrete examples that I use in my teaching.”*

Others explain that planning lessons, presenting teaching activities and receiving feedback encouraged them to reconsider both workplace experiences and their own teaching. In this way, experiences from industry were continuously interpreted, adapted and tested in educational practice.

Overall, the findings suggest that professional development did not occur within a single setting but through continuous movement between workplace practice, university activities and teaching. Across the participants’ accounts, workplace experiences did not appear as completed learning outcomes when workplace placements ended. Instead, they were repeatedly revisited through writing, collaborative discussions, teaching activities and classroom practice. Experiences were therefore continually reinterpreted rather than simply transferred from one context to another.

Workplace experiences were carried into assignments, collaborative discussions, and classroom teaching, where they were reflected upon, recontextualised, and subsequently brought back into workplace practice. Rather than following a linear sequence, the students describe a recurring process in which each new experience became the starting point for further reflection and professional growth. Seen in this light, workplace participation represents more than an opportunity to update occupational knowledge. It provides experiences that VTE students actively interpret and expand on the basis of their extensive occupational and pedagogical backgrounds.

From Akkerman and Bakker’s (2011) perspective, these recurring movements between workplace, university and classroom illustrate boundary crossing rather than simple knowledge transfer. Experiences acquired in one setting were repeatedly reinterpreted and enacted in another. Consistent with Billett (2009), it was through the participants’ active engagement with these experiences that workplace participation gradually became vocational teacher professionalism.

Discussion

The findings demonstrate that workplace practice contributes to vocational teacher professionalism in several interconnected ways. This discussion examines these contributions from two complementary perspectives. The first discusses workplace practice as a distinctive pedagogical resource for broadening occupational understanding and developing vocational teacher professionalism. The second examines how workplace experiences are pedagogically mediated through vocational teacher education and transformed into vocational pedagogical competence as students move across workplace, university and school contexts.

Workplace practice as a distinctive pedagogical resource for developing vocational teacher professionalism

While previous research has demonstrated the value of workplace participation for developing occupational competence (Billett, 2001, 2011; Fuller & Unwin, 2003; Gherardi, 2006; Reference omitted for blind review, 2024; 2025), the present findings suggest a different educational function of workplace practice within VTE. The participants did not enter workplace practice to become more competent electricians, carpenters or industrial mechanics. Rather, they deliberately sought experiences that could strengthen their professional practice as vocational teachers. The students strategically selected unfamiliar occupational fields, participated actively in everyday work, and sought insight into occupations their own students later encounter as apprentices. Workplace participation therefore became a resource for developing vocational teacher professionalism rather than extending occupational expertise alone.

This finding supports Gherardi's (2006) understanding of knowing as emerging through participation in socially and materially organised practices. Students repeatedly described learning through bodily engagement with work, using tools, handling materials, following production processes, collaborating with skilled workers and participating in authentic workplace activities. Such descriptions reinforce the argument that vocational knowing develops through participation rather than observation alone. As Reference omitted for blind review (2024) similarly demonstrates, embodied participation provides access to forms of practical and tacit knowing that cannot be fully developed through classroom teaching. Sennett's (2008) description of craftsmanship likewise highlights how practical judgement develops through active engagement with materials, tools and work processes rather than through abstract instruction.

However, the present findings also extend previous workplace learning research. Unlike apprentices or novice workers, these participants entered workplace practice with extensive occupational and pedagogical experience. Consequently, workplace participation did not primarily generate new occupational identities but expanded already established professional understandings. This interpretation corresponds with Billett's (2009) emphasis on workplace learning. Workplace practice afforded opportunities for learning, yet it was the students' existing occupational biographies, professional interests and pedagogical responsibilities that shaped how these opportunities were

interpreted and transformed into vocational teacher professionalism. In this respect, the findings also extend (Reference omitted for blind review) (2026) argument that vocational teachers continuously reconstruct their professional knowing throughout their careers.

An additional contribution of workplace practice concerns the professional relationships established through participation in unfamiliar workplaces. Several students described how workplace practice enabled them to develop contacts with companies that later became resources in their own work as vocational teachers. These relationships were described as valuable for arranging workplace placements, strengthening collaboration between schools and local industries, inviting practitioners into teaching and providing students with more informed career guidance.

Rather than representing incidental outcomes of workplace practice, these findings suggest that professional networks constitute an important dimension of vocational teacher professionalism. The ability to establish and maintain relationships with workplaces extends teachers' opportunities to connect vocational education with contemporary working life and strengthens the relevance of vocational education for their students. The findings further indicate that workplace practice contributes professional resources extending beyond occupational understanding. By engaging in unfamiliar workplaces, the students gained insight into employers' expectations, regional labour market needs and workplace cultures while building relationships with companies. This strengthened their ability to prepare VET students for working life, guide vocational choices, support the transition from school to workplace, and match students with appropriate training companies. These dimensions appear central to vocational teacher professionalism within broad vocational programmes.

