Transferring embodied knowledge

Multimodal approaches to interactive practices for knowledge constitution

International symposium

Albert-Ludwigs-University Freiburg
February 25-26, 2019

Venue:

Haus zur Lieben Hand, Löwenstraße 16 ,79098 Freiburg im Breisgau

Organization:

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Program: Transferring embodied knowledge

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Venue: Haus zur Lieben Hand, Löwenstraße 16 ,79098 Freiburg im Breisgau

Sunday, February 24h, 2019	
19:00	**Warm-up dinner** Mehlwaage, Metzgerau 4, 79098 Freiburg im Breisgau, 0761 29082143
Monday, February 25th, 2019	
8:30	**Walk to the Venue** for those who are staying in the Hotel Alleehaus: Angelika Götz will meet you at the reception and walk you to the venue.
8:30	Registration opens
9:00 – 9:30	Oliver Ehmer & Geert Brône (U Freiburg, KU Leuven) **Introduction**
	The Emergence of Embodied Knowledge as Interactive Process
09:30 – 10:25	Wolfgang Kesselheim (U Zürich) **Embodied knowledge construction in science centers: Discoveries inside and outside the visitors' bodies**
10:25 – 11:20	Ajit Singh (IRS Erkner) **The communicative construction of embodied knowledge in sports**
11:20 – 11:40	Coffee Break
11:40 – 12:35	Carla Fernandes (U Lisbon) **Performance mode under the microscope: A cognitive semiotic analysis of eye gaze and other body movements in a contemporary dance improvisation**
12:35 – 13:45	Lunch Theatercafé, Bertoldstraße 46, 79098 Freiburg, 0761 2172220
	Multimodal Metaphors as Instructional Devices
13:45 – 14:40	Melisa Stevanovic (U Helsinki) (Live Presentation via Skype) **Noun metaphors of behavior: One way to launch and monitor transmission of embodied knowledge in children's instrumental instruction**
14:40 – 15:00	Coffee break
15:00 – 15:55	Silva Ladewig (U Frankfurt/Oder) **Working with a bodily sensation. The transfer of embodied knowledge using multimodal metaphors in a tango class**
15:55 – 16:50	Beatrice Szczepek Reed & Darren Reed (King's College London, U York) **'*Everything has to sing*': Singing instruction and the body**
16:50 – 18:00	**Discussion** Commentary: Anja Stukenbrock (U Lausanne)
19:30	**Conference dinner** Enoteca, Gerberau 21, 79098 Freiburg im Breisgau, 0761 3899130

Tuesday, February 26th, 2019	
	Vocalizations, Demonstrations and Corporeal Experience
09:00 – 09:55	Leelo Keevallik (U Linköping) **Transmitting experience of body movements through voice**
09:55 – 10:50	Hui-Chieh Hsu, Geert Brône, & Kurt Feyaerts (KU Leuven) ***In other gestures*: Multimodal enunciation in cello master classes**
10:50 – 11:10	Coffee Break
11:10 – 12:05	Darren J. Reed (U York) (Live Presentation via Skype) **Situating embodied instruction – proxemics and body knowledge**
12:05 – 13:00	Oliver Ehmer (U Freiburg) **Aligning Bodies in Demonstrations. Corporeal Adjustment and Synchronization in the Interactive Transmission of Body Knowledge**
13:00 – 14:30	Lunch Harmonie Flammkuchenhaus, Grünwälderstraße 16, 79098 Freiburg, 0761 2025676
	Cognition and/in the Body
14:30 – 15:25	Vito Evola (U Lisbon) **Consolidating knowledge, the body, and distributed cognition: A study on marking in dance**
15:25 – 15:40	Coffee Break
15:40 – 16:35	Paul Sambre (KU Leuven) ***Taking the trumpet up there*. Showtime for embodied schemas in music-making bodies**
16:35 – 18:00	**Final Discussion**
19:00	**Fare Well Dinner** Hotel Kaiser, Günterstalstraße 38, 79100 Freiburg im Breisgau, 0761 74910
Wednesday, February 27th, 2019	
	Data sessions (for those who are staying)
09:00 – 10:15	Emily Hofstetter & Leelo Keevallik
10:15 – 10:30	Coffee Break
10:30 – 11:45	Oliver Ehmer
11:45 – 13:00	Geert Brône, & Kurt Feyaerts & Hui-Chieh Hsu
13:00 – 14:00	Lunch Warsteiner Galerie, Milchstraße 7, 79098 Freiburg, 0761 25611

