



How does it feel? An exploration of teaching perceptive sensoriality in hairdressing education

Anna Öhman¹ & Eva Klope²

¹ Karlstad University, Sweden; ² Linnæus University, Sweden

(anna.ohman@kau.se)

Abstract

This study explores vocational didactics and embodied knowledge in hairdressing education by studying how perceptive sensoriality is used by teachers and students in creating shared understandings of vocational knowledge. Among multiple actions, touch is distinguished as a central resource in learning the vocation, as it emerges in interaction between teacher and student related to the ongoing teaching and its assignment. The data is based on video-recordings displaying how touch is used in manipulating objects and material, or in assessing qualities and defects. In such instances, touch becomes a diagnostic criterion (Goodwin, 1997) to investigate how the material worked with can be evaluated and handled. To bridge the gap between individual and collective vocational knowledge, metaphors are of use. The results show two approaches to the teaching of perceptive sensoriality. In order to learn the vocational subject content the teaching need to provide for and practice the individual's embodied sense of touch as well as the vocation's verbalised collective feel. This is the core of the didactical challenge.

Keywords: vocational knowledge, teaching, (perceptive) sensoriality, hairdressing, classroom, didactics, metaphors



Introduction

One challenge in every classroom and educational situation is the didactical question of how we get to know the students' understanding and experience of what is being taught. There is no clear-cut path to make knowledge accessible and publicly accountable in order to bridge the gap between teaching and learning. This becomes even more obvious in a multi-sensorial context involving visual, tactile, and auditory sensations such as in the hairdressing classroom, but is nevertheless a fundamental question in all subject contents in which teaching the correct performance also includes students' own bodies and experiences. In our understanding of teaching and learning we align with the social perspective on the crucial role of practices displayed in embodied actions and enactments as socially accomplished and materialised in interaction between teacher and students (Goodwin, 2013). Like the sociocultural perspectives on teaching and learning, we focus on what we see and what is done between the participants in the displayed and co-operative actions (Hindmarsh et al., 2011).

Despite the amount of educational contexts having a sensorial content, the research of the role of sensoriality is scarce (Viktorelius & Sellberg, 2022), especially in the form of tactility and not the least in vocational education and training (VET). As stated by Goodwin and Smith (2021): '...the sensory aspect of touch – that is, the tactility of a given experience and its description – is rarely given explicit focus in the analysis of participants' actions and orientation' (p. 270). With this study we focus on *sensoriality* as the teaching and practice of *tactility* in a classroom context, essential in becoming a skilled hairdresser. We also use the concept *perceptive sensoriality* for the embodied experience and interpretation. The studied interactions are centered on actions such as instructions, demonstrations and evaluations. In the teaching, handling of objects and manipulation of materials play a central role together with verbalised description and use of metaphors. One can distinguish two dimensions in the teaching of tactility: individual sensorial experiences of *touch* and collective dimensions of the vocation to be learnt as *feel*.

This study in a vocational education and training context draws on previous results from various professional practices and learning contexts in which tactile skills or experiential learning associated with the occupation are investigated (Becvar Weddle & Hollan, 2010; Cuffari & Streeck, 2017; Goodwin, 1994; Goodwin & Smith, 2021; Hindmarsh & Pilnick, 2007; Mondada, 2016, 2021; Zemel & Koschmann, 2014). We focus on the building of vocational knowledge by studying teaching sensoriality as the practice of tactility in how to use the sense of touch, as it is visually displayed and verbalised in actions between teachers and students in the hairdressing classroom of VET. Within this teaching *perceptive sensoriality* is embodied as well as verbalised as *feel*.

This study contributes to a growing field of vocational didactics research, filling in a gap with the role of teaching sensoriality as tactility in the hairdressing education classroom. Previous research in VET focuses on topics such as visualising sound (Axelsson et al., 2023), attending to tools and machines (Asplund et al., 2022), language competencies (Paul, 2022), negotiating masculinity tied to the ability of handling tools (Kontio & Evaldsson, 2015), team-teaching and learning-space (Frejd & Muhrman, 2022), assessment literacy (Klovholt Leonardsen, 2021), and how students develop vocational knowledge (Heusdens et al., 2019). Even if learning in the vocational setting mostly involves awareness of the body's sensorial capacities, these aspects are scarcely represented in research, despite an increasing awareness of knowledge as embodied and mutually organised in interaction.

In our study we focus on the teaching of tactility as touch with an interest in its didactical dimensions as it plays a central role in meaning-making (Bezemer & Kress, 2014). Sensorial practices are important in creating a collective memory as shown when investigated in the handicraft classroom (Illum & Johansson, 2009), as taste in VET for cooks (Gåfvæls 2021), sensory knowing as part of aesthetic judgement (Gåfvæls, 2024), or as self-regulation in physical education (Öhman, 2017). Touching materials in floristry education while focusing on gaze has been studied (Gåfvæls, 2016) as well as 'equestrian feel' in riding lessons (Lundesjö Kwart & Melander Bowden, 2021, p. 290). These studies did not explore teaching tactility though as we do in this article. Touch in hairdressing salons and education has been included in perspectives of asymmetrical positions (Horlacher, 2017) and as part of embodied knowledge in feedback interaction between teacher and student (Öhman & Tanner, 2017; Öhman, 2018). However, touch as a form of sensoriality is nevertheless underinvestigated (Goodwin & Smith, 2021) particularly with regard to touching objects (Mondada, 2021). Our study of touch adds to the very few studies of classroom interaction in the VET field. Inspired by the seminal work of Goodwin (1994), continued in Goodwin and Smith (2021) and developed in Mondada (2021), we take a particular interest in the teaching of touch for a specific vocation, studying how it is organised and practiced in the hairdressing classroom in the interaction between teacher and students.

The aim of this article is therefore to extend the knowledge in vocational didactics about the role of perceptive sensoriality in the hairdressing education classroom. This leads to the overall question addressed in this article: How is teaching done in sensory and perceptive aspects of touch, for example experience and description of the tactility?

Background

This section gives the reader an introduction to the educational context as well as the theoretical framework of the study.

Contextualisation

In order to contextualise our study, we start with a short background for the understanding of hairdressing as an occupation that has been sidelined in research despite its complexity. The educational context consists of a dynamic and multidimensional environment involving reflection as well as sensoriality related to materiality and one's own body as well as the bodies of others. The vocation has long historical traditions, and used to be trained within a master and apprentice tradition. However, in the 1970s in Sweden, education for hairdressers became more formalised and gradually moved from the workplace to become part of upper secondary school (Andersson Gustafsson, 2002; Klope, 2020). In Sweden, hairdressing qualification consists of three years of school-based vocational education within the handicraft programme including at least 15 weeks of workplace-based learning, followed by approximately two years of apprenticeship in a workplace leading to a journeyman's certificate.

Hairdressing education is multidimensional, since the basics of the vocational knowledge have to be learnt with the mind as well as the body, involving a complex mixture of material and tacit dimensions. The skills of the vocation are taught and acquired through talk and sensory experiences accessible by way of the participants' processes of perception displaying publicly their mutual understanding of the embodied craft. In this setting, participants engage in manual activities while interacting tacitly. The vocational context is mediated in simulations of the workplace environment with various spatial configurations and the presence of a range of artifacts. The classroom is thus designed to look like a hairdressing salon with its walls filled with mirrors, rolling chairs and shelves, hair products and washing basins. There are objects of simulation and instruction, such as mannequin heads in rows, handbooks, tables, and whiteboards, revealing a context of teaching and learning. During the lessons the students are working on various tasks of production, either individually or in small groups, manipulating their own mannequin heads, while the teacher is moving around to give individual feedback and supervision or modelling demonstrations to larger or smaller groups. Practical training involves simulations that mimic real situations and prepare students to execute correct actions (Viktorelius & Sellberg, 2022). The simulations are dealt with continuously in demonstrations or simply working on a section of hair attached to a mannequin head. The skills to be learnt vary from cutting, colouring, rolling, braiding, making long hair updos, and handling tools and materials, to working

with the right body position or treating the client in a professional manner. A current lesson design is to start with group instruction and demonstrations followed by students' individual practice. In this article, both formats are investigated.

