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Teachers' decision-making processes during situated teamwork

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ABSTRACT

Structured teacher collaboration has considerable potential to support teachers' professional learning. The current article focuses on what characterises teachers' decision-making processes during teamwork. Video recordings of teacher team meetings form the empirical basis for the research. Interaction analysis is employed to analyse under what circumstances decisions are taken and to examine how teachers make use of conceptual resources (lived and formal concepts) in decision-making processes. For teams to accept proposals for decisions, they appear to need to be justified through pedagogical concepts; that is, when lived and formal concepts are linked. This study shows how the development of teachers' pedagogical concepts during teamwork is a collective process. The teachers also re-conceptualise and re-shape the concepts to strengthen their relevance in the context of their future work.


KEYWORDS

Teamwork; decision-making processes; concept development; professional learning

Introduction

One of the most promising strategies for improving public education outcomes is improving teachers' teaching (Darling-Hammond, 2010; European Commission, 2018; Hattie, 2009; OECD, 2018). Both research and policy documents point to teacher collaboration as important for teachers' professional learning (Darling-Hammond, Hyler, & Gardner, 2017; Norwegian Ministry of Education and Research, 2017; Timperley, Wilson, Barrar, & Fung, 2007).

The current study was conducted in Norway, in a lower secondary education context. According to TALIS (Teaching and Learning International Survey) 2018, the climate for teacher cooperation in Norwegian lower secondary schools is good, compared to other countries, and the teachers state that they primarily experience control over their core tasks (Carlsten, Thronsen, & Björnsson, 2020). Also, Norwegian authorities emphasise teachers raising their professional competence and research-based practice through teacher collaboration (Dahl et al., 2016). The school leader is responsible for organising such collaboration, which occurs during teachers' fixed working hours. Time for collaboration is spent on different arenas, including all

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teachers, or through team or grade meetings for teachers at the same grade level (Dahl et al., 2016).

However, whether teacher collaboration actually supports professional learning depends on the focus of the collaboration, as well as on communication and interaction characteristics of teachers involved (Hargreaves, 2019; Horn & Little, 2010; Vangrieken, Dochy, Raes, & Kynndt, 2015). Teachers' conversations about teaching support sense-making around the meanings of proposals for new practices (Coburn, 2001; Lysberg & Rønning, 2021), allowing for site-specific interpretations of general ideas. The interactional routines in collegial discussions also orient teachers towards problems of practice, potentially creating opportunities for learning (Horn & Little, 2010; Lysberg & Rønning, 2021). In a study of conversations in three mathematics teacher workgroups in the U.S., Horn and Kane (2015) show how language plays multiple roles in teachers' workgroup conversations. They found that workgroups that include active participants with rich conceptions of teaching end up with rich opportunities for learning during their conversations. Related to teachers' collaborative learning, groups where active participants exhibit higher levels of instructional accomplishment get richer opportunities for learning. Their discourse reflects more complex understandings of teaching and provides more specific renderings of future work connected to those conceptions (Horn & Kane, 2015).

However, there is a need for in-depth knowledge about how teachers interact and communicate in situations dedicated to ongoing school-based professional learning. Knowledge about the content and characteristics of conversational routines ("the talk") is essential for exploring, understanding and facilitating professional learning (Horn & Little, 2010). Conversational routines refer to patterned and recurrent ways that conversations unfold within a social group. "Routines are constituted by moves, turns of talk that shape the interaction's progress by setting up and constraining the response of the subsequent speakers (Horn & Little, 2010, p. 184)". Such knowledge may help facilitate and support teamwork conversations aimed at professional learning.

Teachers' teamwork sessions aimed at professional learning tend to centre around plans for future activities and practices that, potentially, may create better learning opportunities for students (Lysberg & Rønning, 2021). In such contexts, the ability to agree and actually make decisions about changes to be made, are central. There are studies on specific areas, such as collaborative curriculum design and planning (Handelzalts, 2019; Priestley, Minty, & Eager, 2014), and on whether the decision-making is data-based or intuitive (Vanlommel, Van Gasse, Vanhoof, & Van Petegem, 2017). However, few studies describe the decision-making processes in teacher collaboration (Helstad, 2014; Little, 2012; Tronsmo, 2019). This article aims to contribute insight into characteristics of teachers' decision-making processes during situated teamwork and investigate what role the conceptual resources of lived and formal concepts play in the decision-making processes. Based on these insights, the potential for teachers' professional learning when developing understandings of pedagogical concepts will be discussed.

During the process of teachers' concept development in decision-making processes, teachers develop their understandings of the concepts and re-conceptualise and reshape the pedagogical concepts. In our research, teachers' development of pedagogical concepts is operationalised as part of the decision-making processes and is studied at

micro-level. Building on the theoretical and conceptual framework presented below, the following research questions are posed (1) What characterises teachers' decision-making processes in situated teamwork? (2) What role do the conceptual resources of lived and formal concepts play in the decision-making processes?

A variety of concepts describe teacher collaboration from diverse perspectives and through different ontological and epistemological lenses. In the current article, we are not interested in how different meetings are constructed per se, and therefore we use the more colloquial term *teamwork* as a concept for teacher collaboration that takes place in the allocated time at the workplace, in line with our empirical focus. *Professional learning* is defined as the planned, self-directed activities that teachers engage in to improve their teaching practice within the frame of teamwork, and which may lead to change in cognition and/or action (Bakkenes, Vermunt, & Wubbels, 2010; de Jong, Meirink, & Admiraal, 2022; Elkjær, 2019).

