"I feel that too": Musical problem-solving and mediation through cultural tools in year-nine pop-ensemble practice

Cecilia Wallerstedt & Niklas Pramling

Acknowledgement

ABSTRACT

This study investigates the problems that learners and a teacher identify and grapple with in year-nine compulsory school band practice. Learning to play a song together potentially raises many problems. However, what these problems are and whether all participants, pupils and teacher, consider the same issue to be the problem to be solved are important to clarify in order to gain an understanding of the processes of teaching and learning in such practices. A sociocultural perspective is used to conceptualize and theorize observations made by video recording band-practice lessons. More specifically, the concepts of cultural tools, appropriation and semiotic mediation are employed in the analysis. The results show how the learners and the teacher mediate the activity differently, even somewhat paradoxically when using the same terms, and that they to large extent are uncoordinated, that is, they identify and grapple with different problems. Educational implications are discussed.
Key words: classroom, ensemble playing, semiotic mediation, sociocultural perspective, school, band rehearsal, problem solving

Introduction

Contemporary music education in Swedish secondary school is dominated by pop ensemble practice (Skolverket, 2015), or in Backman Bister's (2014) terminology "rehearsal-room practice". This informal model for organizing music education has been prevalent in Sweden since the 1970s (Folkestad, 2006; Georgii-Hemming & Westvall, 2010) but has for some time been criticized. Ericsson, Lindgren and Nilsson (2010: 108) argue that:

> The informal learning within the practice of garage rock bands, as the harmonious music collective, can be seen as a part of this music education ideology. In contrast to previous discourses the teacher is no longer a part of this collective. Instead the students are directed to manage the tasks by themselves. Ideas of earlier music education discourses about music creation through experiment, inspiration and intuition have been put together with today's somewhat contradictory discourses around self reflection, control and rules.

In this article, we will contribute to the understanding of what this kind of teaching practice (or non-*teaching* practice) means, emphasizing *the perspective of the learner*. Recent research conducted in a secondary school, found that most of the problems the students faced in their rehearsing processes concerned basic musical issues such as how to play with timing and how to play the chords (Wallerstedt & Pramling, 2016). It was also found that the students preferred asking the teacher for help to using IT resources available in the classroom (Wallerstedt & Hilllman, 2015). The ideal in pop ensemble practices in schools has become that the teacher should stay out of the students' processes (Green, 2011). Zandén discusses this in terms of the 'de-didacticalised' [Swedish: "avdidaktiserad"] role of the teacher. However, it has also been shown that the teacher could play a pivotal role in the students' learning, also within this and similar genres and activities (see Mars, 2015, for an example of collaborative music composing in secondary school). It is pressing to generate knowledge about how teachers can contribute to students' learning in order to create equal possibilities for all. A crucial factor for how this contribution will succeed is if the participants in these processes mange to establish intersubjectivity (Rommetveit, 1974, 1992), that is, share perspective on what is going on, or, phrased in other terms, become engaged in the same problem.

In this study, we will conceptualize empirical observations of ensemble rehearsals in secondary school in terms of participants' identification and solving of problems (cf. Wallerstedt & Pramling, 2016) with the purpose to further understand how teaching in group-based ensemble education plays out and can be developed. We will base our discussion on one empirical case analyzed from a sociocultural perspective. We pose two theoretically informed research questions: (i) What is the nature of the musical problems the participants engaged in and (ii) how are the pupils' problem finding and problem solving mediated by the cultural tools they have appropriated, or are in the midst of appropriating, the teacher's participation and the institutional setting?

Firstly, we will briefly present examples on how the concept of problem solving has previously been used in music education research and how problems can be differentiated in many dimensions. Secondly, we explain the framework for understanding learning that we apply in the study, including the concepts of cultural tools, mediation and intersubjectivity, central to our research problem. Thirdly, we introduce the empirical case and explain the method of Interaction Analysis of video observations. Fourthly, the results are presented and implications for practice are discussed.

To understand musical activities as problem solving

Problem solving is a term employed in music-education research on composition (see e.g. Berkley, 2004; Burnard & Younker, 2004; DeLorenzo, 1989; Wiggins, 1994), instrumental music practice (e.g., Chaffin, Imreh, Lemieux & Chen, 2003; Nielsen, 2001) and chamber ensemble rehearsals (Slette, 2014). For example, DeLorenzo (1989: 197) studied sixth-grade students' problem solving in music by following composition activities in four schools. She reports that "Problem structures varied from ill-defined creating tasks with few guiding criteria ('Come up with approximately 60 seconds of sound') to very specifically defined creating tasks"; the latter exemplified by students being given a specific musical material to use in constructing a melody. Composition tasks can be formed in a way that may be compared to putting blocks together into a structure. There is a varied degree of freedom, but the goal is relatively clear. Berkley (2004: 258) suggests that to conceptualize composing as problem solving is helpful in order to develop teachers' practice: "to understand composing as problem solving will provide a basis for all music educators to feel more confident in devising and teaching composing curricula".