Theoretical basis

Drawing on ethnomethodology and conversation analysis (Sidnell & Stivers, 2013), we study the use of touch as a mediated means and a heuristic resource in the teaching of a vocation in the interaction between teachers and students. Within this conversation analytical research, human actions are seen as collaborative, participatory, and embodied (Goodwin, 2013). We analyse how participants make sense of their own embodied conduct as well as that of others in a hairdressing classroom context. A special interest is taken in how teaching is organised in disciplinary ways, more precisely with a focus on how touch is entrained to sensorial mastery situated in an experiential learning context. The challenge here is the complexity of the instructed experience since it involves embodied sensorial qualities that are not visible to the eye, but which nevertheless constitute an important issue for the participants. There is thus a gap to be bridged between individual and collective dimensions in the teaching of the vocation.

In this bridging, the use of metaphors is a pedagogical resource, in their function of understanding and experiencing something in terms of another. While metaphors have a long use as a linguistic form and aesthetic value, metaphors also play the role of heuristic aids in pedagogical content and education (Petrie & Oshlag, 1998). Metaphors can even be regarded as pervasive in everyday life, to the extent that our way of thinking and acting is fundamentally metaphorical (Lakoff & Johnson, 1980). Recent studies in various pedagogical settings show how metaphors are used in a multimodal sense that extends the verbal level: as *imagery* (Douglah, 2021) and *activity metaphors* (Keevallik, 2014) in dance or in biology as *tools for learning* (Pettersson, 2021) and *analogical discourse* (Filliettaz et al., 2010). Common to these studies and uses is the view that metaphors serve a cognitive function in making the unknown known by drawing on a shared experiential base in making use of verbal as well as material resources. When embodied, a metaphor also provides the opportunity to be active with the new material (Petrie & Oshlag, 1998), or as in Lundesjö Kwart and Melander Bowden's (2021) study of equestrian feel in which *vocal descriptors* as well as *verbal descriptors* are used metaphorically as resources to embody this feel. Our study aligns with these results and adds the focus on the difference between handling a material such as hair that is non-responsive compared to that of dance or horseback-riding. We find the definition of 'conceptual metaphors' from Becvar Weddle and Hollan (2010, p. 139) useful as

it underscores how metaphors systematically bridge the gap between the concrete and the abstract:

[B]odily based schematic structures also are used in human abstract thinking by the means of metaphorical projection from the worlds of bodily experience into abstract domains. The mechanism through which abstract thought is conceptualised in terms of the concrete is called conceptual metaphor.

With the understanding of these bodily based structures of projections as actions of touch that are conceptualised in metaphors with more or less abstraction, we will investigate the use of conceptual metaphors in domains relevant to the hairdressing vocation and their role of conceptualising bodily experience in teaching perceptive sensoriality.

The theoretical framework of our study draws upon Goodwin's seminal paper from 1994 on professional knowing and what he later calls 'work relevant sensory abilities' (2018, p. 352) using his concepts *calibration* and *sensorium* as analytical resources in our exploration of teaching perceptive sensoriality. Goodwin describes calibration as a co-operative and embodied experience and sensorium as the coordinated organisation of experience lodged within a community. In our analysis, these concepts are central to our understanding of the vocation being taught, in which mastery of touch is one of the main skills. Furthermore, the concepts touch and feel are described as sensory and tactile experiences made publicly accessible in collaboration and reasoning (Goodwin & Smith, 2021). According to Goodwin and Smith 'the feel' (p. 282) is nevertheless described as a pervasive tactility that practitioners articulate for one another when investigating texture and composition of objects whereas 'touch' (p. 271) is described as a diagnostic tool for identification and differentiation for various features in the material. We also use Mondada's (2021) wordings *diagnostic* and *demonstrative* touch to explore various teaching practices. She explains diagnostic touch as an exploration in order to assess an object whereas demonstrative touch is of an informative type, showing tactile features of an object.

Data and method

In the following we give an overview of how the study has been designed and carried out.

Procedure

The empirical material in this article derives from a vocational school of hairdressing in Sweden, including first-year students in the beginning of their education. The analysis presented below is based on a set of audio-video recordings. The recordings were carried out in 2015 during a month featuring

beginners in simulations working on mannequin heads, with a total of approximately 30 hours, 19.6 hours with handheld camera and 9.8 hours with head-mounted camera. The focus was of naturally occurring everyday classroom interaction between teachers and students in the first year of the hairdressing programme. The use of two cameras give a simultaneous distance and close-up view of the same interaction (Öhman, 2017, 2018). Research in video-based studies shows the active involvement of the researcher in anticipating as well as contributing to the understanding of the participants' practices, thus related to the questions posed by the researcher (Cekaite & Goodwin, 2021). The use of a head-mounted camera enables following the participants' focus of attention and not merely the researchers', avoiding so-called *magnification* (Blikstad-Balas, 2016). The empirical material covers a range of settings in which a recurring feature is a sequence in which the student or the teacher uses tactile sense as a salient resource in investigating the material worked with, thereby displaying understanding to each other. Such instances identified in the material in which touch is at the center of the activity are inspecting shape/form regarding volume/hollowness in an updo, feeling weight when lifting the hair, or constructing a lasting, stable base by teasing and attaching.

Selection

This article focuses on actions of touch when hairdresser students are taught to construct a stable base for an updo. Touch constitutes a form of tactile exploration as it offers a privileged sensory access to materiality (Mondada, 2021). The emerging ways of touch are embedded in a variety of hairdressing-specific actions. Actions of evaluation such as assessing shape, volume, hold, density/weight, durability, and placement are the most frequent. Previous selections from other parts of the recordings have focused on feedback interactions in a wider multimodal perspective (Öhman, 2018; Öhman & Tanner, 2017).

In developing the analysis for this article while reviewing the recordings with regard to sensorial content, a significant activity seemed to be fairly critical: how to make a solid hold for an updo. In these sequences, touch was identified as the central resource, in constructions as well as evaluations. Since gestures and tactile perception are continuously recurring phenomena in the studied context, one would say constantly present in various hairdressing activities, some further criteria of selection have been necessary:

- Firstly, a pedagogical criterion for selecting a sequence of film for analysis is based on the audio-video recordings from the handheld camera showing the teacher interacting with a group of students. The sequence displays how touch is used as part of initial teaching of the vocation, thus

- verbalising or modeling embodied hairdressing skills such as perceptive sensoriality (Example 1).
- Secondly, a methodological criterion concerning the angle and proximity of the camera is involved. In order to get a closer view of what in the material the participants are orienting to, the analysis is based on the audio-video recordings from the head-mounted camera giving close-ups following the gaze of the teacher interacting with one student at a time (Examples 2 and 3).
 - Criterion of exclusion: Mundane/interpersonal touch. In the case where the material mediates interpersonal touch, it is included (Example 2, Figure 4).

Having identified perceptive sensoriality of touch as the target actions in the teaching of the embodied vocation, a collection of sequences was built according to the criteria above, and in which the teachers and students engage in instructional sequences where actions of touch were identified. The three selected sequences (Excerpts 1, 2, and 3) exemplify the process of recurring practices within the educational context, in which touch is an important resource in the teaching. In the analysed data, it is evident that the participants orient their participation to the exploration and production of tactile skills as well as the materiality associated with the activity and vocation. Furthermore, the data display the embodied as well as the verbal expression the participants do in order to reach a shared understanding, as part of learning the complexity of the vocation.