Previous research

In the literature, findings related to research into the relationship between teacher collaboration and professional learning vary considerably. At one end of the spectrum, studies portray group interactions with little likelihood of promoting change, although the interactions may serve other purposes that teachers value. For example, when teachers meet to discuss teaching or share narratives about their teaching practices, they rarely challenge each other's ideas or analyse practice (Carlsten, Throndsen, & Björnsson, 2021; Havnes, 2009; Hindin, Morocco, Mott, & Aguilar, 2007; Horn & Little, 2010; Kelchtermans, 2006; Little, 1990). Teachers tend to tell their colleagues how they conducted a teaching session and what materials they used, but rarely substantiate their choices (Junge, 2012; Sjoer & Meirink, 2016). Katz, Earl, and Jaafar (2009) present the phenomenon of "activity traps", where teachers move quickly to doing, being busy, and feeling productive, without paying sufficient attention to discussing why they do what they do under the current circumstances. Hence, the question is how to structure teacher teamwork to maximise teacher learning (Hindin et al., 2007) and support sharing of experiences to stimulate further discussion and learning.

According to de Lima (2001), cognitive conflict can support teachers in expressing their creativity and independent thinking. In collaborative cultures characterised by quest for harmony, this can sometimes be difficult to achieve. However, teamwork where teachers feel confident to express differing or conflicting views, can promote decision-making that is better substantiated and grounded in relevant professional knowledge (de Lima, 2001).

Research in Norwegian contexts finds that exploratory negotiations can promote knowledge development and professional learning in situations where disagreements are expressed and proposals are challenged (Helstad, 2014; Helstad & Lund, 2013). However, exploratory negotiations do not happen often in these contexts (Havnes, 2009; Junge, 2012; Mausethagen, Prøitz, & Skedsmo, 2019).

Investigations of teachers' conversations in decision-making processes in teamwork remain relatively scarce (Horn, Garner, Kane, & Brasel, 2017). In a study of a team of lower secondary school teachers in Norway working with local curriculum development, Tronsmo (2019) shows that teachers' engagement with multiple knowledge

resources created dilemmas and greater scope for action in decision-making situations. These processes bring forth new responsibilities, requiring agency from the teachers. Boschman, McKenney, and Voogt (2014) studied three teams of kindergarten teachers' decision-making processes when designing a technology-rich learning environment in the Netherlands. Their findings show a pattern in which a tentative solution gets brainstormed, followed by one or more episodes in which an issue is discussed, followed by one or more brainstorming sessions. The findings reveal that teachers are prone to skip analysis of the problem. However, micro-level analysis of their talk provides an understanding of the moments in conversation in which important decisions are made. These moments also reflect explicit reasoning through argumentation.

Horn et al. (2017) studied workgroup meetings in 16 middle schools in the U.S. over five years. They found that meetings with the richest learning opportunities, what they define as *collective interpretation meetings*, were scarce. Changes in instructional practices require teachers to rethink their teaching and not be restricted to extending their existing practices. Collective interpretation meetings support this rethinking more than other meeting types (Horn et al., 2017). To understand whether the interactions support teachers' professional learning or not, we need to understand how various types of decision-making processes are manifested. It is in the interaction that the "evidence for understanding why some patterns of conversation prove to be strong in pushing the boundaries of learning and teachers" learning may be found (Little & Horn, 2007, p. 79).

Theoretical and conceptual framework

The current study is rooted in a sociocultural participation view of teachers' learning and knowledge as situated and dialogic (Lave & Wenger, 1991). Theorists with a situated perspective conceptualise learning as changes in participation in socially organised activities and individuals' use of knowledge as an aspect of their participation in social practices (Borko, 2004; Lave & Wenger, 1991).

To analyse the characteristics of teachers' decision-making processes Horn et al.'s (2017) further development of Vygotsky's (1987) notion of concept development as analytical tool is employed. Concept development is used as a generative lens for analysing teachers' conversations during teamwork (Horn & Little, 2010). Pedagogical concepts are developed in the interplay between two main categories of conceptual resources: formal (or scientific) concepts and lived (or spontaneous) concepts. Formal concepts are generalisable abstractions about the world, while lived concepts arise from experiences in the world (Horn et al., 2017). Without generalisable abstractions (formal concepts), teachers are restricted to meaning-making based on experience, and without experiences in the world (lived concepts), generalisations about teaching lack experiential anchors (Dewey, 1991; Ertsås & Irgens, 2012). Through identifying the formal dimensions of lived concepts, or illustrating lived examples of formal concepts, teachers' teamwork can provide rich learning opportunities. In this way, pedagogical concepts are developed when teachers link generalisable abstractions about students, teaching, learning or subject content (educational knowledge, i.e. formal concepts) to experiences and events from their practical work (experiential knowledge, i.e. lived

concepts) (Horn et al., 2017). However, it is not always easy to identify what can be characterised as lived and formal concepts because the borderline may be blurred.

