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Knowledge development in the teaching profession: an interview study of collective knowledge processes in primary schools in Norway

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ABSTRACT

This study investigates teachers' understanding of how conversations between colleagues can promote the development of knowledge. Its purpose is to supplement previous research in the field of knowledge processes in respect of conversation as an integral part of teachers' everyday work. On the basis of interview data obtained from teachers in a Norwegian school context, the study concludes that conditions for knowledge development in conversations between colleagues exist because teachers set the agenda for their collaboration and they raise issues from their pedagogical practice and explore and challenge these in depth. Based on theoretical perspectives and international research in the field, it is argued that, despite the fact that teachers themselves are being challenged to take responsibility for knowledge development in the teaching profession through collective knowledge processes at a micro level in the school organisation, it will be important to have support structures at different levels of the educational system to prevent them from standing in a vacuum.

Introduction

At the turn of the millennium *the Organisation for Economic Co-operation and Development* (OECD) conducted a survey on the quality of education in 32 countries (OECD 2001). The aim was to highlight the extent to which pupils who had completed their compulsory schooling had acquired adequate knowledge and skills to enable them to participate in a social context and at work (OECD 1999, 2000). Over the years, the results have mainly shown that Norwegian pupils do not perform as well as pupils in other countries with which it is natural to make a comparison (see, for example, Lie *et al.* 2001, Jensen *et al.* 2019). Partly for this reason, the Norwegian government has acquired broad political support for focusing on school development in order to improve pupil learning outcomes. Current educational policy emphasises the correlations between improving pupil learning and developing strong teacher communities that are involved in school development, a correlation supported by research (see, for example, Ronfeldt *et al.* 2015). The teachers' work is understood as being team work, and team work is understood as being necessary to enable teachers to develop their practice (Norwegian Ministry of Education and Research 2017).

In order to promote school development through teacher collaboration, we need an insight into how teachers themselves understand knowledge development and how such development can take place in practice. In this article I will draw attention to the phenomenon of school development in a study of teachers' understanding of how conversations between colleagues can promote the development of knowledge. The potential for knowledge development in conversations between

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colleagues has been documented in previous international research (Lefstein *et al.* 2020; Levine and Marcus 2010; Stoll *et al.* 2006, Vescio *et al.* 2008, Vrikki *et al.* 2017). In a Norwegian educational context, Helstad and Lund (2012) have found that investigative negotiations in particular, where disagreements are expressed and challenged, can serve to promote knowledge development (Helstad Helstad 2013, Helstad and Lund 2012). These findings are also corroborated by international research in the field (Clement and Vandenberghe 2000, Horn and Little 2010, Hermansen 2014, Hermansen and Nerland 2014, Meirink et al. 2010, Ohlsson 2013).

At the same time, research shows that teachers have trouble challenging each other's ideas about teaching, and they seldom go into the reasoning behind pedagogical concepts (Fairbanks and LaGrone 2006, Little and Horn 2007, Havnes 2009, Ohlsson 2013). Furthermore, teachers tend not to challenge the established norms in the school community (Horn and Little 2010). Conversations between colleagues are also largely concerned with practical coordination (OECD 2009, 2014, 2020, Horn *et al.* 2017, Kvam 2018b). Teachers do not benefit much from educational theory and research in their conversations. What is most prominent in these conversations is personal experience and pure descriptions of pupil behaviour (Little 2003, Nerland 2012, Ohlsson 2013, Ertsås and Irgens 2017, Kvam 2018b). It is therefore no surprise that researchers are seeking more critical dialogue between teachers (Borko 2004, Orland-Barak 2006, Hindin *et al.* 2007, Webster-Wright 2009) and dialogue that goes into depth when teachers exploring teaching (Horn *et al.* 2017).

From an overall perspective, current research shows that teachers' conversations have the potential to promote knowledge development, but also that this potential is not being used. On the one hand, we know that school management are important for the development of strong teacher communities and teacher involvement (Desimone 2009, Opfer *et al.* 2011, Timperley 2011, Postholm 2012, Vangrieken *et al.* 2017). At the same time, collaboration between teachers can in itself be challenging (Kelchtermans 2006). School development is dependent on the individual teacher's commitment to change (Elstad *et al.* 2011). School development which is subject to administrative regulations and enforced professional loyalty does not go far (Hargreaves 1994).