Three main themes of special interest to this study were identified across the data:

- Touch is used to inspect the material product and instruct correct actions.
- Perceptive sensoriality is calibrated between teacher and students in embodied guidance together with instructions and corrections.
- Actions of touch are publicly accessible and displayed in embodied demonstrations and provided for in verbal descriptions and metaphors as feel.

Ethical dimensions and transcription

Prior to the onset, teachers and students received information about the aims of the project and audio-video recordings, and gave their written consent for participation and the use of data in videos and transcripts for research purposes. To protect the anonymity of participants, pieces of information have been left out and images have been replaced by drawings¹. In the drawings, details that could identify the participants have been changed or left out. The recordings considered here were made in Swedish, while the excerpts are two-line

transcripts with the participants' first language, followed by the translation into English. In the transcripts, the notation system developed by Jefferson (2004) is used. Furthermore, the transcripts are multi-modal in the sense that they include embodied resources other than talk, combining the textual representation with drawings of still images to visualise silent actions and the local context of the interaction (Mondada, 2018). To distinguish the teacher from the students, the teacher's shirt is colored in blue. The transcript conventions are found at the end of the article.

Although video material give access to auditory and visual representation of activities, the sensorial aspects of the interaction appear out of reach for the analyst (Ekström & Lindwall, 2014). Since transcriptions are amenable to analytical choices, they have to be seen only as partial representations. Documenting and transcribing embodied practices is thus not unproblematic and calls for renewing the emic dimension during transcription which underscores the participants' perspective in representing interactions (Greco et al., 2019). In order to assure the quality of the analysis, the transcripts and selected sequences have been analysed together with researchers from the field to gain 'communicative validity' (Kvale & Brinkmann, 2009, p. 271, our translation).

Analytic agenda and procedure

The conversation analytic (henceforth CA) approach taken in this article is to develop a comprehensive account of instances of talk in interaction, following the sequential unfolding in which each turn is responding to the preceding one, so as to build action (Schegloff, 2007). It is thus possible for the analyst to follow what the participants are orienting to. The sequences considered are in line with our aim to extend the knowledge in vocational didactics about the role of sensoriality in the hairdressing classroom, which implies use of touch in manipulation of material objects such as sections of hair, combs, pins, and rubber bands as well as interacting with others. The analysis explores the teaching done in sensory and perceptive aspects of touch with three examples to illustrate how the teacher's and students' locally produced actions of touch embody and display skills of the vocation to be learnt. In line with the theoretical and methodological framework of the study, the selected empirical material has been analysed in data sessions together with researchers from the field, as well as presented and discussed in seminars. In the analysis we distinguish how to regard touch following Goodwin and Smith (2021) in their description of didactics as 'instructing and socialising novices into competent members of the discipline' (p. 283).

The basic analytic method of CA involves moving back and forth between a detailed examination and a synoptic view, combining the video with the transcribing process. The analytical work started with repeated viewings of the

entire material, taking notes and marking episodes to return to, such as teacher-student interaction concerning teaching of tactility and embodied displays of sensoriality in gestures and talk, following what the participants are orienting to, through what is made relevant by their actions and embodied resources. This part of the analysis ended in three examples which display the trajectory of teaching perceptive sensoriality, from an initial introductory demonstration of touch with the whole class (ex. 1) followed by two individual interactions, in which the first student (ex. 2) participates in embodied training of touch and the second student (ex. 3) participates in abstract reasoning about feel.

Classroom and lesson

The following text serves the purpose of setting the scene by introducing the studied activity situated in its local context.

The teacher starts the lesson by giving an account of the importance of the durability when it comes to the construction of an updo. Made for festivity, it has to hold for at least 12 hours. In a real hairdressing salon, the client arrives in the morning and stays at least two hours for this expensive treatment. For a successful updo, the teacher underscores the construction of hold as of utmost importance. The hold is supposed to be hidden when the updo is finished.

In figure 1 below, the teacher introduces the students to the task of the lesson, which is to make a hold for the updo: 'to get it durable then a hold is the most important thing one can do'. She demonstrates the skill to be learnt: how to tease the hair to get a hold. The students are watching her actions on the mannequin head, sitting in a circle around her.



Figure 1. Introduction to the vocational subject area of how to tease.

In figure 2 below, the teacher walks around the circle of students and tells them to touch the teased section of hair.

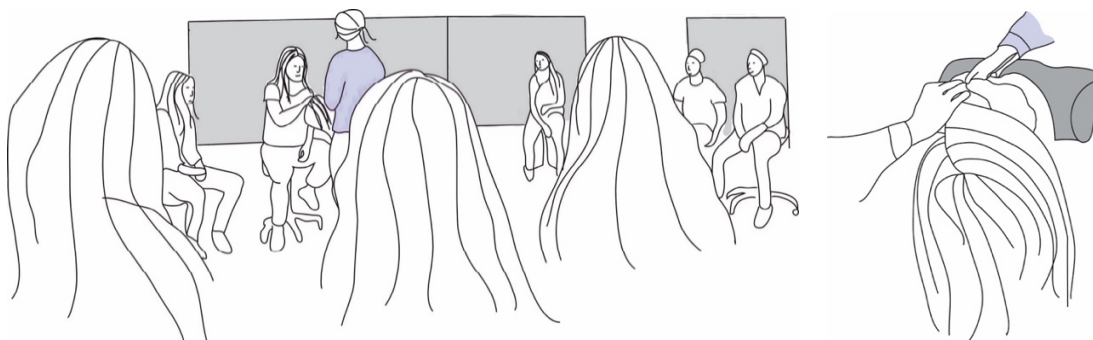


Figure 2. Introduction to the use of touch.

The students touch the teased section one after the other, as the teacher prompts them to feel the hair on the mannequin head. Her talk is done with a series of directives, addressing them with imperative verbs: ‘feel a bit here’ and ‘put your hand on it’. When she describes what the touch of a hold should feel like, the cut-offs in her talk reveal the difficulty of putting sensory entities into words: ‘you can feel that there is’. The teacher also addresses the quality of tactile experience and materiality metaphorically: ‘that it grows’ and ‘there should be something here in the bottom’. This shows on the one hand the complexity of the activity: the difficulty in representing sensoriality in verbal description, as well as how touching material objects might appear mostly private. Sensing the tangible characteristics of a material is highly subjective, as it is embodied in the individual. The instructions and verbal descriptors such as those cited above display how conceptual metaphors (Becvar Weddle & Hollan, 2010) are used to articulate the sensory experience of touching the teased hair, alluding to growth and bottom.

Analysis and findings

The analysis consists of three examples, starting with instructed experiences of touch in a group demonstration of how to make a hold and sense its tactile qualities (ex. 1), followed by individual guidance (ex. 2), and ending with individual practice and evaluation (ex. 3).

The examples indicate three crucial aspects with regard to our research question, concerning how teaching is done in sensory and perceptive aspects of touch, for example experience and description of the tactility:

1. There is difficulty in representing sensory entities in verbal descriptors.
2. Tactility, materiality and metaphors are used in bridging the gap between embodied dimensions and verbal representations.
3. Sensing and evaluating are intertwined, albeit distinguishable in the demonstrative teaching and diagnostic touch.

Example 1. Demonstration and reference

After having involved each student's sensations by showing them how to touch as a means to experience and evaluate the material in the teased hair section, the next step in the lesson is to demonstrate the construction of a hold with the use of pins.

In figure 3 below, the teacher demonstrates how to attach pins into the teased hair section with the aim of constructing a steady hold, and then she goes on involving the students in sensorial experiences.