When team meetings focus on participants sharing narratives about their teaching practices (Carlsten et al., 2021; Horn & Little, 2010), or moving quickly to doing, being busy, and feeling productive (Katz et al., 2009), teachers emphasise lived concepts. Adversely, when meetings primarily centre on abstract theories, formal concepts and principles divorced from the lived details of teaching are emphasised. In situations where teachers manage to bring the general and the particular together, teachers' teamwork can provide rich opportunities for professional learning by bringing to the surface formal dimensions of lived concepts or illustrating lived examples of formal concepts (Horn et al., 2017).

Research design

The current study examines teacher collaboration in the context of teamwork through an in-depth, small-scale, video-based approach (Webster-Wright, 2009). Video data permits a systematic investigation of interaction patterns that would be impossible to capture directly in situ (Blikstad-Balas, 2017). Data used in the current article derive from a research project that gathered data from four teacher teams (9th and 10th grade) at four different schools in Norway. Participating teams were identified through dialogue with the school management and appointed key teachers (Silverman, 2014), resulting in a sample of 17 teachers. Fourteen of the teachers were female and three were male. Two of the teachers had been teaching for over 20 years, ten had 10–19 years of teaching experience, while four had 2–9 years experience, and one teacher was newly qualified. Before the data collection, discussions with both management and teacher groups were conducted to map what they defined as settings in which teachers were involved in development work. Hence, meetings aimed at logistical planning were excluded. Instead, the data collection zoomed in on specific settings in which teachers were focusing on development work.

One teamwork meeting from each of the four groups was video-recorded in autumn 2018. The content of the meetings varied. Two teams were subject teams planning teaching of Norwegian as first language. The third team, a grade-level team, evaluated students' mastery of basic skills (literacy, numeracy, oral, ICT) across subjects. The fourth team focused on analysing results from national tests in reading (nasjonale prøver: NP). Since the focus of the analysis was not on the content of the meetings, but instead on the characteristics of teachers' decision-making processes, the variety of content did not cause any challenges regarding validity.

The meetings were recorded by placing a GoPro camera (small, easy-to-use high definition [HD] camera) at the edge of a table connected to a wireless microphone. The researcher placed the camera to face all teachers and the microphone close enough to get sufficient audio quality, and then left the room. The video-recorded meetings lasted between 33 and 108 minutes, which resulted in a total of 4 hours of video data.

An extensive methodological literature discusses use of video in studies of various working life settings (Heath, Hindmarsh, & Luff, 2010). Particularly, attention has been paid to ways in which the use of a camera might affect the situation observed (Heath et al., 2010). Blikstad-Balas (2017) claims that by placing cameras and obtaining consent

from participants, we might change or even destroy the “naturalness” of the situation, which is referred to as “the camera effect” or reactivity. However, to gather these kinds of data, a camera and microphone is needed. All informants who participated in the study were informed that participation was voluntary, and they had the opportunity to withdraw at any time. The Norwegian Center for Research Data approved the research project. All names are pseudonyms to protect identities of the participants.

Data analysis

The analysis can be described as an inductive and iterative process that moved across and between different levels of analysis (Derry et al., 2010). It included four major phases, cfr. Figure 1 below. Phases one to three mainly attempt to answer the first research question about what characterises teachers’ decision-making processes. However, in the fourth phase we zoom in on the second research question about what role the conceptual resources of lived and formal concepts play in the decision-making processes? Interaction analysis was employed to analyse how decisions are made and examine how teachers orient to conceptual resources (lived and formal concepts) in decision-making processes (Horn & Little, 2010; Vygotsky, 1987). Interaction analysis is a method for empirical investigation of the interaction of human beings with each other and with objects in their environment. The goal is to identify characteristics and patterns in the interactions and analyse these (Jordan & Henderson, 1995). By focusing on the decision-making processes, we may amplify specific events (Blikstad-Balas, 2017). However, through detailed scrutiny of decision-making processes, our analysis is directed towards explicating the conceptual resources upon which the teachers rely when making decisions as a team (Heath & Hindmarsh,

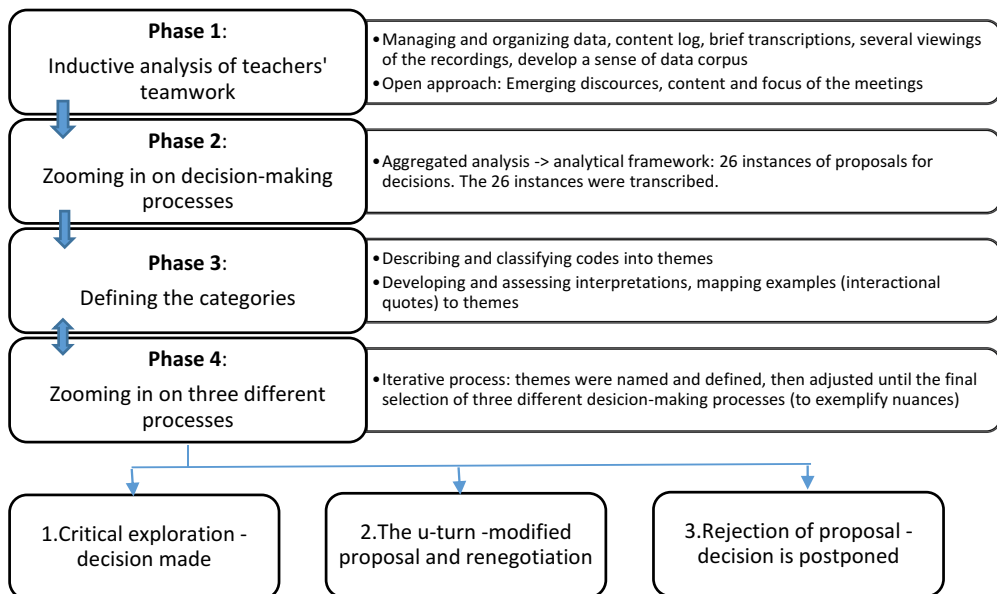


Figure 1. Data analysis phases and activities

2002). It is this development of understandings of pedagogical concepts that represent an important part of teachers' professional learning.