Topic

Recent research in conversation analysis, interactional linguistics and sociology has focused on the acquisition and transfer of practical knowledge/skills in a variety of instructional settings, including *dance* (Broth/Keevallik 2014; Keevallik 2010, 2014; Kolter et al. 2012; Müller/Bohle 2007; Müller/Ladewig 2013), *music* (Haviland 2007; Reed/Szczepek Reed 2013, 2014; Stevanovic 2017), *cooking* (Mondada 2014a; Raevaara 2017), *driving and flying* (De Stefani/Gazin 2014; Deppermann 2018; Levin et al. 2017), *sports* (Singh 2013; Stukenbrock 2015; Wedelstaedt/Singh 2017), *dentistry* (Hindmarsh et al. 2014; Hindmarsh et al. 2011; Lindwall/Lymer 2014; Rystedt et al. 2013), *surgery* (Mondada 2014b, 2014c; Zemel/Koschmann 2014), *handicraft* (Heinemann/Möller 2015; Lindwall/Ekström 2012), *vocational training* (Filliettaz 2007; Filliettaz et al. 2010) and activities in *museums* (Kesselheim 2012), among others. These studies emphasize that instructions of practical knowledge are intrinsically social activities: the participants interact and collaboratively organize the transmission, acquisition and constitution of knowledge using different resources.

A key feature of the practical knowledge that needs to be transferred is that it is (to a large extent) bound to the body and therefore may be implicit (Fuchs 2012; Ryle 1949). As a consequence, instructors frequently rely on demonstrations, depictions or simulations of the activity at stake (Goffman 1986 [1974]: 66) (cf. also Clark 2016; Clark/Gerrig 1990; Müller 2014; Putzier 2012; Streeck 2009). Demonstrations are usually not simple ‚nonverbal' performances or displays of the knowledge to be transferred, but highly structured social activities adjusted for their instructional purpose. Apart from demonstrations, instructors of course also use other practices like, for example, corrections and different kinds of directives. It is common to those practices that bodily and verbal resources are coordinated in systematic ways. Since instructions of embodied knowledge are not only bound to the body and space but also to time, we find systematic patterns on different scales, ranging from the micro-timing of different modalities on the level of single utterances up to large sequential and interactional patterns.

The symposium on *Transferring embodied knowledge* aims to bring together researchers working on the construction, transfer and communication of practical knowledge. One key feature uniting the different approaches is a focus on the intrinsic multimodal nature of these activities, combining linguistic descriptions and bodily-spatial analyses. Among the questions that will be raised during the symposium are:

Multimodality, Temporality and Context

- How are demonstrations and instructions organized in time at different levels of granularity/within units of different sizes (utterance, sequence, phase)?
- What is the relationship between the verbal and the bodily level in instructional interaction? For example, can a nonverbal depiction ‘take over from' a purely verbal description? Which aspects of meaning does the verbal level ‘add' to a bodily demonstration? How are descriptive, iconic and deictic resources combined?
- Can we find ‘multimodal gestalts' in instructions, e.g. relatively stable patterns that are constant over different contexts? How are such patterns adapted to, for example, different skills/activities, participation formats and group sizes?

Demonstration, Rehearsal, and Actual Performance

- How can we capture the continuum between the demonstration/simulation of an activity and its actual performance/doing? E.g. the difference between demonstrating a dance step, practicing this step and actually dancing.

- To what extent are such differences interactionally relevant for the participants involved? Do participants signal (gradual) differences between demonstrations and actual doings of an activity in interaction?
- Can demonstrations be realized collaboratively, e.g. as multimodal co-constructions? And if so, which are the roles of the two demonstrators? To which degree can students/learners take part in the demonstration that is initiated by the instructor?

Seeing, Experiencing, and Knowing

- What is the relation between *seeing* and *doing* in instructional settings? As part of the instructional interaction, students/learners often first see the demonstration at hand. How is the visually accessible information structured verbally? How is the acquisition of professional vision accomplished?
- How do instructors communicate sensations and experiences that are not visibly accessible, like body internal sensations, intercorporal sensations, haptic sensations, sound and music qualities and tastes?
- How is an increase of knowledge reflected in such activities? How can we provide interactional evidence of the learning effect of such practices? How do instructors adapt their interventions due to (non-)progressions in 'knowing'? Which are the implications that can be drawn for improving the transmission of embodied knowledge?