Excerpt 1. Sensorial teaching 00002MTS 6.20–7.55

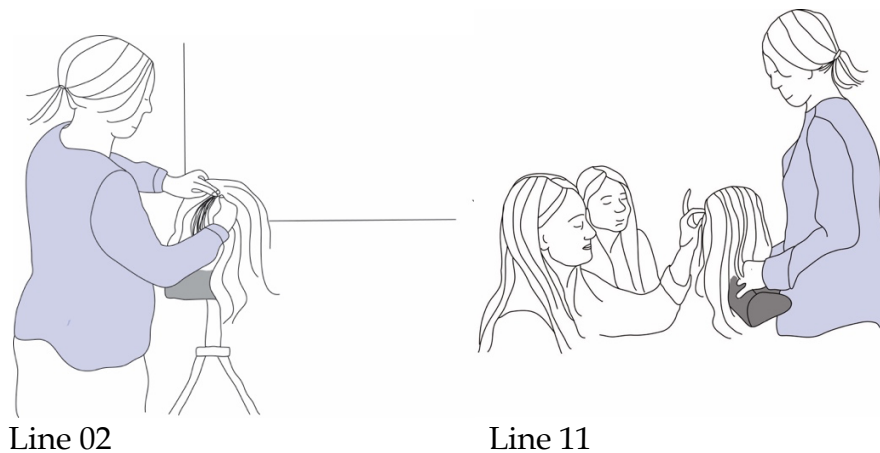


Figure 3. Attaching and touching a hold.

- LÄR 01 **å det jag ska göra nu (.) det är att jag snurrar in det**
TEA and what I will do now (.) it is I twist it
- 02 **här (.) så sätter jag en nål (.)**
here (.) then I put a pin (.) ((demonstrates twist and pin))
- 03 **jag ska visa så att ni ser (.) å så sätter jag två nålar**
I'll show you so that you can see (.) and so I put in two pins
((lifts the head off the stand and turns around in a circle to let the students see))
- 04 **så att det blir som ett kors (.) en nål gör inte att**
so it is like a cross (.) one pin does not make it
- 05 **det sitter nå bra (.)**
well attached (.)
- 06 **men om ni korsar dom och sätter två(.)så blir de (.)**
but if you cross them and put two in (.) it's going to (.)
- 07 **kan känna igen**
can touch again
((holds out the mannequin head to a student to touch))
- 08 **så kommer man att kunna fästa (.) man kommer att**
then one is going to get it attached (.) one is going to
- 09 **kunna fästa sina nåla**
get one's pins attached
((continues the tour so everyone can touch the hold))
- 10 **när man gör sin uppsättning (.) få känna lite på den (.)**
when one makes an updo (.) touch it a bit (.)
- 11 **ska du känna hur stadigt det här fästet är här heh**
you should feel how steady this hold is here heh
((one after the other puts one's finger on the hair))
- ELE 12 **mm**
STU mm
- LÄR 13 **heh**
TEA heh
- ELE 14 **(de känns) så fu:lt heh**
STU (it feels) so u:gly heh
((laughs while touching the hair and pins))
- LÄR 15 **ja det kanske känns lite så där men (.) för att förstå**
TEA yeah it may feel a bit like that but (.) to understand
- 16 **när ni själva sen jobbar med fästena (.)**
when you work on your own with the holds (.)
- 17 **hur hårt det ska sitta (.) så har man nått att (schh)**
how hard it has to be (.) so one has something (schh)
- 18 **så har man nått att referera till (.)**
so one has something as a reference (.)
- 19 **alltså nått att ja just ja(.)så där som det va så**
to refer to as oh yes (.) it's like how it was
- 20 **ska det kännas (.) mitt e alldeles för löst**
it should feel like (.) mine is far too loose
((moves her hand back and forth))
- 21 **eller va det nu kan tänkas vara**
or whatever it could be
((touches the teased hair section))
- 22 **så det här fästet (.) schhh (.) det finns här nu**
so this hold (.) schhh (.) it is here now

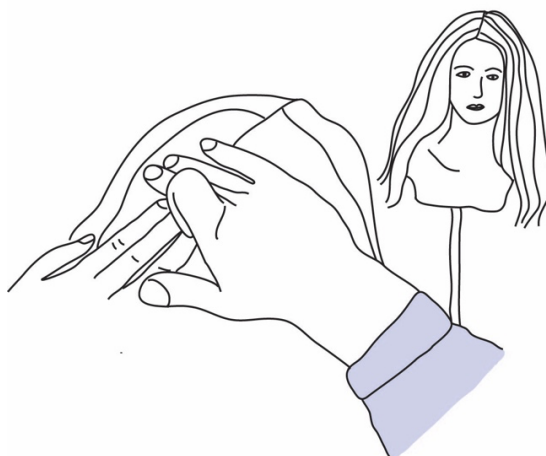
After describing and demonstrating how to attach a steady hold in lines 1 to 9, the teacher produces two tactile depictions to highlight the relevant perceptible qualities for distinguishing the use of touch, first embodied as sensoriality in line 10 and second together with a verbalised evaluation in line 20. In between these lines the aim is to understand what the feel of a hold means in 'you should feel how steady this hold is here' (line 11), the students have to get their own experience of embodied touch. At times visual displays of the material overshadow the tactile qualities, as shown in line 14, when the student laughs and comments how ugly it is. While touching the hair, the student orients to the visual aspects rather than the sensory, to which the teacher responds in re-orienting from the multisensoriality of the situation by drawing the student's attention to the disciplined tactile sensing. Even if perceptive sensoriality often relies on a dual materiality of both visible and tactile entities, the focus here is on touch. The teacher explains the reason for this ('...but (.) to understand' line 15), which can be seen as a form of instructed experience (Zemel & Koschmann, 2014) directing the student's attention to a reference (lines 18–19) with a demonstrative touch (Mondada, 2021) in lines 20–21 as she shows how to perceive the quality of the hold. In doing this, she is projecting the students' ongoing and future vocational knowledge in which sensory experience with tactile skills are important references to evaluate the quality of their work. In her demonstration, the teacher is struggling to find words to make the embodied touch verbalised as a feel. The students are being requested to use their tactile sense, and simultaneously asked to understand the activity with relation to the context in which their sensing is being disciplined. Tactile sensing is taught through instructions and explored as participation in a sensorium with the teacher (Goodwin & Smith, 2021). Despite the challenge of talking about sensory experience, teaching perceptive sensoriality is organised as a systematic practice of touch combined with the articulation of how to feel relevant structures in the complex material (Goodwin, 2018).

In the examples that follow the students are practicing holds on their individual mannequin heads, while the teacher moves around to monitor each one of them in their work.

Example 2. Calibration of touch

The excerpt below shows how the teacher demonstrates the lack of stability in the student's work and shows how to make the hold for the updo more stable. The teacher quickly taps on the teased section and moves it with her hand. The student is following her movements with her gaze and mirroring the teacher's hand movement, when she touches the hold, carefully requested to do so. In figure 4 below, the teacher puts her hand on the student's hand to demonstrate how to touch the hold.

Excerpt 2. Tactile exploration MAH00016MPA 7.09–7.58



Lines 07–08

Figure 4. Calibrating touch (left: student and right: teacher).