In this article I will supplement previous research in the field. I investigate the following research question: What understanding do teachers have of how conversations with their colleagues can contribute towards knowledge development in the teaching profession? Teachers' conversations with their colleagues are defined as spoken interaction between two or more teachers with regard to teaching. Emphasis is placed on those knowledge processes which can occur as an integral part of teachers' everyday work. Below I provide an account of the theoretical background and methodical approach and an analysis before presenting and discussing the results.

Theoretical background – knowledge development as a dynamic process

Teaching involves the use of knowledge, but the basis for teachers' knowledge is complex. On the one hand, professional practice relies on *practical knowledge*, which is expressed in actions and skills. In the research literature, various terms are used for practical knowledge, e.g. Ryles 'knowing how' (1949), Erauts' 'know how' (1994), Shulman's 'strategic knowledge' (1986) and the phenomena identified by Doyle as 'classroom knowledge' (1979). Professional practice also relies on *scientific knowledge*, which becomes manifest by knowing that something *exists* (Grimen 2008). Such knowledge is also referred to as 'propositional knowledge' (Shulman 1986) and as 'knowing that' (Ryle 1949). For example, this may be knowledge relating to self-efficacy (Bandura 1977), knowledge that language as a cultural tool can be understood as being significant in pupils' learning processes (Vygotsky 1986), or knowledge that claims about the quality of teacher feedback have implications for pupil learning (Hattie and Timperley 2007).

A third area of knowledge is also relevant for teaching. Teachers have to make decisions about various normative issues, and they continually make value decisions without clear rules on priorities (Grimen 2008). In some cases, there may be relevant evidence-based knowledge that can inform value decisions,

but there may also be reasons to apply different priorities. When conflicting values are at play, there is an urgent need for teachers to be able to exercise professional judgement.

Grimen (2008) uses the term *practical syntheses* to emphasise that it is through practical actions that different knowledge areas are combined and put into context in the actual work. It is the nature of the practical tasks that influences which knowledge elements it is relevant to combine, and it is the teachers themselves who must decide on this combination. Teachers need to master the interaction between diverse knowledge areas, and be able to integrate them. Consequently, practitioners must become involved in knowledge processes in order to identify the knowledge requirements which are actualised in the specific situations concerned. Sometimes space is devoted to moral principles, and at other times to didactic theory or skills. While some aspects of this work are tacit in nature and appear through action – 'we can know more than we can tell' (Polanyi 1983, p. 4) – others can be verbally articulated. Conversations are a flexible tool (Barnes 2008) in which one can justify and critically assess which knowledge elements it may be appropriate to combine. Consequently, I understand knowledge to be constructed and situated, and knowledge development to be a dynamic process between teachers (Vygotsky 1986, Lave and Wenger 1991).

Research method and analysis

In order to illuminate the understanding that teachers have of how conversations with their colleagues can contribute towards knowledge development in the teaching profession, I have chosen a qualitative approach using the method of interviews.[1] In Norway, teacher collaboration serves as an integral part of teachers' work (OECD 2009, 2014, 2020, Dahl *et al*. 2016, Kvam 2018a). It is common practice for schools to organise collaboration in the form of meetings in which all of the school's teachers participate, and in the form of various team combinations. In addition, teachers collaborate on their own initiative during their individual working hours.

Against this background, I have used purposive sampling (Hoyle *et al*. 2002), in that I wanted informants who worked in established collaborative relationships and thus had potentially rich experiences with colleague conversations as an integral part of their daily work. Newly employed teachers were therefore excluded. Criteria, such as that they should be working in a full-time position and be members of a year-group team, were set. This was because such teams were organised in close proximity to the teachers' everyday work. There are a few participants who meet every week, and they collaborate on student groups of the same age. Variations related to year group, gender and years of experience as a teacher were given priority (Creswell 2014). In order to find teachers who met the criteria for the sample, external enquiries were initiated through both formal and informal channels. The data was obtained from four schools in two municipalities in Norway. Eleven informants were interviewed, representing six year-group teams. They consist of six women and five men with 2 to – 33 years of experience teaching in Norwegian primary schools.