Taken together, the findings suggest that vocational teacher professionalism appears to comprise four interconnected dimensions. Broad occupational understanding, - pedagogical judgement, - the capacity to pedagogically transform workplace experiences, - and the ability to establish enduring relationships between schools and working life.

Vocational teacher professionalism through the pedagogical mediation of workplace experiences

The second contribution concerns how workplace experiences developed into vocational teacher professionalism. Previous studies have highlighted workplace practice as an important component of vocational teacher education (Rokkones et al., 2018). The present study extends this knowledge by demonstrating that workplace experiences became educationally significant because they were continuously revisited through mandatory assignments, reflective activities, group work and collaborative discussions with other VTE students, university-based teaching, and supervised teaching practice in upper secondary schools.

From the perspective of Akkerman and Bakker's (2011) theory of boundary crossing, these experiences did not remain confined to the workplace but acquired new meanings as students moved between workplace practice, university studies, and school teaching. Reflection occurred as workplace experiences were examined from pedagogical perspectives in new learning contexts, while

transformation became visible as these experiences were recontextualised into vocational pedagogical knowledge and teaching practice.

Rather than representing separate learning arenas, workplace practice, university studies and school teaching constituted interconnected practices that continually shaped one another. Professional development therefore emerged not through isolated learning episodes but through an ongoing process of boundary crossing in which workplace experiences were repeatedly interpreted, reconstructed and enacted across different educational and professional contexts. This interpretation is consistent with Billett's (2009) view that professional learning depends upon how individuals actively interpret workplace experiences on the basis of previous knowledge and experience. The findings demonstrate that reflection was not an activity separated from practice but closely connected to workplace experiences. Mandatory assessments, group assignments and teaching activities required students to articulate experiences that had initially been embodied in action. Schön's (1983) distinction between reflection-in-action and reflection-on-action is particularly relevant here, as workplace experiences became objects for systematic inquiry after participation while simultaneously informing new pedagogical actions in the classroom.

The findings can further be understood through Akkerman and Bakker's (2011) concept of boundary crossing. Workplace experiences did not remain within the workplace but changed character as students moved between workplace practice, university studies and teaching. Rather than transferring knowledge from one setting to another, the students continuously reinterpreted workplace experiences in relation to new professional contexts. Reflection enabled them to view workplace experiences from different perspectives, while transformation occurred as these experiences became integrated into vocational teaching practice. In this respect, the findings resonate with Aakernes and Granberg's (2024) emphasis on the importance of connecting occupational practice, professional reflection and vocational pedagogy within vocational teacher education.

Although the findings overwhelmingly support workplace practice as a valuable pedagogical resource, a small number of participants questioned whether the current organisation provides equally meaningful learning opportunities for all vocational teacher students. In particular, some highly experienced practitioners described routine workplace participation as offering limited professional challenge. This suggests that the educational value of workplace practice may depend not only on participation itself but also on the relationship between workplace affordances and students' prior occupational experience.

Taken together, the findings suggest that vocational teacher professionalism develops through a continuing spiral of participation, interpretation and pedagogical transformation. Workplace practice provides the experiences, but vocational teacher education provides the pedagogical processes through which these experiences are continually reconstructed into vocational teacher professionalism.

Conclusion

The findings suggest that workplace experience does not automatically become professional competence. Rather, competence emerges through repeated boundary-crossing processes in which workplace experiences are pedagogically mediated and recontextualised across workplace, university and school settings. While practice theory explains how vocational knowing develops through participation, the present study demonstrates that vocational teacher professionalism develops when workplace experiences become objects of pedagogical inquiry, reflection and pedagogical action. Workplace practice therefore contributes to vocational teacher professionalism not primarily because students participate in workplaces, but because workplace experiences are systematically transformed through the pedagogical mediation of vocational teacher education.

These findings also invite broader reflection on the role of workplace participation in professional education. While workplace practice is a defining feature of Norwegian VTE, future research could explore how pedagogically mediated workplace experiences might contribute to professional learning across different professional education programmes.

Declarations

Author Contribution

Author Contributions Statement A, B and C jointly conceived and designed the study. All authors contributed to the development of the questionnaire and participated in the data collection. A wrote the manuscript text. All authors contributed to the analysis and interpretation of the data, critically reviewed the manuscript and approved the final version of the manuscript.

Data Availability

The datasets generated and analysed during the current study are not publicly available because they contain information that could compromise participant privacy. The dataset is available from the corresponding author on reasonable request.

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