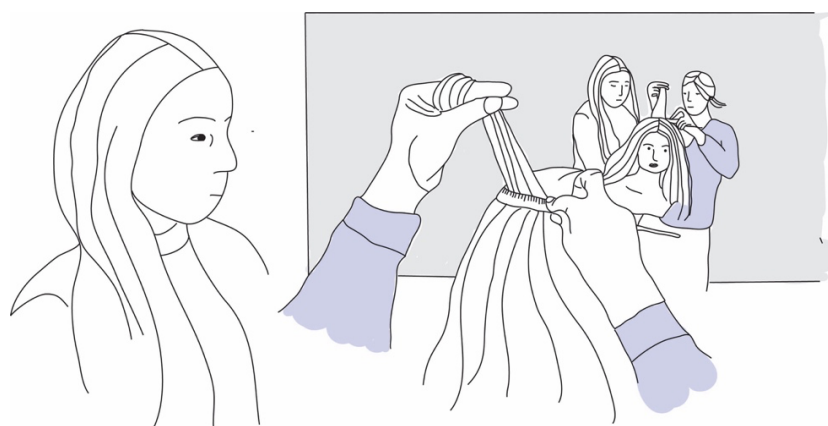
01 LÄR **ser du man kan rucka lite granna**
TEA you see ((moves the teased hair)) one can move it a little bit
02 ELE **mm**
STU mm
03 LÄR **mm (.) vi provar och ser om vi kan få den å (.)**
TEA mm (.) we try and see if we can get it to(.)
04 **här skulle du nästan**
here you almost could
05 LÄR **((löser upp fästet i håret för att visa tuperingen))**
TEA ((loosens the hold to display the teased part))
06 **känn på tuperingen lite granna**
touch the teasing a bit
07 ELE
STU ((the student puts her fingers on the hair))
08 LÄR **här vågar du**
TEA here you dare ((puts her hand on the hair))
09 ELE **mm**
STU mm

This example shows the teacher's use of demonstrative touch (Mondada, 2021) in line 1 to calibrate the student's touch with the embodied and visible guidance of the teacher. Calibration is a way of shaping and sharing vocational knowledge (Goodwin, 2018). The student's work of teasing is not of the quality required for a hold in an updo. To demonstrate expert action, the teacher uses embodied

resources such as her own hand to mold (Becvar Weddle & Hollan, 2010) the right pressure of the touch, a practice in which the teacher physically manipulates the body of the student into vocationally established movements. At the same time, she directs the student with affiliative talk 'here you dare' (line 8) to encourage her. Guiding, by use of verbal directives combined with embodied resources and intercorporeal actions, is used to calibrate the tactility of the hand. The teacher's use of verbal directives proposing action guides the embodied response from the student who puts her fingers on the hold followed by the teacher's hand on top (line 8). This touch is visibly displayed to the student and simultaneously sensed in her hand, as a tactile evidence of the embodied expertise of the teacher. Teaching perceptive sensoriality of a particular vocation is done in co-operative action between the more experienced teacher and the less experienced student whose body is being entrained into mastery of a touching practice (Goodwin, 2018). Furthermore, touch constitutes a modality with a distinct temporal quality which has the potential to endure, as in this didactical setting of experiential learning. Through the use of the tactile modality, the student's embodied response is mobilised without the teacher repeating her verbal proposal and only perceptible to others via sight (Goodwin & Smith, 2021). The student doesn't articulate anything but a 'mm'.

Having calibrated the tactile quality of instability in the hold with a demonstrative touch (Mondada, 2021), the teacher continues her instruction with a corrective demonstration of teasing as shown in figure 5 below.

Excerpt 2. continued



Lines 16–19

Figure 5. Demonstrating how to tease.

10 LÄR **för att du ska få den att fästa så tycker jag att du**
TEA to get it to hold I think you
11 **vågar tupera lite mer faktiskt**
dare tease it a bit more actually ((lifts the section))
12 ELE **mm**
STU mm
13 LÄR **så att du får tuperingen (.) du har tupering**
TEA so that you get the teasing (.) you have teasing
14 ((shows and stretches out the hair))
15 ELE **mm**
STU mm
16 LÄR
TEA ((demonstrates teasing while the student watches))
17 **du ser att jag trycker in**
you see that I push it in ((teases slowly))
18 ELE **ja**
STU yes((nods))
19 LÄR **jag får in den i botten**
TEA I get it into the bottom
20 ELE **mm**
STU mm
21 LÄR
TEA ((pushes the handle of the comb onto the hair))
22 ELE **mm**
STU mm
23 LÄR **du har fått tupering (.) men det känns som den har**
TEA you've got the teasing (.) but it feels like it has
24 **krupit en liten liten bit ut**
crept out a little little bit ((shows with the comb))
25 ELE **mm**
STU mm ((nods))
26 LÄR
TEA ((demonstrates teasing))
27 **så du ser (.) nu tar jag i nästan lite granna**
so you see (.) now I almost pull away a bit
28 ELE **mm**
STU mm ((nods))
29 LÄR **men om du känner här**
TEA if you touch here ((puts her hand on the hair))
30 ELE
STU ((puts her hand on the hair after the teacher))
31 LÄR **så känner du att den blir liksom mera distinkt**
TEA so you feel it gets like more distinct
32 ELE **mm**
STU mm ((nods))
33 LÄR **så gör det sista (.) så provar du å sätta dit**
TEA so make the last (.) and try to attach
34 ((shows with her hands on the hair))
35 **nålarna igen**
the pins again

The example above shows how the teacher starts by pointing out to the student that the essential part of the task is to tease sufficiently to get a solid base for the hairstyle: 'to get it to hold I think you dare tease it a bit more actually' (line 10-

11). This involves the feeling of how hard one has to pull the hair, but also how to push it so it gets connected with the scalp. This is illustrated by teaching two actions: (i) feel when the teasing is sufficiently hard and solid, and (ii) how to push the tease down to the scalp in order to make it stable, i.e. get the teasing in the right place of the hair. Both actions can be understood as demonstrative and calibrated teaching solidity.

While the teacher demonstrates how the teasing should be done to contribute to a stable base in the hairstyle, she slowly pushes the hair with the comb in order to make it visible and to give the student the opportunity to see clearly what she is doing. In her teaching she shows and explains what she does, 'you see that I push it in' (line 17). The comb is used as a resource (line 21) to make visible where the teasing has crept out a little. In order to get the teasing into the bottom, the student must learn how to sense the tactile quality in the process of teasing. This is illustrated in line 27 when the teacher says: 'so you see (.) now I almost pull away a bit', while demonstrating how to tease. The teacher then urges the student to touch the hair to feel when a base is stable, and the student puts her hand on the hair after the teacher (line 30). Here touch is not only calibrated, but also laminated (Goodwin, 2006), as layered and temporally unfolding processes of visibly deployed embodied actions. The feeling of the hair as 'distinct' (line 31), remains abstract and not a conceptual metaphor in the sense of Becvar Weddle and Hollan (2010) conceptualised in terms of the concrete. However, the teacher demonstrates in lines 16–21 how much she has to press the comb at the same time as she pulls the hair enough to get it connected to the scalp. It is only as a result that the student gets to it in line 30. When the teacher prompts the student to touch the hair, it concerns how a distinct hold should feel like, to perceive the difference between a tease that is durable and one that is not. A tease that is made by a beginner is not necessarily stable. By touching a base that is stable, or as the teacher here describes as 'distinct' (line 31), the student gains an experience of how it is supposed to be sensed tactilely. This experience that is not only described in words, but also embodied and calibrated, is supposed to give the student the opportunity to distinguish the difference in touch when the base is steady enough and when it is not. Goodwin (2018) describes this as a sensorium. What the student thinks or senses regarding the reference of the abstract metaphor 'distinct' is not displayed though, as all her verbal responses are limited to 'mm's and nodding her head. The teacher is not asking her for more response either.