I conducted semi-structured interviews that lasted about one hour each. Aiming to be ethically reflexive (Guillemin and Gillam 2004), I was sensitive to the fact that situations could occur during the interviews which would call for respect for teacher autonomy, dignity and personal privacy. I made field notes immediately after the interviews had been conducted. These were used to supplement my analysis work. The interviews were recorded and transcribed in their entirety.[2] Where informants stated their name or the names of colleagues, fictitious names have been used in my presentation in order to ensure personal privacy as specified under Section 13 of the Norwegian Personal Data Act of 2000.

The analysis of the field notes and interview texts was conducted manually in several stages, which can best be described as a non-linear process. Supported by the literature on methodology, I combined different methods during the analysis process (Patton 2015). I was particularly inspired by meaning categorisation (Kvale and Brinkman 2009) and thematic analysis (Braun and Clarke 2006). The purpose was to reduce the amount of data (Miles and Huberman 1994) and organise, structure and give meaning to the transcribed material in order to identify what understanding

teachers have of how conversations with their colleagues may contribute towards knowledge development in the teaching profession. The first stage consisted of repeated reading of the data to get familiar with all its aspects. The next stage consisted of identifying how the teachers describe their *conversations*, their *knowledge processes* and their *knowledge development*. Furthermore, I coded this reduced material on the basis of the research question, theoretical insight and presence in the field. Examples of codes marked in the margin of the transcribed text are 'more perspectives', 'help to put words into thoughts', 'ideas for schemes' and 'ask questions'. The codes were then sorted into larger categories. Examples of such categories include 'bringing in pedagogical issues', 'bringing in research-based knowledge' and 'exploring'. These categories are the repeated patterns that I have identified as teachers' understandings. The scientific activity underlying the work is rooted in the hermeneutic philosophy of Gadamer (1989).

Conversations promoting knowledge development

I found that, in the teachers' understanding of conditions for knowledge development in conversations with their colleagues, they identify these conditions to be: i) setting the agenda for their conversations and thus the possibility of talking about the specific requirements which their teaching elicits; ii) raising issues from their pedagogical practice and exploring them; and iii) challenging pedagogical practice, continuing their analyses and going deeper. In the following section I have indicated by number which teacher is being quoted.

Conversations where teachers set the agenda

The first finding is that teachers understand conversations about their own teaching as being more meaningful for knowledge development than conversations about topics which have been chosen by others and are based on other considerations. This concerns being able to set the agenda for the conversations which occur. One teacher addresses this when he speaks of various fora for collaboration, and his statement is consist with other opinions which emerged during the interviews:

> We control everything that is said here (year-group teams). We don't get anything like that coming down from above, 'we need to talk about this, and we need to talk about that'. We do that more in other teams, for example teams that include teachers from several year groups. They are a bit more constrained by plans. We could probably say that we address any topics that we like (in year-group teams). I would say that's a big advantage. (1)

The teachers discover that their agency to set the agenda for their conversations occurs either in year-group teams or during informal collaboration, rather than in other collaborative fora. Such fora may include meetings in which all teachers participate, or a variety of teams that include teachers from several year groups. One of the teachers (2) states that the year-group team collaboration is 'far more important' than meetings in which all teachers participate. This is because such fora are primarily used for 'information about all sorts of odd things', details which do not relate to his teaching duties and reports from colleagues who have attended various courses. Another (3) says: 'I sometimes catch myself thinking, "Well, this only applies to year groups 1 to 4." In my opinion I don't think it's necessary for everyone to be included in everything.'