Chaffin et al. (2003) scrutinize a professional pianist's process of learning a new piece of music. They frame it as a complex problem-solving task that typically starts with the experienced piano player immediately grasping an 'artistic image' of the piece. This stands in contrast, they claim, to the novice "plunging into details without developing a clear idea of the big picture" (p. 467). Nielsen (2001) finds that skilled organ students also define problems when rehearsing. They switch between technical problems and problems related to "expressive qualities" (p. 159). A difference between Nielsen's study and the present one is that she uses a method that includes verbal reports of what she calls problem-solving activities during the students' practice sessions and also "retrospective debriefing reports" (p. 157). In our study, the analysis is based on video observations of ensemble rehearsals and what occurs in the interaction between the pupils and the teacher. This is similar to Slette's (2014) study, but the genre and the participants' musical experiences differ. Slette examines undergraduate music students' chamber music rehearsals while we study less experienced pupils in secondary school playing pop music. Slette's analysis shows students well capable of defining precise musical problems such as "[w]e are not in tune in the first note" (p. 114) or "[w]e're never quite together there" (p. 119). Slette conceptualizes the students' process in terms of negotiating a "Joint Problem Space" (cf. Roschelle & Teasly, 1995); "a shared knowledge structure that supports problem-solving activity" (Slette, 2014: 13). Grounded in her empirical work, she further suggests the concept *Aural Awareness Space*. This puts listening at the heart of ensemble rehearsing and the process of problem-solving. The ensemble members are seen to be attentive to the sound of their own music, they take it as basis for negotiation of how to solve problems they find, and they also keep an awareness of the ensemble's musical whole in mind when they practice alone in between the ensemble's collective rehearsals.

Problems in several dimensions

Studies where musical activities are conceptualized in terms of problem solving indicate that problems appear on different levels. For example, Wiggins (1994) studied children composing in school and found that they moved between parts and whole, or what she refers to as "a larger plan", "the larger problem" or "the assignment as a whole". The children's composing, analyzed by Wiggins in terms of problem solving, is summarized in terms of the children "seemed to follow a pattern in their strategies that moved from whole to part and back to whole" (p. 250) (cf. Folkestad, 1996, on vertical and horizontal strategies). If the larger problem is to create a piece in ABA-form, a partial problem may be how to make B into a contrast to A (Wallerstedt, 2014). In their study of an adult student learning to compose with his teacher, Barrett and

Gromko (2007) found a similar movement from parts to whole. The student and the teacher started in questions about technique, the score and other problems and then moved on to conceptual problems such as the musical intentions of the student and his musical thinking, that is, more overarching issues on composition. The distinction and relation between part and whole as aspects of problem solving should be applicable also to the practices of playing in a pop ensemble. An overarching problem for such an ensemble is to play the song. However, this formulation does not clarify what it entails more concretely, and partial problems may be what instruments should be heard on the intro to the song and what rhythm the guitarist should play during the chorus.

In music sociology and musicology, there is a recurring discussion on how to conceptualize musical meaning. Green (1988, 2010) has contributed to this discussion by introducing a distinction useful in speaking about the relation between individual and social aspects of music. She writes about inherent and delineated meaning. Inherent music does not "reside" in music as such, but is constituted in the relation between a listener and a musical piece. Delineated meaning refers to the context (including, e.g., the clothes of performers and their movements) of the music. According to this reasoning, the latter features should not be considered *other than* music. Rather, they are considered to be an extension of it. As pointed out by Garnett (1998), "much of what Green refers to as 'inherent' meaning is itself a product of culture, and therefore, in her terms, 'delineated'", but this does not render the distinction useless. In these terms, when we create relations to music, there are two aspects to connect to, those that sound and those that surround (physical and social space). For example, a sound is made by both the vibrating string and the room in which it is located, or hard rock music is constituted both by a distorted guitar and attributes such as typical haircuts and clothes. Music, and musical problem solving, may be understood in this way. Theoretically, musical problems may be inherent, delineated, particular and/or global. What problems participants find and solve are empirical questions that we are interested in studying and will discuss in relation to the empirical case.

A theoretical perspective on mediated action

In a sociocultural perspective on learning (Vygotsky, 1997, 1998), participating in communication in cultural practices is seen as the mechanism of learning. Through communication with others, the individual gradually comes to take over, that is, appropriate (Wertsch, 1998), cultural tools and practices. Tools encountered in interaction

with others subsequently become also the tools for communicating with oneself, that is, thinking, solving problems, remembering and carrying out other intellectual functions (Vygotsky, 1997). What is referred to as cultural tools include all human invention that transforms nature; it includes physical tools (often referred to as artefacts) as well as discursive (or psychological) tools. In the context of music, artefacts may be musical instruments, score sheets, and digital technologies, while discursive tools may be concepts and distinctions such as meter, tempo, or 4/4 versus 3/4-time. Discursive tools potentially fill many important functions in learning and knowing; they shape our perception and thinking, they make possible the imagination and planning of what is, for example, coming later in a piece of music. In theoretical terms, cultural tools semiotically mediate (Wertsch, 2007) human actions. That participants use the same discursive tools in the sense that they use the same terms does not necessarily mean that they are coordinated in perspective. An important analytical distinction in this regard is between words as terms and concepts. Even if participants in a practice use the same words, for example, deictic words such as 'there' and 'that', or pointing (Davidson, 2005), they may conceptualize these terms and social actions differently. That participants do take terms differently is often apparent when analyzing evolving stretches of interactional data. This reasoning implies the importance of participants communicating to establish temporarily sufficient *intersubjectivity* (Rommetveit, 1974, 1992), that is, come to share perspective on what is attended to. Without such interactional work, participants – for example, teacher and children – will not engage in a mutual project but, in effect, engage in distinct ones and talk past one another.