The initial analysis revealed that common for all meetings was that the teachers oriented towards making decisions about what to do next to support students' learning processes. Through approaching the data from an inductive perspective, a total of 26 instances of *proposals* for decisions were identified in the video material. The 26 instances were transcribed verbatim. The purpose of the aggregated analysis was to develop an analytical framework. After watching the instances several times, four categories (Table 1) were defined: was a *decision* actually made, the *content* of the decision, what the decision *aimed at or was favourable for*, and which *conceptual resources* teachers oriented towards.

Decisions appeared to be either taken or postponed; that is, no proposals were completely disregarded. Out of 26 proposals, 23 ended up with a decision. The instances where *decisions were made*, were characterised by the teachers critically reflecting on the proposals by asking questions, offering nuances, reasoning, presenting alternatives, and assessing. Instances where *decisions were postponed* were characterised by a problem in linking formal and lived concepts to develop pedagogical concepts; that is, there was a lack of conceptual resources needed to make a decision. The *content* of the decisions varied in and between meetings. The numbers indicate which instances centred around the content listed (see Table 1). The decisions mainly centred on teachers' *support of students' learning processes*. The teachers tried to take a student's perspective to understand how the decisions would affect the students' learning processes. They were concerned that students should have the opportunity to master assignments in both short- (e.g. upcoming exam) and long-term perspectives (e.g. lifelong learning).

In line with the second research question, the analysis shows the use of conceptual resources and displays how *lived concepts* (LC) and *formal concepts* (FC) are activated, and possibly linked, and the role they play in teachers' decision-making processes. Teachers lived concepts arise from experiences in the world (for instance students' responses in the classroom), while formal concepts are generalisable abstractions about the world, often derived from theoretical literature (e.g. reading strategy, close reading). The moment-to-moment interactional trajectories of instances where a decision was

Table 1. Analytical framework.

Decision	Content	Decisions aimed at / favourable for	Conceptual resources
Taken (1–4, 7–19, 21–26) Total: 23	Choice of method (25, 26, 21, 1, 3) Choice of teaching materials/tasks (25, 12, 10, 11, 26, 22, 23, 15, 3, 7, 13, 14, 16, 8, 18, 19, 20)	Support students learning processes In general (facilitating)	Lived concepts Experience based knowledge Data
Postponed (5, 6, 20) Total: 3	Choice of form of assessment (6, 9, 24) Planning (short- and long term) (1, 4, 24) Analyse/evaluate of status surveys: student, class and school level (25, 2, 1, 3) Student participation (7, 8, 18)	Specifically (improve/develop)	Formal concepts Subject and subject didactics

made, postponed, and where the trajectory is changed from moving towards postponement to becoming accepted, are analysed in detail. The rationale for the final selection of *three different decision-making processes* lies in the second research question: To make visible what role the conceptual resources of lived and formal concepts play in the decision-making processes by showing various examples of trajectories where LC and FC play together. The three examples chosen are representative of the data as a whole and not merely illustrations of a phenomenon, but should instead be seen as empirical carriers of more general principles (Helstad & Lund, 2013) and are arguably analytically generalisable in the sense that the findings can be used to study what might occur in other situations (Kvale, 1996).

Findings: zooming in on three different instances

As mentioned above, the presentation of findings zooms in on three different instances. The first example presents how teachers orient towards, and use, different conceptual resources and how they challenge established teaching practices in and through their problem formulations. The second example displays how relevant conceptual resources can turn initial doubt and opposition into an acceptance of a proposal. The third and final example shows how the apparent weak justification of a proposal through FC and LC results in a postponed decision.

Instance 1: critical exploration – decision made

In the current meeting, lower secondary school teachers at a medium-sized (300 students) grade 1–10 school are gathered. Eight teachers sit around a long table, and one of the teachers has the role of chair. The instance lasts for 2 minutes and 42 seconds. The instance represents an example of how teachers develop pedagogical concepts by intertwining LC and FC. Also, the example shows how teachers build on each other's input and reasoning about what they need to do differently in their teaching practice whilst reflecting on their current practice. They challenge and question the teaching practice by orienting towards both LC and FC when developing pedagogical concepts to make a decision. The instance (Figure 2) begins with the teachers discussing an issue on the list that they received from the management the day before. In previous meetings they have analysed results from national tests (NP). One of the questions they are working on is: "How do you recognize the content of the school's local reading plan in work at your grade level, and what emerged from the analysis of results from national tests in reading (NP)?" One of the results from NP revealed that their students were not good at interpreting, reflecting, and conducting close reading:

Figure 2 shows how the FC "close reading" and "skim reading" are elaborated. During the discussion, Anna questions the students' ability to do close reading (1–2). She explores the teachers' teaching practices (LC) by critically questioning how they assign tasks (6–8). She suggests that they depart from the textbook's traditional tasks and that the students instead answer questions that "demand a little more" (10–12). Ole proposes (13) that the students could "make summaries" (LC) to develop their ability to do close reading. Anna confirms the suggestion and says that she tried that last year with varying results (LC), and at the same time she expresses that she has not got a good answer. Mia supports Anna's suggestion (18–19) and states that the students do

1 Mia: So you have to work on close reading? (raises her voice)
 2 Anna: Yes, getting them to do it on their own, because we do a lot together
 3 with text there (inaudible).
 4 Per: Not just skim reading?
 5 Anna: No, we, yes, transfer so that they actually master it themselves,
 6 doing it themselves. That is making the tasks differently, not just
 7 using the thing in science «answer ten questions». Because it is
 8 signaled: «Here you find question 1, 2, 3...»
 9 X: Yes
 10 Anna: "... here you find question..." Right, so that we plan that when they
 11 are working with the content it is not answering those questions, but
 12 instead answering questions that demand a bit more, then.
 13 Ole: Making summaries or suchlike?
 14 Anne: Yes, something like that. Tried it with 7th grade last year, and some
 15 cracked it, but for others it was quite difficult because it got too
 16 open, right, but I don't really know, I haven't got a good answer to
 17 it, actually.
 18 Mia: I think that is a great idea! Instead of skim reading to find answers
 19 to questions, they don't LEARN that way.

Figure 2. Critical exploration

20 Mia: But, but, but I think that actually saying like: "OK, now you have
 21 read it, what are your thoughts about it? What do you think about
 22 it?" And then they have to write something, themselves. They are not
 23 trained to do that, because they, they are not. And that is what I
 24 think I try now with, with these pupils. Like. "What do you think?" I
 25 see that there are many texts in the Norwegian subject, and just now
 26 when they were writing an argumentative text, there is this
 27 conclusion, it is just finished. "But what did YOU mean?"

Figure 3. Critical exploration

not learn by skim reading (FC). In Figure 2 we see how the teachers develop their understanding of the FC "close reading" and "skim reading" by elaborating and identifying experiences (LC) of the FC. The process of concept development continues in figure 3 and 4 below.

Figure 3 shows how Mia continues the exploration "close reading" (FC) by presenting an approach to asking students questions that encourage independent thinking (20–22). She refers to a challenge she has experienced (LC) when teaching Norwegian as a first language and students write argumentative texts and go straight to the conclusion (24–27). Mia connects her experience of students skim reading to find answers to the questions quickly (LC) with the pedagogical goals and conceptual meaning of "close reading" (FC). Together, the teachers unpack that close reading demands students not only finding and writing down the correct answers, but also arguing and reflecting independently in their argumentative texts (FC). This example shows how teachers develop the pedagogical concept "close reading" by intertwining LC and FC. In Figure 4, Bea builds on the reasoning of both Anna and Mia and refers to the results from NP where students scored poorly on "close reading"(FC). She refers to her

experience with students only reading the texts to be able to answer the questions (LC) and not reading to learn (FC) (28–29, 31–33).

Figure 4 builds on the utterances in figure 2 and 3. Bea states (33–34) that if the students should be able to read for learning, which is the pedagogical goal of close reading (FC), then it is their responsibility as teachers to teach them in a way that supports this. Bea refers to her experiences (LC) from teaching religious studies, where she points out that she has tried to read the text with the students and practice reflecting on what they read (LC) (34–37). When doing this, she has noticed that the students have discovered connections between different subjects (LC) (37–39). For Bea, the students' discoveries confirm the pedagogical goals and thereby what she wants to achieve by reading and reflecting together with the students (39). She refers to what she calls “learning conversations” (FC), which she has experienced (LC) help support students' learning processes (40–42). Bea and Anna are critical to questions in the textbooks that only require finding facts in the text. They also question their teaching practices (LC) and reflect on the pedagogical aim of teaching when reading texts (FC).

In the example named *Critical exploration*, we have shown how teachers continue exploring the FC “close reading” by questioning their teaching practices. Bea has tried other teaching approaches (LC), such as “learning conversations” (FC). Bea's experiences allowed her to reinforce Anna's proposal to depart from the textbook's traditional tasks and instead use questions that demand more reflection and close reading from the students. Here, Bea offers the concept of learning conversations (FC) and experience (LC) from using the approach both with traditional tasks and to support close reading.

The first instance shows how teachers critically explore their teaching practices, recognising that they need to teach students to master close reading and discussing how they can do it. They orient towards how they can support students' learning processes. The teachers employ experience-based concepts (LC), data from national tests in reading, as well as FCs regarding reading, reading strategies, and learning. Results from the national tests stimulated the teachers to challenge their teaching practices and different teachers brought in experiences (LC) and subject concepts

28 Bea: We can pick up from what Anna says. They know how to skim read, they
 29 know point reading to a large extent.
 30 Liz: Yes
 31 Bea: So, now we are sort of into this thing about close reading, right, we
 32 experience the same. And that () read-do-question thing is not a
 33 good way of learning. Because if they are reading to learn, then WE
 34 have to teach them that. And that is sort of what I am trying to do
 35 now, in KRLE (Christianity, Religion, Philosophies of life and
 36 Ethics). Stop after each paragraph and ask: why this and why that?
 37 And how does it all come together? And... Suddenly they can bring in
 38 something; “oh, but this is, we talked about it in social studies or
 39 science, right”. And then I think: “Yes, we are on the right track”.
 40 And then we can have such learning conversations all the way. So
 41 perhaps we spent the whole lesson reading those two pages, but then,
 42 at least, they remember.
 43 Sam: Mmmm
 44 Bea: And then formulate the questions differently, like Anna says. That
 45 is, preferably give them a totally different task than answering
 46 those questions in the book. What do we want out of this text? What
 47 should they be left with?