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Abstracts

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Consolidating knowledge, the body, and distributed cognition: A study on marking in dance

Dancers of classical ballet and of neo-classical companies typically rehearse their choreographies by running through the dance steps in a reduced form, which is physically less straining than performing them "full out": this widespread practice is known as "marking". Notably, marking has gained more interest from scholars in the field of cognitive science than from dance research, with some scholars (Kirsh 2010, Warburton et al. 2013) positing that there may be cognitive benefits besides the physical ones when dancers mark their steps in rehearsals.

In this study, we compare formal movement aspects in a series of dance steps, between marking sessions and the corresponding full-out session, in order to identify which aspects get reduced when dancers are gesturing to recall their choreographies. Using an ethnographic approach, we accompanied and video-recorded the daily rehearsals of the National Ballet Company of Portugal for the première production of a neo-classical dance piece, focusing on two of its dancers, for a period of 4 months.

The aims of this study are above all to identify which movement parameters are perceived as essential or not when dancers mark their sequences, and what motivates the inclusion and exclusion of these parameters in their marking (e.g. affordance, conventionality, imagistic properties). One hypothesis that is tested is if the more formally conventional the dance move is (e.g. *arabesque, développé*), the more reduced it will be in the marking, as opposed to more novel dance steps, which would require more information encoded in their gestural forms.

Our data confirms that marking is used by all dancers while consolidating knowledge of choreographed performances in some form, but suggests that it is acquired in context, much like a gestural system of a linguistic community which is not explicitly transmitted or taught, but gleaned in the embedded and embodied social practice. Moreover, marking appears in various forms in other non-specific contexts where detailed knowledge must be transmitted, recalled, or consolidated. In this vein, dancers use common, everyday cognitive tools, such as marking, in novel, task-appropriate ways, where their bodily behavior is so loosely unmonitored that it appears to be guided by "intuition"; rather, we argue that knowing how to use their bodies for performance, with their gaze, gestures, and other body movements, is based on skilled decision-making strategies inherent to the habitus of performance (Evola & Skubisz, accepted).

During marking, the body in motion collapses the represented with the representation. The imagistic qualities of dance motivate the spatial and iconic representations in marking, closely related to those found in co-speech gestures (Mittelberg & Evola, 2014). As such, our analysis of iconicity and conventionality in marking practices intends to inform iconicity and reduction in gesture research, as well as how variability in conventionality affects the cognitive (epistemic) process of knowledge consolidation.

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Aligning Bodies in Demonstrations. Corporeal Adjustment and Synchronization in the Interactive Transmission of Body Knowledge

The paper focuses on moments of bodily alignment between the teacher and the learner of a bodily skill. Such alignments involve the real-time adjustment of the participants' body postures in order to map onto each other. In this process, the participants typically arrange their positions in space to attain visibility of the teacher's body for the student. In the aligned position the teacher performs a demonstration – involving bodily movements and verbal utterances – which is experienced by the student, who may (or may not) synchronize his/her own movements to those of the teacher. The aim of the paper is to analyze how such alignments are interactionally achieved. The data is taken from a 60 hour corpus of classes of Argentine Tango, especially phases of private tuition between a teacher and a single student or couple.

Following Goffman, demonstrations may be defined as "performances of a tasklike activity out of its usual functional context in order to allow someone who is not the performer to obtain a close picture of the doing of the activity" (Goffman 1986 [1974]: 66). Previous research has pointed out that demonstrations in general are selective (Clark 1996, Clark/Gerrig 1990) and, more specifically, that teachers tailor their demonstrations to the learners' needs, e.g. by quoting and reproducing the learners' mistakes and contrasting them with the desired versions, thereby highlighting specific aspects of the entire movement (Keevallik 2010). Furthermore, it has been shown that, to provide multisensory opportunities for learning, in demonstrations participants may organize their bodies interactively in such a way that they become 'analogous' (Nishizaka 2017). Such an analogous structuring of co-present bodies constitutes a specific case of intercorporeality (Merleau-Ponty 1964, Meyer et al. 2017) that can be related to the concept of 'joint body schema' in cognitive terms (Soliman et al. 2015).