It is also the teachers' experience that teams including teachers from several year groups are less important for knowledge than year-group team conversations. In such teams 'there is a lot more which has nothing specifically to do with teaching than in the year-group teams' (4). The teachers also say that larger teams are typically 'a bit more rigid about plans, etc.' (1). With a constant flow of new tasks coming from outside, which are often supposed to be dealt with by stipulated deadlines, the collaboration results in increased working pressure rather than in relevant knowledge processes:

> I often think that we get things imposed on us from elsewhere, but that's not because they have been decided by our management - they come from higher up. Sometimes I think it's a bit too much and then we don't have enough time to deal with what's happening here [when working with our pupils]. (7)

Some of the challenges in collaboration occur when too much time is being spent on information, coordination or tasks which come from somewhere other than the teachers themselves. This is experienced as being 'distant from the actual job' (11). Many conversations may be experienced as being 'woolly, because it's hard to be specific' (11). In contrast, it is important for the teachers to set the agenda for their conversations. They then have better opportunities for working with specific situations and discussing any issues which derive from such. As one of them (4) says: 'It all depends on the actual group of pupils and the specific situation.'

In addition to conversations in years-group teams, the teachers emphasise that conversations which occur informally are experienced as being beneficial for knowledge development. Some of the teachers collaborate so much that the 'overlaps between when we have teams and when we don't have become very fluid. Collaboration is constantly occurring' (5), and the condition for this can be explained by teachers finding their conversations useful. This is also evident in a study by Horn and her colleagues (2017). They find that having 'rich collegial conversations' in formal meetings increases the likelihood that teachers will seek new advice from coparticipants outside of regular scheduled meetings (Horn *et al.* 2020, p. 9). Furthermore, the teachers understand fluid collaboration as an advantage because it may also be possible that 'if we're thinking about something then we will bring it up right away. We might sit down with a cup of coffee to talk about what actually happened' (6). In other situations, the teachers actively seek each other out. As one of them says:

> Maybe a teacher taught a class a particular subject the previous year and then you can ask them what they did with it that year. How did you actually do it? I did it like that because my class is like this or that and that's what we did. I would imagine that that's probably not such a good idea for my class, because I would want to do it like this. Such conversations take place all the time. It's a continuous process which snowballs and continues throughout the year. (4)

The need to discuss matters with colleagues often occurs as a result of the teachers' specific work with their pupils. Because teachers are constantly interacting with each other's rationale for teaching, and because they familiarise themselves with each other's didactic decision- making, they enter into processes which relate to assessing those elements of knowledge which they can justifiably and appropriately combine in order to carry out their teaching (Grimen 2008). The teachers think that such conversations serve to develop knowledge. One of the teachers (4) expresses this as follows: 'You're learning all the time by asking how to do things and by how your pupils react.'

Raising issues and exploring pedagogical practice

The second finding that we are going to consider, which is related to the first one, is that teachers understand that conversations in which they raise and explore pedagogical issues serve to promote knowledge. One teacher has the following to say about pedagogical issues which are discussed between teachers:

> We discuss professional didactics: how should we present material? Especially to those who are very clever and think it's easy. What can we do in order to provide them with challenges? And at the other end of the scale: what can we do there? (9)

Issues are raised and the discussions result in increased awareness about teaching: 'They make me more aware. I can put things into words, I can think and I can discuss them with others' (5). It is not only the teachers who become more aware. Raising issues with each other also provides the right conditions for being able to reformulate, adjust and develop opinions about teaching practice. One teacher's (6) statement about individual teaching practices is a good illustration of teachers' understanding of the community's importance for ensuring the best possible reflected practice: 'When you're

on your own you proceed with whatever you think is right or best.' Implicitly, and based on the context from which this quote has been obtained, the teacher is hereby indicating a potentially defective knowledge base which results from a lack of collaborative exploration. She elaborates on this as follows:

> Because there's something to be said for thinking about what you have done, what you are thinking about doing next and then getting the views of others about things. Getting to discuss things with others, airing your thoughts about 'what about doing it like this?' I think that's really important. (6)

And as another says:

> When we discuss teaching, it's on quite a different level to our own thoughts. We take each other's ideas and we complement each other. When you put things into words you often find solutions by talking about things which you don't quite have an answer for. (7)