Figure 4. Critical exploration

(FC) to the discussion. They decide to give the students tasks that demand understanding so that they need to practice close reading (FC). The teachers used both FC and LC in their exploration of the challenges they face in their teaching. In this way they develop their understandings of the pedagogical concepts “close reading” and “skim reading”, as a basis for decision-making.

Instance 2: the U-turn – modified proposal and renegotiation

In the next meeting, four teachers who teach Norwegian as first language in 10th grade at a medium-sized (300 students) lower secondary school meet in a classroom. They are planning the midterm test for the 10th-grade students and have chosen to start developing the test based on a previous national exam. None of the teachers are explicitly assigned the role of chair. The current instance lasts for 2 minutes and 23 seconds, and it exemplifies what role different kinds of concepts can play in decision-making. It provides insight into how situationally relevant knowledge in the form of lived and formal concepts can turn initial doubt into an acceptance of a proposal. Earlier in the meeting Eva suggested that they should employ a teaching programme about source criticism. She and Une had looked at the programme before, and knew what it contained. Liv and Ina had not familiarised themselves with the programme, and Liv suggested that Eva should carry out the programme with all the students gathered in the auditorium. The decision was postponed on the basis that Liv and Ina had to check their schedules. Further into the meeting, Eva brings the issue up again (Figure 5) and proposes that they implement it in their classes instead of in the auditorium, given that it requires contact with the students (LC). Eva tries to provide examples of the types of tasks included in the online source criticism programme: “New survey; your taste in music can reveal whether you have psychopathic traits (1–3)”.

Figure 5 shows how Liv questions the relevance of the source criticism programme, by asking: “but is it relevant to the midterm test?” (4). She goes on to say that she is scant on time and suggests that she completes the source criticism programme later if it is not relevant to the midterm test (6–8). Ina supports Liv’s argument, pointing out that she had said this earlier (9). Eva does not seem to present any explicit arguments in the form of LC or FC to back her proposal. Instead, she states that she is unsure, and that is why she is posing the question (10–11).

1 Eva: Because it is a bit, it is very much, right; new survey; your taste
 2 in music can reveal whether you have psychopathic traits, that must
 3 be true! (Laughing)
 4 Liv: mmm, but is it relevant for the midterm test?
 5 Eva: Eh... wonder.. a little bit
 6 Liv: because I think, that I am so conscious of my time now, that if that
 7 isn't right «to the point», towards the midterm test, then I would
 8 rather do that after we have finished the midterm test
 9 Ina: That is just what I, too, I said so!
 10 Eva: I am not sure, and that is really why I am asking, because I started
 11 thinking about it.
 12 Ina: I think it is very relevant, but perhaps not just this week, before
 13 the midterm test.

Figure 5. Modified proposal and renegotiation

14 Une: Because I am thinking a bit like this, I am sort of troubled by the
 15 fact that my students, they throw out a lot of claims that they can't
 16 justify, so that they become aware of such claims.
 17 Liv: Yes, that is very important.
 18 Une: It is true? Is there something to support it? That they can be
 19 allowed to discuss it and become more aware of it.
 20 Liv: yes, and that is impor[...].
 21 Une: I sort of miss this kind of use of sources in the texts. It irritates
 22 me that they come up with these claims, and then they might have
 23 posted a list of web links at the end. But we are talking ethos here,
 24 and being trustworthy. I tried to tell them that it is not
 25 trustworthy if they throw out claims in all directions, and perhaps
 26 you have heard it, or that mum and dad said it, but that doesn't
 27 help, it is not good ethos.
 28 Liv: Some did that with Ibsen, right, Ibsen and women's liberation. Women
 29 would not have any rights had it not been for Ibsen.
 30 Une: Yes! Where on earth do they get it from?

Figure 6. Modified proposal and renegotiation

Une, who has remained silent in the sequence presented above, says that she experiences (LC) it as a problem that the students make statements in their texts that they cannot justify with credible sources (FC) (14–15) (Figure 6):

Figure 5 and 6 shows how a proposal, which does not seem to be sufficiently supported by LC or FC, is challenged. When Une brings in lived and formal concepts in the form of experiential concepts (LC) and subject and teaching concepts (FC), it seems to provide arguments for why the proposal to “carry out a teaching program on source criticism” is essential and worth accepting. Une continues her argument by describing how she is asking reflective questions to the students about whether they are accurate and whether there is a basis for the claims they make, and that students need to be more observant about such issues (LC) (18–19). She calls for specific references in the students' texts (21). It annoys her that they simply make statements, and then they just add some links at the end of the text (LC) (21–23). She brings in the term “ethos”(FC) and talks about credibility (FC). She argues that it is problematic and unreliable when students make statements or write down opinions that they have heard at home, or elsewhere, and cannot point to credible sources to underpin them (LC) (24–27).