Building on this research, the paper focuses on the process through which bodily alignments between teachers and students are achieved interactively, i.e. how the participants move in and out of an alignment and how (more or less) synchronized movements are accomplished. Using methods form conversation analysis and interactional linguistics, the paper will analyze the sequential organization as well as the verbal and non-verbal means that are used in this instructional practice. The paper will furthermore address the question of which advantages such an alignment offers, e.g. in contrast to other ways of teaching, as for example the teacher dancing with the student.

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Performance mode under the microscope: A cognitive semiotic analysis of eye gaze and other body movements in a contemporary dance improvisation

This paper intends to provide insight into how a group of improvisation performers interact socially when they are in "performance mode". To this end, five expert performers and five non-performers, joined by Portuguese contemporary choreographer João Fiadeiro, were filmed separately during a contemporary dance exercise, the "Real-Time Composition Game (*Composição em Tempo Real*, or CTR)" (Fiadeiro 2007). Fiadeiro, one of the founders of the *Nova Dança Portuguesa* in the 1980s, created the so-called "CTR Game" in 1995 as an improvisation exercise in order to provide choreographers and performers with a methodological tool for composing artistic works.

Applying this method, the artists take turns performing in a delimited space in the studio, following a process of creating relations with previous actions in the piece. Although Fiadeiro's method invites performers to use their bodies on a stage floor, he also offers workshops by using props on a table which aim to simulate the interacting bodies as a kind of *maquette* of what could happen on stage. As the performers sit around the table, and through means of self-selection, they perform a single action at a time on the Game Table with props taken from the Objects Table to develop compositions. This improvisational performance is called a "Game". Creative and innovative ideas for stage compositions and other types of performances are generated collaboratively through what emerges throughout the Game.

Unlike previous studies on turn-taking in social interactions, the context of this study is mostly non-verbal and there are no regulated turns in the traditional sense. Performers do not talk to each other during the improvisation unless their speech is being used as artistic material or to clarify any doubts with the choreographer. They are also free to choose to perform or not, but doing only a single action at a time, and not twice in a row. Nonetheless, there is social communication: turns are coordinated by the information "given" (e.g. moving towards the table) and information "given off" (e.g. via gaze or other body movements) (Goffman 1963).

A micro-analysis of portions of the session was conducted using ELAN. Video data was annotated by two independent coders following an annotation scheme based on the semiotic categories of firstness, secondness, and thirdness. A qualitative macro-analysis of the two groups' entire sessions has been carried out, with focus on features directly related to the decision-making process throughout the improvisation exercises, such as hesitation versus determination. These differences have been analyzed under the light of recent literature focusing on social cognition and decision-making (inter alia Frith and Singer 2008). Constraints such as common knowledge, alignment, and trust were taken into account to contrast the results between the two groups.

Despite completing the task both collaboratively and creatively, the non-performer group reverted to those social interaction strategies common in everyday social interactions, minus those involving the vocal modality (i.e. frequent gaze shifts and communicative body movements). In contrast, we found that intersubjectivity was actively avoided by the expert group, both in the performers' bodily movements and mutual gaze, with turn management being regulated by means of alternative cognitive and social strategies, which will be presented. Besides the differences in communicative body movements across the groups, we have also compared self-focused movements, typically produced as neurophysiological responses to a cognitive load. "Performance mode" will be posited as a phenomenon emerging from social practice and habitus.

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In other gestures: Multimodal enunciation in cello master classes

Depictions, in the sense recently put forward by Clark (2016), are iconic physical scenes people create and display, using sets of mono- or multimodal actions, to facilitate the addressee's imagination of the scenes depicted. Ubiquitous in language use, depictions subsume linguistic phenomena where the form bears physical resemblance to the meaning. While depictions come in various types, of special interest are cases of speech-embedded non-verbal depictions, i.e. depictions that are embedded in speech, but that themselves contain no verbal elements. Though having escaped the attention of most linguists (but see Ladewig, forthc.), these depictions are of theoretical and empirical significance, for they are cases where meaning is communicated non-verbally and without co-occurring speech, a fact that situates them in the center of the recent debate on the status of non-verbal semiotic signals in language (cf. e.g. Zima & Bergs, 2017).