Cultural tools are products of socio-historical development and they carry with them intellectual resources, or rather, they can be conceived as reified human insights and knowledge. Different practices have a different set of tools, and an important cultural institution such as school in addition to tools for knowing such as the concepts of chemistry, mathematics, English, music and other subject matters, also has concepts such as grades, pupil and teacher that do interactional work in regulating the activities in this setting. In accordance with the notion that individuals first encounter cultural tools in communication with others and later actively appropriate these, learners also go from other-regulation to self-regulation of activity. That is, learners come to take over and orient to the tools and practices they are introduced to. While the cultural tools the individual has been introduced to shape and in a sense guide his or her activity, tools are never taken over in a straightforward manner, or once and for all; there is always an inherent tension between individual sense making and collective knowing as inscribed in the tools and artefacts employed (Wertsch, 1998). This theoretical perspective puts communication and interaction at the center of attention,

that is, what cultural tools participants actualize and how these are negotiated and perhaps appropriated, as evident in their use in further action.

Methodology

In the present study, the unit of analysis is *tool-mediated activities* (Säljö, 2009), that is, how participants in a practice with the cultural tools they have or make available and use carry out mutual activities. Therefore, it is of core importance to be able to analyze people's interaction, not only mediated by verbal utterances but also by gestures, such as pointing at objects, and by the use of artifacts. The need for such analysis motivates the use of video observations during ethnographic presence in a practice as research method, since it enables analysis of actions situated in ecologies (Heath & Hindmarsch, 2002). The analysis is approached in an abductive manner, which means that theory and data are "intimately intertwined" so that "data and theoretical ideas are played off against one another in a developmental and creative process" (Blaikie, 2009: 156). We analyze in detail how participant in a responsive, sequential (Wells, 1999) fashion go on with an activity. A minimum of three consecutive turns – verbal utterances and/or other actions such as playing on an instrument or nodding – are analyzed: an initiating action, a response, and a follow up (going on or clarifying what was meant). In this way, how participants' orient towards each other's actions and whether this establishes a mutual activity or disjoint ones are clarified. Studying in detail how activities evolve requires close analysis of interactional data. Informed by sociocultural theory, detailed analysis of such data is conceptually generalized. The analytically identified themes are also mirrored in the larger data set (cf. Derry et al., 2010).

Participants and procedure

The activity that we have followed is a band project in two classes in year nine school in Sweden, lasting eight weeks. This project is part of mandatory music class and it is in line with the Swedish curriculum. The pupils in the participating classes attend ninth grade, and few of them play instruments outside school. Most of the students are ethnical Swedes and they come from middle class families. An aim of the band project, explicitly stated in a written instruction from the teacher to the pupils, is that they are going to get "the possibility to participate in a concert to get a chance to see what it means to do music 'for real'". To get a higher grade they, among other things,

need to show "a personal expression" and "take responsibility and have a common outfit in the band". All the pupils are 16 years old. The students themselves form bands; four bands in each class. They are free to choose any pop song they like to learn. They practice the same song for eight weeks and have one room each for rehearsals. Available instruments are drum set, acoustic and electric guitars, electric bass, piano and keyboards. The teacher rotates among the rooms and acts as a supervisor too all ensembles. At the end of the project they will perform their songs in a school concert arranged at another school.

The video observations are conducted by one of the researchers, using two cameras. One camera was placed on a tripod in one of the four rehearsal rooms and one was hand held by the researcher. During the eight weeks, the cameras have rotated between the different rooms where different bands rehearse. This means that each particular band has been recorded during approximately half the number of lessons (each lesson lasting just under one hour). The total amount of video data is 12 hours. The transcriptions are made verbatim in full, when possible. It is often very noisy in the rehearsal rooms (cf. Green, 2011), and therefore some parts have been transcribed as narratives. The transcriptions not only include what is said but also, importantly, deictic references such as pointing, and the use of different artifacts (e.g., the score sheet) (cf. Mercer & Littleton, 2013). The music played is also transformed into verbal descriptions and, of analytical necessity, into traditional music notation (see Figure 2). The entire data set is monitored and reported in two other studies (Wallerstedt & Hillman, 2015; Wallerstedt & Pramling, 2016). In this study, one representative case has been chosen for detailed analysis, following a process lasting for two subsequent lessons with one of the bands. One reason for focusing on this group was that it grappled with many themes related to the issues of problem finding and problem solving. Another reason for choosing this case is that a great deal of the dialogue has been possible to transcribe with acceptable accuracy in order to conduct an Interaction Analysis (IA; Derry et al., 2010). To transcribe data in this detailed turn-by-turn manner is decisive for being able to conduct the kind of analysis we intend to carry out, that is, Interaction Analysis. Analyzing data in terms of IA means to analyze sequentially unfolding actions in a responsive manner, that is, every utterance and other action (e.g., playing on an instrument or pointing at something) is analyzed as responding to the previous one(s), and to some extent anticipating coming ones. Detailed clarification of how actors respond to each other's utterances and other actions makes clear the participant's perspective. The unit of analysis encompasses actors and cultural tools within an unfolding (series of) actions. This particular recording has been made from a stationary camera placed on a tripod, with the researcher not being present in

the room. The study follows the ethical guidelines of the Swedish Research Council, which means, among other things, that participation is voluntary, all participants are given pseudonyms, and that the participants are informed about the purpose of study.