Une's arguments, in the form of both LC and FC, contribute to Liv making a U-turn. She receives arguments from Une that help her understand what the proposal to “carry out a teaching program on source criticism” entails (development understanding of the pedagogical concept source criticism) and that Eva's proposal may be worth accepting. Liv supports Une and builds on Une's reasoning by bringing in experience-based concepts (LC) from her students' texts about Ibsen, where she points out that some students had given full credit for women's liberation to Ibsen (28–29). Une confirms the

31 Une: It is bad ethos, you lose a lot of trustworthiness
 32 Liv: Because you actually lose trustworthiness
 33 Une: If I had read such a post in a newspaper, or now we don't do that
 34 anymore, but in one of these forums. I wouldn't have bothered to read
 35 Liv: Yes, exactly, good example
 36 Eva: So that is why I think it could be relevant, and particularly since
 37 they need to get into these (holds up text collection)|

Figure 7. Modified proposal and renegotiation

phenomenon (LC) and follows up with a question wondering “where on earth did they (the students) get that (idea) from?”(30) Une and Liv reflect on the allegation (Figure 7), and Une repeats what she said above, that it expresses lousy ethos, and that the students lack trustworthiness (FC) (31):

Une points out that if she had found this kind of argument in a newspaper or an Internet forum, she would not have bothered to read it (33–34). Liv supports the argument by saying that it is a good example (35). Eva, who initially put forth the proposal, re-enters the conversation and points to Une’s arguments as reasons for why it may be relevant to introduce the source criticism programme before the midterm test (36–37).

Une has provided arguments both through LC and FC for why Eva’s proposal is relevant. The two initially doubtful teachers, Liv and Ina, make a U-turn and support the proposal by building on Une’s arguments. These arguments appear to develop the understanding of the pedagogical concept “source criticism” and provide stronger arguments for the proposal. The instance represents a U-turn in the decision-making process, where one of the teachers brings in new knowledge and turns the proposal from being postponed or rejected, to being accepted.

Instance 3: rejection of proposal – decision is postponed

In the third and last instance, we show a proposal where a decision is postponed. The meeting brings together four teachers who teach Norwegian as first language in 9th grade at a medium-sized (300 students) lower secondary school. Three of them have been collaborating for several years, while the fourth has recently finished teacher education (Tom). They sit in a meeting room and on the agenda is what they call “subject collaboration”. The meeting starts with a conversation about the assessment of written assignments that the students have recently submitted. No teacher is formally assigned the role of chair. The entire instance lasts approximately two minutes and represents an example where teachers do not link LC and FC to develop understanding of a pedagogical concept as a basis for accepting the proposal. Figure 8 below starts with Ida saying that she has helped her child with homework where students could choose between three tasks with criteria for low, medium, and high goal attainment listed under each task (FC). Based on this experience (LC), Ida suggests that they should also list assessment criteria (FC) directly in the assignment (1–10):

Kim checks her understanding of what Ida is suggesting (11–12) and Ida takes a student perspective and tries to explain how it may support students when writing assignments (13–17). Her argument is supported through her experience with her child’s homework (LC). However, there do not appear to be any FC linked to the LC. The other teachers ask questions to clarify and check their understanding and do not seem to understand what new the proposal entails. May also indicates this, when she says that she thinks they are already doing it through the format they use (18–19). Ida says that they should not remove what they are already offering the students, since it is intended for assessment afterwards (20–21). She says that the new approach intends to support the students *during* the writing process. However, both Kim and May still have trouble understanding what the proposal would entail. To clarify, Tom wonders what it would look like (25–26), and Ida shows an example on her PC screen. Ida explains that it is nothing new but more of an adjustment of their current practice. Ida points to

1 Ida: ...so in that task, like; 'if you want to achieve at low level, then
 2 you just say, you just say the question, oh, eeeh, that is not and
 3 you...
 4 May: justify
 5 Ida: don't justify and don't argue, don't discuss and don't reflect. And
 6 then it was like, 'Some discussion, some reflection, ehh.. reproduces
 7 the problem formulation or something like that.' And then at, it was
 8 high. And I think I was so neat, right in the task, so, so, I
 9 wondered if we should try...to do it...instead of us framing it
 10 generally that we...
 11 Kim: that it was defined what is within low goal achievement and high goal
 12 achievement
 13 Ida: Yes, so it was described what..ehh..that they think: "Why did I get
 14 low goal achievement, then why did I get grade two? Well, because I
 15 just simply, I have not used the instruments, I have not used, right,
 16 because it says in the task that I must do that if I am to get
 17 medium, medium and high»
 18 May: But we already show that pretty well, in what we do, I think, in that
 19 form
 20 Ida: But we are not going to get rid of that form, because that is
 21 assessment afterwards
 22 Kim: yes, because, yes
 23 Ida: This is preparation in your head, while you are writing
 24 May: yes, but I, yes
 25 Tom: Does it come like a text, then, not like a... You don't get that one,
 26 sort of the table that looks like this (shows on his PC)
 27 Ida: It comes as a text, right, the task says: "write a factual text about
 28 a hobby", low, high, medium, right, it is not as if, we should not
 29 reinvent the wheel again. We use, of course, and maybe replace some
 30 bits. But just because of what you (looking at Teacher Tom) said ...
 31 that I can't correct everything, so then you don't know, right, but
 32 you, but we can keep it in mind
 33 Kim: Yes, we can keep it in mind until the next time we are having ...