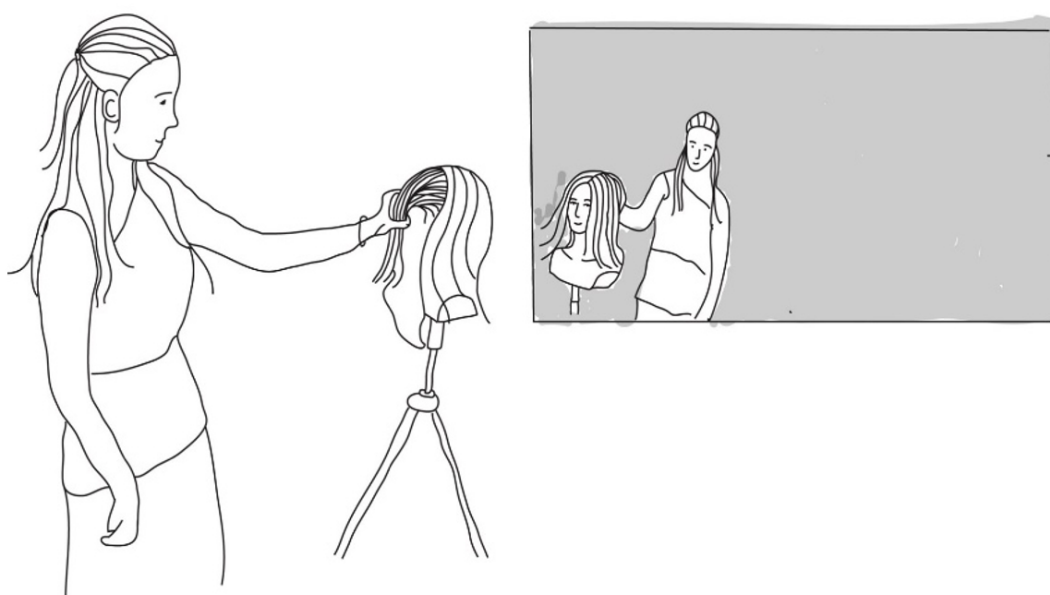
The analysis of this excerpt shows that teaching tactile skills is not organised as individual perception, rather it is displayed as participation in activities of sensation in which co-operative practices organise individual experience in a public setting, a sensorium (Goodwin, 2018). Even if touch is embodied and unarticulated, material tactility goes beyond private sensations, since it is

situated in the context of a shared material to focus on, constituted in the process of verbalising the targeted skill. In an educational context such as this, touching is made verbal and visible when the teacher draws the attention of the students to *how* and *what* they touch, despite the fact that everyone's sensing and tactility is lodged within the individual body. Making tactile actions salient is provided for via talk, albeit its origin outside the audio/visual field (Goodwin & Smith, 2021).

Example 3. Hairdressing feel

In the example above, the focus was on tactility and the work of calibration of touch in teaching sensoriality. In this example, a student has finished teasing her hold and is observing the result. She initiates an assessment with a response cry 'wo:w' followed by 'ni:ce' (lines 1-3) as she looks at the teased section of hair on her mannequin head in figure 6 below.

Excerpt 3. Evaluation MAH00016MPA 3.43-4.01



Line 01

Figure 6. Student's self-assessment.

01 **ELE** wo:w
 STU wo:w
 02 **LÄR** wo:w
 TEA wo:w
 03 **sny:gg**
 ni:ce
 04 **hur känns det**
 how does it feel ((puts her hand on the hair))
 05 **ELE** bra
 STU good ((gazes in the mirror))
 06 ((strong sound from somewhere))
 07 **LÄR** (5)
 TEA (5) ((investigates the hair with an eye on the room))
 08 **LÄR** ja (.)
 TEA yes (.) (continues investigating the hair))
 09 **ELE** ()
 STU () ((observes the teacher's movements))
 10 **LÄR** mm absolut
 TEA mm absolutely ((takes a step back))
 11 **nu känner du att du har den här mattan i botten**
 now you feel that you have this carpet in the bottom
 12 **ELE** mm
 STU mm ((nods and starts to look for her tools))
 13 **LÄR** mm
 TEA mm

The initial utterance of the student is ironic, since the updo is not finished, and the hold is not supposed to show. The teacher in her response repeats the 'wo:w' from line 1, and adds 'ni:ce' in line 3 before asking her: 'how does it feel' (line 4). The question could be about the student's satisfaction with her own work as well as the perceptive sensoriality of the material she has produced. The student being further along is thus responded to by the teacher re-orienting the student's response cry and expanding her assessment with an interrogative (line 4). Having had her question confirmed in line 5 'good', the focus on the task is reset as both orient their gaze to the hair on the mannequin head in lines 8-9. The teacher continues to investigate the hold by touching the teased section of hair from top to bottom, assessing the quality with a diagnostic touch (Mondada, 2021) investigating the hair and the consistency of the hold. Having completed her tactile inspection the teacher ends her turn by selecting an assessment: 'absolutely' (line 10). She then continues with a conceptual metaphor (Becvar Weddle & Hollan, 2010) to concretise how the touch of the hold is supposed to feel: 'now you feel that you have this carpet in the bottom' (line 11); a confirmation of quality indicating that the work of the student is correct. This example shows the student's status as a competent practitioner from the assessment of her work as well as how she initiates and responds to the teacher in the community of a sensorium (Goodwin, 2018) to which she directly returns displayed in her actions towards her tools.

Summary

Turning back to the initial question of the article about how teaching is done in sensory aspects of touch, for example experience and description of the tactility, we summarise briefly the following results of the analysis.

The deployment of touch has been investigated in three examples of interaction as they occur within the local context of instructed and responsive actions in the hairdressing classroom. The embodied trajectories have shown to be filled with complex sensory moments providing examples of how teaching what touching teased hair and hold should feel like. Whereas the first example shows a group learning environment with introduction to the activity, the second and third examples display two different individual stages of learning. The results underscore the didactic concern of taking the individual student's stage into account towards the same goal of becoming a proficient hairdresser.

In examples 1-3, we see how perceptive sensoriality of the vocation is at the center of the teaching, in producing a material with the aimed-for sensory qualities (teasing and constructing a stable hold in the hair), learning how to sense and evaluate these qualities through touch (touching the teased hair and its hold) and articulating a relevant vocational perception (responding to and sharing a feel). These skills are taught and practiced in groups and individually, monitored by and calibrated with the teacher as well as evaluated together in a shared sensorium. The examples show the didactical challenges involved in-between the embodied and personal tactility of touch and the abstract and collective conceptualisations of feel.

Consistent findings throughout examples 1-3 are the following:

1. The teaching of how to construct and evaluate a hold involves more than tactilely manipulating the material or visual evaluation. The what and how to sense are critical in perceiving the correct tactile skill.
2. In her instructions, the teacher uses verbal, tactile, as well as material resources to bridge the gap between the students' individual sensing and the sharing of vocational knowledge. The metaphors used to bridge the gap between the individual touch and the collective feel, are concrete (carpet) or abstract (distinct).
3. Teaching perceptive sensoriality is displayed as a laminated trajectory starting with the multi-party practice of touch, calibrated individually and ending with the articulated and co-operative feel.

Seen as a vocational didactic process it starts with practicing touch (ex. 1 and 2) and ends with articulating feel (ex. 3). Our findings show the need to distinguish personal tacit sensing (touch) from an articulated sensoriality (feel) in order to understand the multi-dimensional teaching of perceptive sensoriality.

Discussion

The aim of this article was to extend the knowledge in vocational didactics about the role of perceptive sensoriality in the hairdressing education classroom. This study has explored the teaching of tactility as an embodied skill to touch and a vocational knowledge to feel. Despite the complexity of perceptive sensoriality and the didactical challenge to bridge the gap between the student's sensory experience and the content in the vocational subject, the ways of teaching in the hairdressing classroom enable interactions between participants and materials that open for trajectories of embodied as well as verbalised dimensions of learning. Individual sensorial experiences of touch are built and calibrated over time into an articulated perception as a feel (Goodwin & Smith, 2021).

The results demonstrate how teaching perceptive sensoriality in hairdressing education is closely related to providing for access to materiality as well as to the awareness of one's own body. This has shown to be a complex multisensorial process between teacher and student to reach a shared understanding, in their displayed embodied exploration of the task under construction. In demonstrations of touch and verbal actions, the students are given access not only to participate in touching as a vocational practice, but also to the crucial practice of evaluating the quality of their work (Mondada, 2021), enabling them to develop an expert way of touching and articulating, thus touched and talked into being in calibrations and sensorium (Goodwin, 2018).