So the teachers are expressing experiences whereby verbal interaction can serve as a tool in order to test out ideas (see Vrikki *et al*. 2017, Lefstein 2020). From a knowledge development perspective this also concerns helping each other to understand the complex aspects of the different components of teaching situations, and helping to ensure that practice is put into perspective. As one of them (8) says: 'If I have a problem, or an issue, I can seek help from my colleagues in order to see several things which I am unable to see myself. I can then receive input which enables me to see the matter from a different perspective.' Another (2) expresses this as follows: 'It's probably the most important thing, actually, when you really try to make things work and are unable to do so. What is causing it, and why?'

Interacting over the rationale for practice serves to initiate knowledge processes. The teachers perceive that this can have a stimulating effect on knowledge development, because several opinions and arguments interact with each other, something which can then serve to adjust their knowledge horizons. As one teacher (1) says: 'Otherwise you interpret it in your own way, and that may not always be the right way.'

The teachers also believe that such conversations help them to do a good job. 'You can avoid making lots of mistakes if you know what to do,' says one teacher (4), while another (9) says: 'Once we obtain such new knowledge, we can do things differently. But if I didn't have it, I would probably not have changed my practice either.' By discussing issues, teachers have more options for presenting new knowledge to each other, and this also includes research-based knowledge. One example of using research-based knowledge refers to a pupil with Asperger Syndrome. In this connection the teacher needed to discuss various aspects of her work with her colleagues:

> How should we organise our teaching materials for this pupil? To what extent should these materials be different? How much homework should he have? What type of behaviour can I expect? How much can I demand of him? What about if the same rules that apply to the rest of the class could also apply to him? Also, what should I place emphasis on when talking to his family? (4)

She also says that research-based knowledge provides her with an insight into how she can better differentiate her teaching materials, adjust her workload and adjust her expectations about the pupil's behaviour and what she should place emphasis on in dialogue with the parents. She thinks that it would have been harder to make adjustments to create a good learning environment without the research-based insight she had acquired about Asperger Syndrome:

> I would definitely have had major problems in dealing with this pupil. The learning environment for both this pupil and the class would have suffered. So obviously it was incredibly important [...]. How do you deal with this type of class situation [...]. It would have been almost impossible to do without any background knowledge. (4)

The other teachers agree that including research-based knowledge in their discussions helps to create 'a greater degree of understanding of the job I do' (7), and that such knowledge can help to ensure that 'you become aware of important things' (8). She refers to an article about children refusing to go to school as an example showing that research-based knowledge provided her with a tool for 'looking for signs' (8) which indicate when this phenomenon occurs.

Even though the teachers think that research-based knowledge expands their horizons, they say their discussions with their colleagues do not often include such knowledge. One of them says that she is familiar with Bandura's theory of 'self-efficacy' and that she uses this theory in her work with her pupils. When asked if that might serve as an example of including research-based knowledge in her conversations with her colleagues, she says: 'Not often' (3). In these conversations they tend more to consult each other and build on their own experiences. Another says:

> So, theories . . . . We probably don't . . . No, it's probably mainly down to experience, and asking people. We're always asking clever people, or we might ask specialist teachers with in-depth knowledge about behaviour and similar difficulties [. . .]. So we probably obtain information from people just as often as we obtain theoretical knowledge. (9)

This statement illustrates the fact that external sources of knowledge outside a local context are not normally included in conversations between colleagues (see Ertsås and Irgens 2017). The teachers decide to 'obtain information' (9) only when situations or pedagogical issues arise for which their experience fails to provide them with an adequate basis for choosing a course of action.