In this contribution, we zoom in on speech-embedded non-verbal depictions in ca. two hours of video recording of cello master classes (Masterclass Media Foundation, 2007, 2008), a context rich in non-verbal communication, as the instructional and musical nature of the classes calls for transfer of embodied procedural knowledge that poses challenges to verbalization. Among the tokens, a curious pattern emerges where the meaning of embedded depictions is "repeated" in speech. For instance, to instruct a student on the phrasing of a certain passage, the teacher says and does the following:

(1) "I mean it's just [*plays passage on cello*], it's just atmosphere."

Essentially, the meaning of the depiction is also enunciated through the verbal component *atmosphere*, which is embedded in a speech frame identical to that of the depiction's. Put differently, the "same" meaning — or growth point (McNeill, 2005) — is enunciated twice in parallel syntactic structures, once through speech only, the other time with the aid of non-verbal signals.

The significance of multimodal enunciation is manifold. The fact that the corresponding speech is found either preceding or following (as opposed to always following) the depiction, suggests the phenomenon cannot be dismissed as mere word search, instead highlighting the respective constraints of verbal and non-verbal modalities. While speech, with its categorical distinctions encoded in grammar, is less flexible with meaning profiling and therefore analytical, gesture is synthetic (ibid.), allowing meaning communication that is freer in terms of semantic foregrounding. By enunciating meaning through both speech and gesture, the speaker is able to communicate a "fuller picture," foregrounding certain aspects of meaning without sacrificing the rest, in effect bypassing the formal constraints of individual modalities. On a theoretical level, such tokens further suggest non-speech signals are not only an integral part of language use, but in fact an indispensable one, to which the speaker can resort where speech falls short.

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Transmitting experience of body movements through voice

One of the biggest challenges in instructing other bodies is conveying how performing a skill should be felt from "the inside" of the body. Verbal devices often fall short, even though descriptive mental concepts, such as "try to think X", are frequently used. This paper focuses on the use of vocalizations as a method of transferring the embodied knowledge of dancing and discusses how voice and the body come together in accomplishing qualitatively appropriate and well-timed dance steps across the participants. The data come from lindy hop and balboa classes in Swedish, Estonian, and English.

On the one hand, vocalizations externalize the embodied experience of performing a specific move. Stops are produced during sharp moves, among other things kicks and steps on the floor, while long vowels accompany extended and smooth moves, such as slides. What comes out of a dancer's vocal tract is thus "naturally" tied to what the body is doing, so much so that the original dancers in the 1930ies Harlem did not separate out vocalizing from the dance. For them the sounds were an organic part of dancing. At least what we can observe today, the sounds and syllables are assembled *ad hoc* and vary even with identical moves. In other words, they are not entirely conventionalized, even though there may be some communities of practice where sounds are copied from dancer to dancer.

On the other hand, precisely because of this "natural" link to the body, vocalizations are deployed to achieve particular embodied qualities in the bodies being taught to dance. For example, complex rhythms may be easier to produce vocally, so a sound pattern may be practiced before the body is trained to perform the corresponding timing. Vocalizing is a regular part of teacher demonstrations of the dance steps, indexically making hearable the experience from within the teacher's performing body in real time. The students thus not only see what they should be learning but also hear it as a different sensation, perhaps more intimately tied to the performing body. This analogical depiction in sound is useful in deconstructing the moves for pedagogical purposes, for marking salience, variation, and contrast. Furthermore, the teachers use vocalizations to guide students' practice, as they facilitate transmission of embodied knowledge in real time. This is especially useful in the activities where the teacher cannot be constantly observed, such as when the students are changing directions in space and when their gaze needs to be organized within the dance.

Teachers vocalize both when they themselves dance and when they are standing still. A dance instruction thus emerges as a collaborative achievement where one party may be vocalizing the embodied experience that the others are currently performing. Thereby vocalizations also constitute an essential organizational device for participation in a dance class.

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Embodied knowledge construction in science centers: Discoveries inside and outside the visitors' bodies

Science centers do not want to *tell* their visitors about natural phenomena, they want to bring people into direct contact with these phenomena. This valorisation of the bodily experience is mirrored in the fact that when several visitors use the hands-on exhibits together knowledge construction more often than not begins with, and centers around the visitors' sensory perceptions. In my talk I will show that in the science center the visitors' body is not only the locus of individual perception or experience; the visitors body is also an expressive resource in the process of transforming the visitors' individual experience into a jointly defined 'phenomenon'.