Findings

The band consists of three boys, playing the drums, bass, and guitar, respectively, and three girls, one playing the keyboard and two singers. They have chosen a Swedish pop song called "En midsommarnattsdröm" [A Midsummer Night's Dream] (https://www.youtube.com/watch?v=gAzvRfaTt9o) by the singer Håkan Hellström who belongs to the genre pop. During the lessons, the pupils listen to the song on Spotify, using a smartphone. They have printed a sheet with the lyrics and the chords from the Internet.

```
Intro: C

C
  Johnny var Evas hjärta låga

  han var solen när det dagas
                        Dm        F
  Han var parken när det våras
                C
  och vi satt på gräset
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Figure 1: The first part of the song as it is written on the sheet printed from the Internet and used by the pupils in the lessons.

The chords are placed above the lyrics, but the metric structure is confusing (cf. Figure 2). Therefore, a great challenge for this group is to discern where the chord changes come. They notate on the sheet numbers along the chords to indicate for how long every chord lasts, for example four or eight beats. In the fourth lesson, which will be analyzed here, they realize that they have not yet solved this problem.

The first lesson

Over the following three excerpts, we will show how the followed group identify and try to solve the problem of finding out where to change from the first to the second chord (see Figure 1, at the end of line 3 and Figure 2, bar 9).

Excerpt 1: Encountering a problem: The feeling that something is wrong

34 Singer 1:   Okay, I think you're changing too soon. It sounds good now, I think. But I feel that you're changing too early.

35 Singer 2:   I don't know, 'cause it was like that when the teacher did too.

36 Singer 1:   Yes, but, eh…

37 Guitarist: I think we should just go for it and not, like, think too much. 'Cause last time we didn't do so much, so if we just do it this time I think it will sound much better. If everyone just nails it more and so.

38 Singer 1:   But, ah, the thing is, it's difficult for us. Or like this, 'cause then we have to have the melody in the head.

39 Guitarist: But if the easiest way to get all instruments to change right, it's if you sing louder. Do you have microphones? Or are they on?

Having stopped playing the song, Singer 1 makes the first utterance about a problem of their playing (turn 34). This problem is mediated in terms of "I feel" there is something with the changing of the chords (turns 34, cf. below, turn 54, and the teacher in turn 53). A reference is made to a previous event (turn 35) when the teacher showed them how to play the song, but even the teacher is unsure about when the change in chord comes (see below), so she may have played it incorrectly. The problem encountered by the group, and which they begin to talk about in this manner, is thus when to change from the first to the second chord of the song (see Figure 2, bar 9). From an analytical point of view, this problem is intelligible; the song starts with an upbeat lasting almost one bar (see Figure 2, marked out as bar 4), wherefore it is easy to experience the period starting one bar before it does. But, in fact, the first chord change does come after the expected four bars (on the word "våras" [spring] in bar 9, see Figure 2), as is common in pop songs. However, this is not so obvious due to a somewhat unclear meter (of the lyrics vis-à-vis the rest of the music). In this manner, the problem is initially formulated in terms of how it feels when they play this first part of the song.

Figure 2: The first part of the song transcribed as traditional notation with bars marked with numbers.

This problem is articulated from the singer's perspective in terms of whether the backing is not provided or sounding right, then the singers must imagine it "in the head" (turn 38) in order to sing the melody right (cf. musical imagination, see Lehmann, Sloboda & Woody, 2007). The guitarist suggests the strategy that they will use: to not try to make the chord changes according to the meter but rather adjusted to a particular word of the lyrics. Therefore, it is of prime importance that they hear what the singers sing (turn 39).

The drummer also uses the singer's terms about how it "feels" when they are playing, in an attempt to clarify what they need to solve:

Excerpt 2: Clarifying what is wrong

53 Drummer: But it feels like there should be a change, I don't know when?

54 Singer 1:   No, yes, precisely, I feel that too when I sing.

55 Drummer: 'Cause it goes down, and we continue, I think it's somewhere we're change wrong with the chords.

56 Singer 1:   But that's the thing.

At this point, what the problem is is shared among the participants. They discern, or in their terms, "feel" that there is something that diverts; "'Cause it goes down, and we continue, I think it's somewhere we're change wrong with the chords" (turn 55). This way of stating the problem constitutes a more differentiated way of understanding it, since they point out a discrepancy between the melody line and the backing.

They start trying to solve the problem by playing two instruments at a time. In this way they reduce the problem in order to gain an understanding of how it should sound. First they try the drums along with the melody (hence none of the instruments playing the chords). They then proceed to try how the guitar and piano sound when played together:

Excerpt 3: Starting to coordinate the melody and the chords

63 Drummer: Try just playing just guitar and piano with…

[---]

67 Drummer: There you should change! (shouting this out in synchrony with the lyrics, *solen när det dagas*, is being sung; see Figure 2, bar 7)

68 Guitarist: No, 'cause, wait (makes a gesture to make them stop singing), last time, you just, he changed too early, so, no (shakes a finger)

69 Singer 2:   On third it's *han* [him].

70 Guitarist: Mm.

71 Singer 2:   Since it's a C on *Johnny*.

(They play again and G does not change chord on *han* (see Figure 2, bar 6), they stop playing)

72 Guitarist: Now, wait a little, is it just C, C C C C (reads from the paper) and then, okay. (Starts playing, the singers join, he changes chord on *han*, line two (see Figure 2, bar 6), the singers stop singing.)

73 Singer 2:   There you're changing too early.

74 Guitarist: Listen to the song, 'cause now I was like *var* [was] (see Figure 2, first half of bar 6) (plays and sings for himself).