Challenging pedagogical practice in depth

The third finding we are going to consider is that teachers understand that knowledge can be developed by engaging in conversations in which they do not simply raise pedagogical issues and explore them, but also choose to continue exploring them by challenging practice and going deeper (see Horn *et al.* 2017). One teacher says that it is useful when her colleagues challenge her and offer alternative ways of thinking by saying: 'Could you do this or that? What do you think about this?' She also says that she is not worried about taking advantage of the opinions of others or presenting her own:

> I say what I think and I'm not really bothered about what . . . I don't need to be best friends with everyone. It's more important that we're not afraid of being a bit clearer about what's important to us. I don't have opinions about everything, but if I do then I bring them up. (3)

As regards debating an issue, the teacher believes that it is important that colleagues who possess specific knowledge about a subject 'don't beat about the bush' (3). Part of the driving force behind knowledge development in teachers' conversations is 'being open with each other' (3), even if someone opposes what might possibly be wrong decisions made by their colleagues when one actually possesses additional knowledge about current teaching issues, because this can put 'things in a different light' (3). At the same time, she is keen to be 'humble when at other times you have less knowledge.' The teacher is thus highlighting the complementary aspects of the teaching community's overall knowledge base, which she expresses as follows: 'Together we complement each other well' (3). The teacher shows here that she understands knowledge development as being a dynamic process which takes place between teachers, but that the conditions which apply to their being able to complement each other's knowledge are that they dare to say when they disagree, negotiate and offer different perspectives (see Helstad and Lund 2012, Lefstein *et al.* 2020).

The selected teachers are united when it comes to including critical perspectives in their conversations. One (7) says: 'It's important that both parties listen, ask questions and confirm each other's views when conversing. However, it is equally important that we give space to, indeed [.]. that we ask each other critical questions.' Another (10) emphasises that he has had the same experience: 'It's important that you're able to present opposing views.' But he also says: 'But it's not always that easy to present them [opposing views].' Another agrees:

> We should have been better at initiating some discussions. [. . .] What often happens is that I tell them what I think, but we don't have a discussion about it. I don't know if that is because the others don't have any opinions about it. We don't have any discussions about it [. . .]. That's something I miss. (1)

Discussion

It is teachers' experience that conversations with their colleagues can help to promote knowledge development, provided that they have ownership of the collaboration and that they can talk about authentic teaching challenges. It is the nature of the practical tasks involved which decides which knowledge elements it might be relevant to combine. It is therefore important to talk about the tasks which face the practitioners themselves (Grimen 2008). What are the knowledge requirements which are actualised in the specific situations concerned? Such questions emerge from the data material to serve as the actual hub for enabling one to see fragmented knowledge in context. Sometimes knowledge resources may originate from theory derived from different scientific disciplines, practical knowledge or familiarity with specific situations. Different types of knowledge are combined because it is required in order to undertake specific tasks (Grimen 2008), but it is up to the teachers themselves to make this integration. If such knowledge processes are to be included in conversations between colleagues, the topic of conversation must cover the tasks which are actualised while teaching.

The teachers understand that another condition for conversations between colleagues which serves to develop knowledge is that teachers include pedagogical issues in their conversations. Dewey believes that 'reflective thinking' is conditional on having real problems. If teachers are to be able to engage in reflective thinking with their colleagues, then they obviously need to present any problems they may have to each other. Reflective thinking as a collective activity has greater potential for promoting innovative thinking about practical work, and thus also about school developments, than individual self-reflection as proposed in Schōn's legacy (1983), whereby every practitioner is understood to have 'private meetings with his/her own self-image', to quote Nerland (2004). Teachers recognise that, as they raise issues, they deepen their insight by collaborating in the exploration of the issues being raised, which is also the finding of Vrikki and her colleagues (2017). This is important in light of the fact that previous research finds that opportunities involving exploration are not used because conversations between colleagues are limited to being descriptive and concern practical coordination (Little 2003, Orland-Barak 2006, Ohlsson 2013, Horn *et al.* 2017, Kvam 2018b).