Figure 8. Rejection of proposal – decision is postponed

when earlier in the meeting they discussed assessing student texts and Tom thought it was challenging to correct texts (27–32).

The other teachers try to understand what the proposal entails and why they should implement it. They do not appear to be able to link LC and FC to develop their understanding of the pedagogical concept as a basis for accepting the proposal. They appear sensibly critical of tools and methods that they do not, pedagogically, understand. Lack of understanding and support results in Ida withdrawing her proposal (32). She says that they may get back to it later, and Kim supports her (33). The proposal remains unclear for the other teachers. The group does not overcome this lack of relevant pedagogical concepts, and the decision is postponed.

Ida's proposal does not include clearly formulated FC. It also appears that the group, as a collective, is not able to come up with LC or FC (even if they try), in the same way the groups in examples 1 and 2 did. The other teachers ask several questions about Ida's proposal and appear to be oriented towards trying to understand it and find arguments for the proposal. However, the necessary elements for pedagogical concept development are absent.

Discussion

The current article contributes to research on teacher collaboration by examining closely teachers' decision-making processes to better understand how they are

characterised, including what conceptual resources teachers rely upon when making decisions. The aim is to provide insights into the micro-processes and ‘the talk’ and what it takes to succeed with proposals teachers come up with.

When presenting findings, we selected three different instances. The first one shows how teachers critically explore their teaching practices when realising that they need to teach students to master “close reading”, and they make a decision about how to go about it. The second instance presents a proposal to “carry out a teaching program on source criticism”, which in the beginning is not supported through neither lived nor formal concepts. However, when one teacher brings in experience-based concepts (LC) and subject and didactical concepts (FC) to support the proposal, the other teachers make a U-turn. In the third and last instance, the proposal “list assessment criteria in the assignment” is not supported through neither LC nor FC and remains unclear. The teachers do not overcome their lack of understanding of what the proposal entails, and the decision is postponed.

Regarding the first research question about what characterises teachers’ decision-making processes, findings show that teachers generally make decisions and that they consistently orient towards students’ learning needs (Hindin et al., 2007; Vescio, Ross, & Adams, 2008). Darling-Hammond (1989) calls this “professional accountability”, which means that teachers act for the benefit of the students, based on what they have acquired from personal experience (LC) and research-based concepts (FC).

Regarding the second research question about the role of lived and formal concepts in decision-making processes, findings show that for teams to accept proposals for change, they need to be justified through developing understandings of pedagogical concepts through linking lived and formal concepts. Analysis of the decision-making processes shows how teachers develop their understanding of pedagogical concepts collectively, through their conversations. They re-conceptualise and re-shape the concepts to strengthen their relevance in the context of their future work (Vygotsky, 1987; Wells, 1999).

The findings presented above support the claim that without formal concepts (generalised abstractions), teachers are restricted to meaning-making based on experience and to potentially continue their existing teaching practices (Horn et al., 2017; Katz et al., 2009). And vice versa; without experiences in the world, generalisations about teaching lack experiential anchors (Dewey, 1991; Ertsås & Irgens, 2012). Missing either lived or formal concepts may result in proposals with little staying power and thus potential for being rejected. Individual knowledge, experience, skills, and dispositions are part of the resources available to the teacher teams and vary within and across groups, and influence their teamwork. Analysis of these variations is beyond the scope of this article. However, we argue that differences in group discourse on a general basis cannot be attributed to the individual teachers’ personal and professional dispositions, even if the professional interests of the teachers guide the group dynamics. In teachers’ decision-making processes in the studied contexts, the same conditions for teachers’ development pedagogical concepts seem to apply. For decisions to be made, both lived and formal concepts are needed.

Exploring such micro-processes is essential because they open or close opportunities for teachers’ professional learning in teamwork. To move away from collaboration limited to a description of existing practices, supporting, and normalising chains of

events (Havnes, 2009; Kvam, 2018; Little, 1990), we need insight into interactions at micro-level. If the goal is professional learning and development, conversations in teamwork that move beyond “activity traps” (Katz et al., 2009) restricted to “tips and tricks” (Horn et al., 2017) are required. The teachers need to reflect on how their proposals affect their teaching and students’ learning and development.

The approach used in the current article has limitations in that it is demanding to categorise teachers’ utterances neatly into the two categories of formal and lived concepts and know precisely what are lived and what are formal concepts. Several concepts in the teaching profession are formal in the sense that they have been “formalized” through years of use and thus gradually have been recognised by the profession as part of their joint knowledge base. The instances studied in this article are relatively short (approx. 3 min). The urgent need to plan and specify future lessons can potentially force teachers to focus on logistics and the need to make quick decisions, something which will possibly tip the process in favour of the tried and true, that is the lived experiences, instead of going for the more theoretically oriented formal concepts that require somewhat more time. Since teachers are at a constant lack of time and capacity for longer collaborative sessions, it may be quite challenging to get teachers to explore formal concepts.

The findings provide a basis for understanding and further exploring and developing such processes in future practice and research. It sheds light on and brings new insights into the efforts of designing fruitful professional learning processes. The new knowledge is useful for anyone working to promote teachers’ professional learning, both within and beyond the actual work situation at school. It is also important for teacher educators to challenge the students to link theories they are exposed to on campus with experiences from teaching practice. The findings reported here also contribute to insights into the complexity at micro-level of teachers’ decision-making processes. It invites further investigation into the nature and character of discourse in such settings.

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