75 Singer 2:   But it's on the third line that you should change (points at the notes on his paper, see Figure 1).

76 Guitarist: Yeah, right, 'cause there are two *han*, that's what's so tricky. Yeah, right! I hate that it's like *han*, *han* (see Figure 2, lines 2 and 3).

77 Singer 1:   But can't we make some kind of sign there or something?

78 Guitarist: Ah yeah, but now I know it. 'Cause that's why I thought it was too early last time.

79 Bassist: We're gonna do D, D, D…, and then on *han*, *han var parken*, or what does it say, *han var parken*, there we're gonna change? To E, minor, or?

80 Singer 1:   Should we all play now?

81 Guitarist: Yes, but [name of the drummer] has to start the song.

In this attempt to solve the problem they have encountered, the pupils use a number of different cultural tools that mediate the activity. They point out the temporal aspect of the chord change through referring to the "line" (turns 69 and 75), that refers to the lyrics as it is now structured on the paper; but through this also periods in the music. They also shout out "there" (turn 67) and suggest that they "make a sign" (turn 77) when the change comes. Mediating the problem in these ways, that is, through deictic referencing, does not make it possible for them to anticipate the chord change before it comes; the sign coincides with the change and can therefore not organize the planning of making the change. However, the suggestion that they coordinate the chord change with the "he" in the lyrics makes it possible to anticipate when the change comes, since the lyrics are available on the paper beforehand. A problem with this solution, as they themselves identify, is that since the singing is so soft it is hard for them to hear when they should change chord.

After mutual effort, they are able to find a solution based on the lyrics. Singer 2 states that the change will come when singing "när det våras" (see Figure 2, bar 9). The group now continues with the problem of arranging how to play the song in terms of the

instrumentation. Even if they intellectually know where to change the chord, it still now and then sounds unsynchronized when listening to the whole group playing this change.

At this point in the lesson, the teacher enters the room. During the lesson, the teacher visits the group first after approximately 20 minutes of the lesson and a second time at the end of it. In total, she is present and interacts with the group for five minutes; the rest of the time she interacts with and moves between the other three bands, who also try to learn to play a song together. The first time she visits this group, they play her the song they have been practicing. They are able to play through almost the entire song without getting lost, which is noteworthy considering the troubles they so far have had getting it right. (Looking at the data from the other groups, this group at this point succeeds in their playing together in a way that the others do not.)

The next three excerpts will show how the teacher contributes to the group by giving feedback and suggesting how they may develop their performance further.

Excerpt 4: The pupils hint that there is a problem

96 Teacher: This starts to look like something, huh?

97 Singer 2:   We've got it together a bit now. We're trying to figure out the changes.

98 Guitarist: But the start with the guitar like…? (directed to the teacher)

99 Teacher: I think it's nice!

The teacher starts by giving some encouraging words to the group for their achievement (turn 96). Singer 2 communicates the problem they have been struggling with up to this point: "We're trying to figure out the changes" (turn 97). This information is not commented upon or followed up by the teacher. The guitarist asks specifically about the teacher's opinion about his playing (in the intro of the song), which she positively responds to (turns 98–99). The guitarist plays a backing consisting of quavers, which is quite rare among the students' playing in the class, where generally everyone plays only crotchets. This backing gives the song an intense character and is in line with the original recording.

The teacher's contribution to the group's practicing suggests two lines of development:

Excerpt 5: To feel the music and to develop the bass playing

100 Teacher: Aren't you gonna stand up with some kind of, the guitar, and like this swing a bit… (the others laugh), so that you get to feel the music a bit too! 'Cause that's when it's starting to get fun. I see on some of you at least. That you're like "ah", it's starting to become a song.

101 Bassist: Well…. (laughs)

102 Teacher: Precisely, so in here it's really nice. And the bass, can't you play twice as fast with the right hand? Latch onto the guitar, so to speak.

103 Bassist: Should I play twice as fast?

104 Teacher: Yes, with your right hand. Not the left hand.

105 Bassist: Yes. So I play eight when it should be four?

106 Teacher: Precisely. This is gonna be great. Have you thought, have you begun thinking anything about clothes, should you think about that maybe? 'Cause soon…

107 Singer 1:   We're gonna have something on.

108 Teacher: Yes, and some presentation. Like, and maybe some dancing… It should be nice and professional. (The teacher says that she is going to help someone else and leaves, saying that she will be back).

The teacher's first utterance addresses the children's appearance, that is, that they should stand up and "like this sway a little… [the pupils laugh], so that you get to feel the music a little also! Because it's now that it starts to get fun", since "it's becoming a song" (turn 100). Only the bassist answers, with a hesitant, "well…" (turn 101), followed by the teacher's affirming "precisely" (turn 102). The teacher's suggestion (in turn 100) that they should feel the music also, implies that in her view they do not yet do so (cf. above, Excerpts 1 and 2, on feeling when the new chord comes, as part of the children's problem finding). The teacher also addresses the bass playing more specifically, suggesting that the bassist play "twice as fast with your right hand" (turn 102), to which he asks, "should I play twice as fast?" (turn 103) and after the teacher's confirmation, adds, "so I play eight when it's supposed to be four" (turn 105). The