My talk will deal with one characteristic pattern of knowledge construction in the science center: the process of joint discovery. In this process visitors frame something they have perceived or experienced as new and unexpected ('a discovery'), treating it as an 'object of knowledge': something that can be defined, explained, understood, etc.
In my presentation, I will focus on the embodied means the visitors deploy to jointly identify and work out the discovered phenomenon. First, I will analyse a number of extracts that document 'first moments of discovery' in order to show how the 'discoverer' in the very moment of making his or her discovery manifest produces a kind of 'embodied first draft' of the phenomenon. Then, I will show how the next actions of the discoverer's co-visitor(s) are shaped to be seen as a reaction to this 'draft'. Finally, I want to show how this format of manifestation and reaction varies when the discovered phenomenon is not something 'outside' the discoverer's body (typically something visible), but some inner process, and I will argue that this differences can tell us something about different conceptions about the accessibility of different kinds of perception

The data basis of the talk is a corpus that comprises more than 100 video recordings of visitor interaction in a Swiss science center (in average, about 20-30 minutes). The talk builds on conversation analytical studies on visitor interaction in museums, galleries, and science centers (Heath et al. 2002; Heath und Vom Lehn 2008, 2004) and is inspired by CA work on 'noticings' (s. Schegloff 2007; Keisanen 2012, etc.).

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Working with a bodily sensation. The transfer of embodied knowledge using multimodal metaphors in a tango class

The paper investigates the emergence and (interactive) elaboration of metaphoric meaning in a tango class. More precisely, it explores how bodily sensations ground the emergence of an embodied metaphor which the teacher uses to transfer embodied knowledge.

The case study is based on video data of a 90min tango lesson in which the students practiced how to achieve balance and 60min of interviews conducted with each participant after the class. The data were analyzed by applying a method to document the emergence and activation of metaphoricity that takes its procedural, dynamic and multimodal character into account (Müller & Kappelhoff 2018; Müller & Ladewig 2013; Müller & Tag 2010). The case study reveals three phases of transferring embodied knowledge which have been documented for ballet classes before (Müller & Ladewig 2013). In the first phase, the teacher uses the coordinate system metaphor as a means to grasp and describe his own bodily sensations connected with his embodied experience of finding balance. The metaphor emerges spontaneously in a group exercise for balance where it is expressed as a full body gesture. During the course of the interaction this embodied metaphor becomes established as a means to communicate embodied knowledge and to arouse certain bodily sensations in the students that should help them achieve balance themselves (2nd phase). The successful transfer of this embodied knowledge (3rd phase) becomes observable when the participants talk about their individual experiences of achieving balance and use the coordinate system metaphor themselves. These three phases correlate with different stages of "languageing of movement" (Sheets-Johnstone 1999). To be more precise, while the finding of a metaphor to express a bodily sensation is observable in full body movements which directly address the concrete sensorimotor experience, the working with and the transfer of these sensations is observable in manual gestures and in speech which are not part of the bodily sensation but which trigger them to help finding balance .

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Situating embodied instruction – proxemics and body knowledge

The manner in which the body – specifically the 'internal experience' of the body - can become the focus of knowledge exchange is portrayed through analysis of segments of a musical masterclass, specifically the tutoring of body comportment through Alexander Technique interaction. Here, touch and talk are combined to enact public understanding of the private domain of the student's body through the pursuit, by the tutor, of acknowledgements to descriptive assessments. Only once such acknowledgments are forthcoming does the tutor turn such interactions towards collective learnables.

This substantial analysis will be placed in relation to the professional work of the author as a dance teacher. Drawing on personal experience of providing dance tuition, I will ask questions of how far this analysis can take us. Private tuition involves the tutor and student dancing together. Here the body of the student is not experienced 'from outside' the dancing couple but is experienced through the complementary movement of student and tutor. Arguably, instruction (through the tutor's 'lead'), response (through student's 'following') and assessment (through the tutor's body) are primarily embodied and a matter of kinesthetic empathy (Reynolds & Reason, 2012) .