Individual sensing is not necessarily private or inaccessible for the analyst, as shown by Mondada (2016) in her studies of professional expertise and intersubjective engagement. The material tactility and embodied skill go beyond private sensation as they become mutually organised and publicly displayed. Although sensing can be regarded as personal, when participating in meaning-making activities together with others, sensing can also be seen as constituting one another (Stuart, 2017) such as in teaching and co-operating on material. When features such as texture and consistency become known by bodily actions such as touch, the individual sensing is disclosed and shared with others (Cuffari & Streeck, 2017). The sequences examined in this article show a continuous process of moves between individual sensing in touch and that of others in feel, within a framework of participatory sensory experiences.

The teaching of perceptive sensoriality of touch is displayed as systematically practiced to create competent members of a vocation, whose personal sense of touch is calibrated in processes of embodied and intercorporeal activities as a feel (cf. Lundesjö Kvarn & Melander Bowden, 2021). However, the role of gaze, verbal resources, and discursive practices is not to be disregarded. In the analysed examples in this article, talk plays an important role in teaching this hairdresser feel, even if the use of metaphors as verbal resources to bridge gaps between sensory entities and verbalisation varies in precision. Conceptual metaphors,

such as carpet, are common in vocational teaching, with analogies from lived everyday experience and objects that laminate complex sensory activities with shared meaning, aiming at making tacit dimensions explicit. These descriptors also upgrade the interaction from the particular to the more general aimed for vocational knowledge. Often understood as cognitive instruments and mental representations, this study shows how the use of metaphors such as 'carpet', 'bottom', and 'growing' are of a more robust, spatial, and organic character, emerging as imagery through the various examples (Douglah, 2021). However, the results also reveal the didactical challenge in verbalising sensory entities and tactile qualities, as the talk ends in unfinished phrases like '...there is' or 'it's there'. Some are hard to conceive, such as that shown with 'distinct' which is of a more abstract representation. Metaphors structure not only how we act and live in everyday life (Lakoff & Johnson, 1980), but in a vocational educational context such as this, we can see the way metaphors function as bridges spanning gaps in their way of acting as analogical links between nature/growth and the perceived material (hair) in vocational training interactions (Filliettaz et al., 2010).

Conclusions

The results make visible how the didactical question of teaching a vocational subject in hairdressing education challenges the gap between the individual embodied sensoriality of the inexperienced student and the more experienced teacher without privilege of talk. One could with Goodwin and Smith (2021, p. 282) conceptualise the vocational didactics here as constructing 'tactile understanding'. Despite the fact that the embodied sensorial dimensions of the vocation such as the experience of touching the material is lodged within the individual, the vocational didactics displayed in the examples handles the pervasive tactility by co-operating embodiedly in touch as well as articulating the feel for one another.

Endnote

¹ The drawings are made by Camilla Gåfväls, Phd and lecturer at Department of Visual Arts and Sloyd Education, Konstfack, Stockholm.

Transcript conventions

The transcription convention used in the present article is a simple format departing from Jefferson (2004). Both the original Swedish and the translated English are included in the transcripts.

- (.) A dot in parentheses indicates a micropause.
- (3) Numbers within brackets indicate the length of a pause.
- () Empty parentheses indicate inaudible speech.
- : Colons indicate prolonging of the previous sound.
- (()) Text in double brackets indicates description of actions.

An indicative translation is provided line per line, in order to help reading the original. It is presented in black to discern it from the original language in bold.

Notes on contributors

Anna Öhman is a Senior Lecturer of Education at Karlstad University, Karlstad, Sweden. She is a teacher and schoolleader educator, and her research interests include VET, special education, and assessment/feedback practices.

Eva Klope is a Senior Lecturer of Education at Linnaeus University, Kalmar, Sweden. She is a teacher educator, and her research interests include VET and gender issues.

References

- Andersson Gustafsson, G. (2002). *Den inre teatern i lärandet: En studie om kunskapsväxandet inom hantverk* [The inner theatre in learning: A study about the growth of knowledge in craft] [Doctoral dissertation, KTH Royal Institute of Technology].
- Asplund, S.-B., Kilbrink, N., & Asghari, H. (2022) Teaching and learning how to handle tools and machines in vocational educational workshop sessions. *Journal of Curriculum Studies*, 54(6), 809–831.
<https://doi.org/10.1080/00220272.2022.2033326>
- Axelsson, J., Kilbrink, N., & Asplund, S.-B. "Du hör att nu liksom spinner han som en katt": Transformation av ett yrkeskunnande till ett undervisningsinnehåll [‘You hear that now it purrs like a cat’: Transformation of vocational knowing to a teaching content]. *Forskning om undervisning och lärande*, 11(1), 29–54.
- Becvar Weddle, A., & Hollan, J. D. (2010). Professional perception and expert action: Scaffolding embodied practices in professional education. *Mind, Culture, and Activity*, 17(2), 119–148.
<https://doi.org/10.1080/10749030902721754>
- Bezemer, J., & Kress, G. (2014). Touch: A resource for making meaning. *Australian Journal of Language and Literacy*, 37(2), 77–85.
<https://doi.org/10.1007/BF03651935>
- Blikstad-Balas, M. (2016). Key challenges of using video when investigating social practices in education: Contextualization, magnification, and representation. *International Journal of Research & Method in Education*, 40(5), 511–523. <https://doi.org/10.1080/1743727X.2016.1181162>
- Cekaite, A., & Goodwin, M. H. (2021). Researcher participation, ethics, and cameras in the field. *Social Interaction: Video-Based studies of Human Sociality* 4(2), 1–11. <https://doi.org/10.7146/si.v4i2.127215>
- Cuffari, E., & Streeck, J. (2017). Taking the world by hand: How some gestures mean. In C. Meyer, J. Streeck, & S. Jordan (Eds.), *Intercorporeality: Emerging socialities in interaction* (pp. 173–203). Oxford university press.
- Douglah, J. (2021). "BOOM, so it will be like an attack": Demonstrating in a dance class through verbal, sound and body imagery. *Learning, Culture and Social Interaction*, 29, 100488. <https://doi.org/10.1016/j.lcsi.2020.100488>
- Ekström, A., & Lindwall, O. (2014). To follow the materials: The detection, diagnosis and correction of mistakes in craft education. In M. Neville, P. Haddington, T. Heinemann, & M. Rauniomaa (Eds.), *Interacting with objects: Language, materiality and social activity* (pp. 227–247). John Benjamin.

- Filliettaz, L., de Saint-Georges, I., & Duc, B. (2010). Skiing, cheese fondue and Swiss watches: Analogical discourse in vocational training interactions. *Vocations and Learning*, 3(2), 117–140.
<https://doi.org/10.1007/s12186-010-9035-4>
- Frejd, P., & Muhrman, K. (2022). Is the mathematics classroom a suitable learning space for making workplace mathematics visible? An analysis of a subject integrated team teaching approach applied in different learning spaces. *Journal of Vocational Education & Training*, 74(2), 333–351.
<https://doi.org/10.1080/13636820.2020.1760337>
- Goodwin, C. (1994). Professional vision. *American Anthropologist*, 96(3), 606–633.
- Goodwin, C. (1997). The blackness of black: Color categories as situated practice. In B. Resnick, R. Säljö, C. Pontecorvo, & B. Burge (Eds.), *Discourse, tools and reasoning: Essays on situated cognition* (pp. 111–140). Springer.
- Goodwin, C. (2006). Interactive footing. In E. Holt, & R. Clift (Eds.), *Reporting talk: Reported speech in interaction* (pp. 16–46). Cambridge University Press.
- Goodwin, (2013). The co-operative, transformative organization of human action and knowledge. *Journal of Pragmatics*, 46, 8–23.
<https://doi.org/10.1016/j.pragma.2012.09.003>
- Goodwin, C. (2018). *Co-operative action*. Cambridge University Press.
<https://doi.org/10.1017/9781139016735>
- Goodwin, C., & Smith, M. S. (2021). Calibrating professional perception through touch in geological fieldwork. In A. Cekaite, & L. Mondada (Eds.), *Touch in social interaction: Touch, language, and body* (pp. 269–287). Routledge.
- Greco, L., Galato, R., Horlacher, A. S., Piccoli, V., Ticca, A. C., & Biagio, U. (2019). Some theoretical and methodological challenges of transcribing touch in talk-in-interaction. *Social Interaction: Video-Based Studies of Human Sociality*, 2(1).
<https://doi.org/10.7146/si.v2i1.113957>
- Gåfväls, C. (2016). Vision and embodied knowing: The making of floral design. *Vocations and Learning*, 9(2), 133–149.
<https://doi.org/10.1007/s12186-015-9143-2>
- Gåfväls, C. (2021). När läroplanen kokar över: Vad handledare respektive lärare urskiljer som yrkeskunnande [When the curriculum boils over: What supervisors and teachers respectively discern as vocational knowing]. In J. Kontio, & S. Lundmark (Eds.), *Yrkesdidaktiska dilemman* (pp. 121–145). Natur & Kultur.
- Gåfväls C. (2024). How to make a bridal bouquet: Sensory knowing in action. *Frontiers in Education*, 9, 1316981. <https://doi.org/10.3389/feduc.2024.1316981>
- Heusdens, W., Baartman, L., & de Bruijn, E. (2019). Know your onions: An exploration of how students develop vocational knowledge during professional performance. *Scandinavian Journal of Educational Research*, 63(6), 839–852. <https://doi.org/10.1080/00313831.2018.1452291>