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bassist thus mediates the referred feature of their playing in more musically correct terms than the teacher; that is, the tempo (fast, see turn 102) is never meant to be changed, it is the rhythm that is supposed to be revised. The bassist gives word to this, referring to ¼ and 1/8 notes. Finally, before she moves on, the teacher asks the group, "have you thought, have you begun to think anything about clothes?" (turn 106), to which one of the singers respond, "we're gonna have something on" (turn 107). Hence, the teacher's mediation focus on the rhythm of the bass, but mainly on the appearance – or visual performance – of the coming event (the school concert), rather than on the problem that the children themselves have been grappling with and clarified to the teacher. The problem that the children communicate to the teacher that they have is not connected to in her contributions.

As soon as the teacher has moved on to another group, they evaluate how they played when performing for the teacher and discuss that they did not have perfect timing at a certain passage. They try from this part again. At the end of the lesson, the teacher returns to the group, listens to them playing the song through, and gives some suggestions for development:

Excerpt 6: The teacher gives feedback

206 Teacher: Was that the whole song?

207 Singer 1:   Yes.

208 Teacher: God, this is really nice. One really gets happy. You're gonna take more space now (points at the singers, who smile). By heart. Look up. Dare watching me. Dare (makes some gesture not visible on the screen), leave this. 'Cause that's when it becomes music. And D here (the drummer), there is one like this every now and then (hits a cymbal)

209 Drummer: Mm.

210 Teacher: Can you do a bit more than that?

211 Drummer: Sure.

212 Teacher: I'm thinking that sometimes you may make a, with the timpani like. That it varies a bit.

(The group members nod in silence)

213 Teacher: This is gonna be great. Now you'll have to go.

The teacher's comments in this sequence are in line with the ones she gave at her previous visit. She comments on the scenic performance in a way that constitutes a dualism between, on the one hand, "no feeling" or even "no music" (cf. above, Excerpt 7, turn 100) and "that's when it becomes music", on the other, if they "dare", "know by heart", "look up" and "take place" (turn 208). In similarity to her previous feedback to the bassist, here the teacher comments on the drummer's contribution. This feedback is in rather vague terms, "do some more of that" (turn 210) and "lay a" (turn 212), which appear to refer to different kinds of fills; but the teacher never makes explicit or shows what she means. Still, the drummer seems to accept the instruction (turn 211). The group members give brief affirming responses to the teacher's suggestions, "yes", "mm" and "okay". The comments given to the singers will prove important in the next lesson.

The second lesson

In the following four excerpts it will be shown how the next lesson turned out. The band's process goes in a quite different direction to the previous lesson. In this lesson (the fifth lesson in the band project), the group has been given one of the largest rooms for practicing, a room commonly used for whole-class activities. Because of the noisy environment, some parts are her transcribed as narratives.

Excerpt 7: Entering the new rehearsal room

There is some disturbance, people move about the room. This is the room where everyone comes to get electrical cords, sheets etc. The keyboardist waves to Singer 2 to ask something. Everyone seems to practice their instrument individually. The drums sound loudly. Singer 1 and Singer 2 stand by their microphones at the front of the stage, looking outwards.

3 Guitarist: Okay, are you gonna turn around?

4 Singer 1:   We can stand like this then (turn to face the group) and then we can turn around sometimes when we (showing).

5 Guitarist: But do you know the lyrics?

6 Singer 1:   Yes! We know the text, right?

7 Singer 2:   (Holds the paper with the lyrics in the air towards G.)

8 Singer 1:   We know the text, but we have it just in case.

In the small room where they were during the previous lesson, everyone more or less sat facing each other in a ring. This new room has an elevated scene where the instruments are placed and there is a space in front, with a number of chairs facing the stage. The outline of the room contributes to giving the impression that 'this is for real' and in anticipation of the coming event when they are to perform their song in front of an audience at a local school. This impression is further accentuated through "the audience", i.e. some classmates skipping class (i.e., that they should be in their respective groups practicing their song), instead sitting watching this group practicing.

The physical orientation of the singers now come to illustrate the dualism introduced by the teacher in her previous feedback, but now in the opposite direction, metaphorically speaking. Turning outwards from the group, facing the audience, now comes to take on the meaning that what they do is *not* music. They become uncoordinated and are not able to organize their common efforts to play the song through (see Excerpt 8 below). The guitarist wants the singers to turn back towards the group (turn 3), so that they can continue to practice the song together. They now return to the issue introduced by the teacher in the previous lesson, the importance of learning the song by heart. The teacher's distinctions are appropriated and come to mediate the group's activity.

Excerpt 8: Diverging orientations

10 minutes into the lesson. The group tries to play the song through one time, but get lost. The drummer says that it's shaky. The guitarist says that no matter how the singers sing, they could sing a bit louder. There is a member from another group in the audience and it appears that the singers "put on a show" for him. Now and then someone shouts, "are we ever gonna play". The atmosphere is different from last time; the members do not work together.

The drummer and the guitarist are still focused on the song, while the singers more direct their attention outwards (to the 'audience').

Excerpt 9: Social conditions

Singer 2 whispers to Singer 1, Singer 1 says to someone in the audience, with an ironic tone, "you're so fucking handsome it's embarrassing to sing to you". Singer 1 suggests that they are going to talk some about clothes before they end, that is, what they are to wear during the performance. The guitarist continues talking about how to play the song, "that's not how I interpret the ending", plays and shows the drummer. The keyboardist sits at the keyboard with a solemn face and looks at the score without playing. The bassist sits back down, and practices playing with the guitarist. The boy in the audience shouts to the teacher, asking whether he will be noted as absent for sitting there. She says yes. He replies in a provocative manner, "but I'm in the classroom".