While both examples involve body contact the closer body contact in the second instance arguably removes the opportunity for 'seeing' with the body, the utility of talk, and the affordance of the outside view of the analyst. The body of the tutee is no longer easily demarcated as an object and the focus becomes the bodies moving together. The question becomes how such arrangements can be studied by interactionalists (aside through anecdote and reflection).

Starting with Goffman's notion of 'withs' and his understanding of embodied 'encounters' the opportunities for conveying knowledge through body demonstration and assessment are dependent upon the proxemics of tutor and student and the manner in which the body is made an object of instruction. I will use this as an organising schema to ask questions of the spatial and material arrangements of different forms of body instruction.

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Taking the trumpet up there. Showtime for embodied schemas in music-making bodies

This talks deals with knowledge constitution about music in a multimodal monologic but interactive video format, where conceptualization of high notes is discussed at the interface between sound, speech and gestures in bodies, faces and hands. The corpus is composed of three short YouTube videos where recognized soloists explain how to play high notes on the trumpet. We challenge the classical cognitive linguistic take on high notes in terms of an abstract embodied vertical image schema (MORE IS UP), as we displace the notion of embodied linguistics into the speaking and contextualized and situated body itself. The linguistic object or *corpus* then does not merely reside in the verbal imagery of music spoken about and abstract embodied linguistic analysis based on embodied axioms, but is in the display and perception of the embodied practice itself. In our case, we analyze talk and performance in wind instruments. In wind instrument practice, musicians do not abstractly talk about musical scores and pitch, but their discursive *playtime* brings up music and conceptual notions about the body doing stuff and the affordances instruments impose on their bodies. More concretely, in trumpet playing, where lips buzz melodies on the mouth piece by using a constant air stream and pression, playing high notes is not just pressing valves or doing low notes in a more (in)tense way, but requires complex technical imagination about the body-instrument interface, as well as showcases of concrete performance, as teachers explain how to precisely push the air through the instrument. YouTube videos for sharing trumpet knowledge imply constant viewpoint shifts between the expert being watched and advanced learners watching this show. The expert's showtime then integrates different discursive (re)presentations of verticality in sound and the partially horizontal air movement and speed in correct and incorrect sound production, as the teacher imagines and (re)plays both his own idealized playing and the spectators' wrong high notes. Faithful to the hands-on and informal character of this meeting we will focus on the data and work in progress in this emerging field of embodied multimodal discourse studies.

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Noun metaphors of behavior: One way to launch and monitor transmission of embodied knowledge in children's instrumental instruction

The use of metaphors is an essential part of many forms of instruction and research has shown it to be particularly efficient in the context of movement learning (Böger 2012). While movement as such may be reduced to physical parameters, the experience of movement is another matter (Lakoff & Lohnson 1980; 1999). Here, conceptual metaphors are elementary in transforming complex series of body movements into intelligible behavior patterns. The verbalization of the experience of movement through a metaphor may then build the basis of a learning process.

In this presentation, I use conversation analysis to examine the use of metaphors in children's music instrumental instruction. The data for the study is drawn from 10 video-recorded 30–40-minute-long instrument lessons (violin, piano, guitar, and ukulele) from different parts of Southern Finland. The interactions are dyadic between the teacher and student, with four different teachers and seven different students from 5 to 14 years of age. More specifically, I analyze a collection of instructional sequences (N=70), where the teacher uses a noun metaphor to guide the student's body movement or position when playing or otherwise handling their instrument. These instructions target different body parts of the student, feet (N=8), back (N=5), finger (N=36), arm (N=2) hand (N=17) and upper body or torso (N=2). In my analysis, I ask: How is the teacher's use of noun metaphors of bodily behavior located within the instructional sequences and the participants' wider activity? How do the students respond to the introduction of the metaphors and what consequences do the different student responses have for the unfolding of further instructional activity?