- Hindmarsh, J., & Pilnick, A. (2007). Knowing bodies at work: Embodied and ephemeral teamwork in anaesthesia. *Organization Studies*, 28(09), 1395–1416. <https://doi.org/10.1177/01708406070682>
- Hindmarsh, J., Reynolds, P., & Dunne, S. (2011). Exhibiting understanding: The body in apprenticeship. *Journal of Pragmatics*, 43(2), 489–503. <https://doi.org/10.1016/j.pragma.2009.09.008>
- Horlacher, A.-S. (2017). Vous coupez quand même pas trop hein? Quand la cliente prévient et conteste une action du coiffeur. In L. Mondada, & S. Keel (Eds.), *Participation et asymétries dans l'interaction institutionnelle* (pp. 261–284). (Collection: Cahiers de la Nouvelle Europe). L'Harmattan.
- Illum, B., & Johansson, M. (2009). Vad är tillräckligt mjukt? Kulturell socialisering och lärande i skolans slöjdpraktik [What is soft enough? Cultural socialisation and learning in the school's craft-practice]. *FORMakademisk*, 2(1), 69–82. <https://doi.org/10.7577/formakademisk.62>
- Jeffersson, G. (2004). Glossary of transcript symbols with an introduction. In G. H. Lerner (Ed.), *Conversation analysis: Studies from the first generation* (pp.13–31). John Benjamin.
- Keevalik, L. (2014). Having a ball: Immaterial objects in dance instruction. In M. Nevile, M. P. Haddington, T. Heinemann, & M. Rauniomaa (Eds.), *Interacting with objects* (pp. 249–268). John Benjamins Publishing Company.
- Klope, E. (2020). *Respektabla frisörer: Femininitet och (yrkes)identitet bland tjejer i gymnasieskolans frisörutbildning* [Respectable hairdressers: Femininity and (vocational) identity among girls in vocational education and training for hairdressers] (No. 384/2020) [Doctoral dissertation, Linnæus University]. <http://lnu.diva-portal.org/smash/get/diva2:1431278/FULLTEXT01.pdf>
- Klovholt Leonardsen, J. (2021). One size fits nobody: En casestudie av yrkesfagläreres deltagelse i kompetanseutviklingsarbeid i videregående skole [One size fits nobody: A case study of vocational education and training teachers' participation in professional development projects in upper secondary school]. *Nordic Journal of Vocational Education and Training*, 11(2), 1–24. <https://doi.org/10.3384/njvet.2242-458X.211121>
- Kontio, J., & Evaldsson, A. C. (2015). 'Last year we used to call it a man's hammer': (Un)doing masculinity in everyday use of working tools within vocational education. *NORMA: International Journal for Masculinity Studies*, 10(1), 20–38. <https://doi.org/10.1080/18902138.2015.1013343>
- Kvale, S., & Brinkmann, S. (2009). *Den kvalitativa forskningsintervjun* [The qualitative research interview]. Studentlitteratur.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.
- Lundesjö Kvart, S., & Melander Bowden, H. (2021). Instructing equestrian feel: On the art of teaching embodied knowledge. *Scandinavian Journal of Educational Research*, 66(2), 290–305. <https://doi.org/10.1080/00313831.2020.1869076>

- Mondada, L. (2016). Challenges of multimodality: Language and the body in social interaction. *Journal of Sociolinguistics*, 20(3), 336–366.
https://doi.org/10.1111/josl.1_12177
- Mondada, L. (2018). Multiple temporalities of language and body in interaction: Challenges for transcribing multimodality. *Research on Language and Social Interaction*, 51(1), 85–106. <https://doi.org/10.1080/08351813.2018.1413878>
- Mondada, L. (2021). Sensorial explorations of food: How professionals and amateurs touch cheese in gourmet shops. In A. Cekaite, & L. Mondada (Eds.), *Touch in social interaction: Touch, language, and body* (pp. 288–310). Routledge.
- Paul, E. (2023). ‘The wrong’ kind of students or ‘Santa’s workshop’? Teaching practices for newly arrived migrant students in Swedish upper secondary VET. *Vocations and Learning*, 16, 157–177.
<https://doi.org/10.1007/s12186-023-09313-2>
- Petrie, H. G., & Oshlag, R. S. (1998). Metaphor and learning. In A. Ortony (Ed.), *Metaphors and Thought* (pp. 579–609). Cambridge University Press.
- Pettersson, A. J. (2021). *Topsar och cellmembran: Kroppens näringsupptag i undervisning och elevtexter på mellanstadiet* [‘Cotton swabs and cell membrane’: Nutrient uptake in teaching and student texts in upper primary school]. [Doctoral dissertation, Linköping University].
- Schegloff, E. A. (2007). *Sequence organization in interaction*. Cambridge University Press.
- Sidnell, J., & Stivers, T. (2013). *Handbook of conversation analysis*. Wiley-Blackwell.
- Stuart, S. A. J. (2017). Feeling our way: Enkinesthetic enquiry and immanent intercorporeality. In C. Meyer, J. Streeck, & S. Jordan (Eds.), *Intercorporeality: Emerging socialities in interaction* (pp. 51–73). Oxford university press.
- Viktorelius, M., & Sellberg, C. (2022). The lived body and embodied instructional practices in maritime basic safety training. *Vocations and Learning*, 15, 87–109.
<https://doi.org/10.1007/s12186-021-09279-z>
- Zemel, A., & Koschmann, T. (2014). Put your finger right here: Learnability and instructed experience. *Discourse Studies*, 16(2), 163–183.
<https://doi.org/10.1177/1461445613515359>
- Öhman, A. (2017). *Återkoppling i interaktion: En studie av klassrumsbaserad bedömning i frisörutbildningen* [Feedback in interaction: A study of classroom-assessment in hairdressing education] [Doctoral dissertation, Karlstad University].
- Öhman, A. (2018). Twist and shape: Feedback practices within creative subject content of hairdressing education. *Vocations and Learning*, 11, 425–448.
<https://doi.org/10.1007/s12186-017-9196-5>
- Öhman, A., & Tanner, M. (2017). Creating space for students’ concerns: Embodied feedback practices in hairdressing education. *Learning, Culture and Social Interaction*, 14, 79–93. <https://doi.org/10.1016/j.lcsi.2017.04.005>

Öhman, M. (2017). Losing touch: Teachers' self-regulation in physical education. *European Physical Education Review*, 23(3), 297–310.
<https://doi.org/10.1177/1356336X15622159>