The other classmate, who sits in front of the stage watching, appears to be stressing both the teacher and the group practicing. In contrast to the previous lesson, this activity does not become neither a focused practicing nor a concert performance, but something in between.

Excerpt 10: Institutional conditions

The teacher shouts in an irritated voice, "what are you doing in this group?". "Nothing", someone replies. "And you want grades!!", the teacher responds. The teacher shouts out a count-in, "one, two, three, four". Several members of the group are not with their instruments so they cannot start playing. The teacher says that the other people present in the room need to leave. She seems to notice something and leaves.

Grades, as a form of cultural tool central to the institutional practice of school is here used in making a form of threatening work in the interaction, when the group has troubles practicing their song. During the previous lesson, the issue of grades was not commented on; rather what the group did was mediated in terms of "really nice" and "now it's becoming music" (see Excerpt 8, turn 208). The talk about grades is not related to any musical qualities, but to cease "doing nothing". It is the same kind of conflict that the teacher has with the pupil who sits in front of the stage looking, rather than being with his own group practicing (Excerpt 9). In a rather provoca-tive manner, the pupil challenges the teacher to whether he will be noted as absent, which the teacher confirms, since he is doing 'nothing'. The formal context in which this 'informal' band project takes place clearly mediates the activity for the pupils. It is not only a question for the pupils to cover the song and learn to play it, it is also

about fulfilling the school task, which is formulated so that performance including what to wear on stage is important and a ground for grading.

Discussion and conclusions: Problems on different levels and of different kinds

In this study we have scrutinized a particular case, representative for Swedish music education, in order to provide an empirically grounded educational discussion of how music education is organized. We have analyzed (i) What musical problems the participants are engaged in and (ii) how the students' problem finding and problem solving are mediated by the cultural tools they have appropriated, or are in the midst of appropriating, the teacher's participation and the institutional setting. In order to understand the different kinds of problems the students face we make use of Green's (1988, 2010) concept of inherent and delineated aspect of music. Inherent music does not "reside" in music as such, but is constituted in the relation between a listener and a musical piece. Delineated meaning refers to the context (including, e.g., the clothes worn by performers and their movements) of the music. According to this reasoning, the latter features should not be considered other than music. Rather, they are considered to be an extension of it. This may be compared with the categories used by Nielsen (2001): technical and expressive problems. However, problems concerning expressive issues, in our view, could comprise both inherent and delineated aspects of music.

The predefined task that sets the frame here is to choose a pop song and learn how to play it together in a band with peers. The song is going to be performed at a concert where the band members are supposed to dress in a 'suitable way' and also find a band name, all with the purpose of having an authentic experience of playing popular music. This overarching task, or problem, can be differentiated into many parts. The pupils start in an inherent (cf. Green, 1988, 2010), particulate problem concerning when to change from the first to the second chord (C to Dm after four bars) (see Excerpts 1–3). Further on in the lesson they also start discussing which instruments that are going to play in different parts, that is, the arrangement of the songs in terms of instrumentation, which can be seen as an inherent problem concerning the global structure of the song. The teacher also points at some inherent problems: how the drummer can develop his playing; by playing more fill-ins and how the bassist can play in another rhythm (see Excerpts 7–8). Furthermore, the teacher suggests possible

ways of developing the performance by talking about how they stand and what they are going to wear (see Excerpts 5–6). We can consider these latter 'solutions' to be answers to problems that are of a delineated (cf. Green 1988, 2010) character. Note that the teacher is here the one introducing the delineated aspects. What they will wear is a kind of global problem, while the suggestion that the singers should sing by heart is of a particular kind. These aspects are taken on by the pupils in the latter lesson when they talk about the singers singing by heart and how they will physically position themselves, a particular and a global delineated problem, respectively (see Excerpt 7).

There is no hierarchy in terms of different problems, as we see it. Discussing the problems in terms of inherent and delineated problems on a particular or global level is a way to analytically understand the potential problem of establishing temporarily sufficient intersubjectivity (Rommetveit, 1974, 1992) among the band and the teacher. Sometimes the band is engaged in one kind of problem and the teacher gives feedback concerning another kind (this was particularly visible in Excerpt 5). Nielsen (2001: 166) suggests in the conclusion of her study that students could be thought to "ask and answer questions such as: 'What is my problem?', 'How can I solve it?', 'How am I doing?' during practice". This, she argues, can be a way of promoting self-regulatory learning, but we want to add that these ways of asking may also be a way of helping teachers and pupils establishing intersubjectivity in the activity; the necessity of which this empirical case has illustrated.