The analysis demonstrates the challenges that the teachers face when trying to transmit knowledge about convey complex movement patterns, particularly to children at young age. The moment-by-moment guidance of the student's bodily behaviors requires constant tactile and verbal correction and is still vulnerable to misinterpretations by the student, and the first launching of metaphors cannot take place without such moment-by-moment guidance. Later on, however, the framing of the given set of behaviors with a noun metaphor has several advantages. It allows the teacher to remind the student about her previous successful realizations of the given behavioral pattern, thus encouraging the students' further realizations of it. Furthermore, when orienting to the behavioral pattern designated by the metaphor, the student has the possibility to display more agency and control over his or her body than would be the case under the teacher's constant corrective guidance. In addition, once the metaphor has been established as part of the participants' common ground, the independent realization of the behavioral patterns provides the student with the possibility to demonstrate learning, while the teacher may monitor the progress of the student's learning process. Finally, the temporal relationship between the teacher's production of the metaphor and the student's realization of the respective behavioral pattern is flexible, which allows the use of the metaphors to acquire a flexible mixture of meanings ranging from affirmation and encouragement to directive instruction and generic description of normatively-desired behavior.

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'Everything has to sing': Singing instruction and the body

Singing instructors pursue two related aims: one is the improvement of a singer's sound production, both musically (e.g. sound quality, phrasing, dynamics) and articulatorily ('diction'); the other is the singer's artistic expression and interpretation of the musical piece (e.g. emotion, historical performance practice). This talk considers combined verbal and embodied practices used by singing instructors in a data set of vocal masterclasses. The body plays a crucial role in singing, and it does so in two ways. Firstly, the body becomes the musical instrument. It is therefore impossible to teach singing without the body becoming the focus of instruction; and without the instructor involving their own body and that of the learner in the (attempted) transfer of skills and knowledge. Secondly, the instructor's challenge is to communicate musical and vocal concepts as well as the physical adjustments required to achieve them in an accessible manner. This can be done by direct reference to parts of the body and physical processes ('make sure you expand your ribcage') but is also frequently done through a combination of metaphors and embodied actions. For example, an instructor may use terms such as 'space' and 'height' to describe a certain sound quality and stretch their hands above their head to depict these concepts.

(1) Puccini 15.56
1 M: <<*both hands above head, fingers spread out*> because I'd like to- you to have the feeling>
2 that there's so much space on the inside

Embodied instructional practices are often one or both of the following: physical demonstrations of what should or should not be done; and attempts to make visible through the body what cannot be fully expressed in words:

(2) Puccini 16.02
1 M: .hh can you just do this for me
2 can you do
3 <<*mouth wide open, hand under chin, h, portamento*> HA:: HA:: HA::>
4 S: << *mouth wide open, hand under chin, h, portamento*> HA:: HA:: HA::>

(3) Sondheim 52.38
1 M: <<*singing, opening arms*> da di:::: di::::>
2 <<*shaking head, arms open*> we don't have to see an impulse anywhere
3 (...)
4 <<*opening arms*> the whole gesture for this thing could be just opening and receiving>
5 <<*arms open, holding gaze at student*>>

In exploring the embodied elements of singing instruction the presentation considers their interactional, instructional and musical relevance for the participants in situ.

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The communicative construction of embodied knowledge in sports

The contribution draws attention to forms of "knowledge communication" in sports. Starting with the assumption that (exercising) bodies are not only performing 'media' of practices, but meaningfully acting and communicating in a way that can be observed, interpreted and understood by other actors. Investigating training processes in sports, the embodied "communicative actions" (Knoblauch 2017) of coaches and athletes focus on the meaningful and mutual production of embodied knowledge. The joint and performative coordination of instructions and other forms of knowledge communication are essential for what is realised in the further training process as "communicative construction of embodied knowledge" (Singh in prep). Using video recordings of training situations in trampolining, which have been collected and analysed by applying videography and interaction analysis (Tuma et al. 2013, Heath et al. 2010), I aim to show how different *communicative modalities* are used and orchestrated by coaches and athletes to make *specific forms of embodied knowledge* reflexively accountable in order to enable learning and 'transfer'. The embodied knowledge to be mediated is produced by specific forms of knowledge communication and ranges from basic movement sequences to body tension and timing. In this regard I will also point out that the orchestration of verbal, tactile and visual forms of demonstration, imagination or preenactment goes beyond what is materially embedded in the social situation. The visual constitution of embodied knowledge (Schnettler 2007) therefore plays a decisive role in the course of training communication, because the objectivation of knowledge is displayed with and through the body. From an interactionist perspective, these phenomena are relevant with respect to a social order of knowledge communication established through these visual practices. Physical action (of coaches *and* athletes) serves as both a 'vehicle' and as solution for recurring communicative problems of teaching and learning embodied skills by making embodied knowledge visible and intersubjectively understandable.

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