The delineated 'side' of the problem to play a pop song may be the one that is most connected to identity formation and the chance for teenagers to make use of their out-of-school experiences of popular culture. But somewhat contradictory, this aspect of the problem is driven by the teacher, the one who may be expected to represent the more 'formal' and inherent side of musical problems. This finding highlights the importance of the overarching frame of a 'pop-song problem', that from the pupils' perspectives foremost represent a school task, rather than an example of popular culture.

Different tools mediate problems differently

Our second question was to investigate how the pupils' problem finding and problem solving are mediated by the cultural tools they have appropriated, or are in the midst of appropriating, the teacher's participation and the institutional setting. The most striking example of the complexity of this issue is the divergent use of the term 'feel'. In the process the pupils engage in, the term is used in their first attempt to identify

a problem in their playing, concerning a chord change. They say that they feel that something is wrong, i.e. sounds wrong (see Excerpts 1 and 2) (cf. Slette, 2014). However, the teacher uses the same term in order to direct the pupils' attention to an aspect of their playing they themselves have not highlighted, that is, to 'play with feeling' (see Excerpt 5). To 'feel the music' as it is used by the teacher has connotations to playing by heart, standing up and swaying etc., that is, what may be referred to as delineated aspects, in contrast to the pupils' way of using the term in grappling with an inherent musical problem. The teacher's use of the term is indicative of the (Swedish) institutional setting where this activity is carried out. The teacher is well-educated and is thoroughly engaged in her work. There is no reason to expect that she is not able to notice the pupils struggling with timing, but in her feedback she does not pick up or respond to this. The teacher is a carrier of a certain set of cultural tools – a discourse well-established in Swedish music education – *mediating* her activities, including how she gives instructions and responds to the pupils' playing and suggestions. This discourse, mediating teacher engagement, is evident also in the larger data set, from which we here have analyzed two lessons, as well as what has been found in other studies on music education in contemporary Swedish school settings (see e.g., Ericsson, Lindgren & Nilsson, 2010; Zandén, 2010). The ideal of teaching music in an informal way also come to the fore in Excerpts 5 and 6 when the teacher comments on the bassist's and the drummer's playing. In both cases, she avoids using standard musical terminology. The bass player, in trying to clarify the teacher's explanation, speaks in a more formal way than the teacher herself (see Excerpt 5). Mars (2016) reports an opposite finding in her study of music teaching in Swedish secondary school, but reasons in a similar way. In her study, the teacher does use musical terminology, and in this way he "contributes to furthering the group's guitar backing and arrangement of the musical piece" (our translation, p. 65).

Besides the different use of cultural tools in terms of language, a physical tool in form of the sheet also plays a crucial role here, in mediating the problem. Popular music is traditionally music that is not notated, even if there is a rich span of more or less conventional ways of notating it (e.g. chords and tablature). Many of the forms of notation that exist and are used among the pupils in this study do not include a representation of musical meter. Bars are not marked out, only the lyrics and the name of the chords. For how long each chord will last is not represented. Instead, the meter of the *lyrics* is represented through line breaking (see, for example, in Figure 1). Analytically, this can be a reason for the great challenge faced by the pupils in finding out where the first chord change will come (see Excerpts 1–3). In traditional notation, the periods in the music are often marked out by a thick bar line or a new row. In the 'informal

notation' that they use in the present case, the chord changes appear as follows, in a somewhat unexpected way:

Johnny var Evas hjärtas **lå**ga

Han var solen när det dagas

Han var parken när det **vå**ras

This is to be compared to the traditional notation as seen in Figure 2.

Implications for practice

Our reasoning about problems of different levels and kinds provides us with a tool for conceptualizing the setting and solving of musical problems in a way that illustrates the participating pupils and teacher not being coordinated in perspectives (cf. Rommetveit, 1974) in order to go on with a joint activity. Rather, the pupils and teacher are to large extent engaged in different kinds of problems. This makes it difficult for the teacher to support the students' musical learning – their problem solving. Lantz-Andersson, Linderoth and Säljö (2009: 326) argue that "What we know, and what kinds of problems we can solve, is, to a large extent, determined by the cultural tools we have at our disposal in a particular practice". Therefore, there is a need for a consideration of what kinds of problems formal music education aims at highlighting; the inherent and/or the delineated. In parallel to teaching composition, as discussed by Berkley (2004), also playing in pop ensembles, interpreting or reproducing existing music, could gain from teachers analyzing their work in terms of problem solving. It is of great importance to understand this process from the learners' perspectives – clarifying what "that" means, if referring to the title of this article. The subsequent issue is to identify what tools the teacher needs to provide in their teaching, in order to make the pupils engage in the intended activity. Hence, our study suggests a contrast to the ideal of the 'de-didacticalized' teacher (cf. Zandén, 2010). Whether intending to illuminate and take on inherent or delineated problems, of global or particular kind, it appears that problem solving will be supported by being informed – mediated – by domain-specific tools. For example, if the participants had had access to domain-specific tools, their reasoning (as seen in Excerpt 3) could have been in the form of "I'm going to change after four bars" – a simple way of providing more powerful ways of solving the encountered problem.

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Corresponding author:
Associate Professor, PhD
Cecilia Wallerstedt
LinCS
Department of Education, Communication and Learning
University of Gothenburg
cecilia.wallerstedt@gu.se