Reflective thinking as a collective activity also serves to strengthen the application of theory, which is necessary when elements of knowledge are combined (Grimen 2008). Scientific knowledge does not constitute knowledge which is ready for use by the practitioner. Theories are abstract parameters – abstract systems – of phenomena. Since theories concern phenomena which appear only to consist of the selected parameters, theories acquire general properties. Specific situations concern more aspects than those discussed in theories (Kvernbekk 2001, 2005). The relevance of theories for practical work is therefore something which teachers create themselves by integrating theories for use in current tasks. This also applies to knowledge resources which are not scientific. These must nevertheless be processed and re-contextualised before they can be used (Nerland 2012, Hermansen 2014, Hermansen and Nerland 2014). When teachers become involved in such knowledge processes, there is not just one theory that can be applied. Different theories, or parts of theories for that matter, contribute different perspectives in accordance with the phenomena involved. If several teachers contribute towards the application of theory, then several theories may be tabled, which could strengthen the possibility of suitable theories being used.

Here lie the seeds of a different potential source of knowledge development, because, by familiarising each other with one's theories, the opportunity also arises for providing each other with feedback on the reasoning behind the application of theory. In this way it is possible to establish more precise interpretations. If several teachers are engaged in interpretation, then it is easier to uncover any wrong decisions. Theories which teachers include in their conversations can also reduce the likelihood of interpretations becoming the victims of 'common sense, prejudices or stereotypes'. Kvernbekk (2000) explains this as follows: 'Theoretical knowledge greatly enhances our capacity to see in practice, primarily because of its vital role in indirect cognitive perceptions'

(pp. 357–358). When teachers say that undertaking one's own interpretation is probably not 'always right', it is likely that this is based on such an understanding. This can have a stimulating effect on knowledge development because several opinions, theories and arguments interact with each other, something which can then serve to adjust the teachers' knowledge horizons.

Announcing one's thoughts is not enough for ensuring that interactions will be productive for knowledge development. Teachers also need to negotiate and offer different perspectives because this is a vehicle for challenging teachers' assumptions and taken-for-granted practice (Helstad and Lund 2012, Lefstein *et al.* 2020). My material reveals that this is also how teachers understand the situation. They point out that they should not take their own or their colleagues' interpretations, decisions and ideas for granted, and they indicate the importance of providing each other with opposing views. However, the teachers also say that this does not occur very often in their conversations with each other, a finding which is supported by research (Fairbanks and LaGrone 2006, Havnes 2012, Ohlsson 2013). This is problematic. Because, when teachers refrain from questioning the arguments of their colleagues, the opportunities for more precise interpretation are reduced and they are less likely to deal with the given problem in depth (Clement and Vandenberghe 2000, Little and Horn 2010, Horn *et al.* 2017). Consequently, the need to obtain new knowledge is not identified either.

This study found that the teachers' agency for drawing up the agenda for their conversations was understood by the teachers to be an important condition for knowledge development, while at the same time they say that they do not use this agency to enable local practices to interact with new knowledge from outside. This is unfortunate because what can be integrated into 'practical syntheses' (Grimen 2008) is not limited to knowledge resources that already exist in a local context. Among other things, not using external knowledge resources means that knowledge development may be short-sighted and limited by the local context (Ertsås and Irgens 2017). Consequently, it is hampered by the fact that internal yardsticks which constitute good practice are dominant and which, at their worst, prevent external criticism and adjustments. The teaching profession does not preside over a stable knowledge base, and new knowledge resources play an important part in preventing teachers' practice from becoming bogged down in habitual thinking such as 'fitting agreeably into a single picture or story' (Dewey 1933, p. 13). If teachers do not make use of conversations with colleagues to enable local practices to interact with new outside knowledge, there is an argument that ordinary collaboration within the school organisation should be supplemented with more specific contributions for promoting a wider variety of knowledge resources in collective knowledge processes, such as school-based development projects in which people with external resources participate (Timperley 2011, Postholm and Boylan 2018). Over the last few years, research has demonstrated teachers' knowledge development through such guided development measures, inlcuding projects for assessment for learning (Hermansen 2014, Hermansen and Nerland 2014), action research (Postholm 2011) and lesson study (Lieberman 2009, Cajkler *et al.* 2014, Vrikki *et al.* 2017).

Concluding comments

The small sample size and situated nature of the teachers' collaboration limit the ability to generalise from this interview study. At the same time, this study has provided an insight into teachers' understanding of how conversations between colleague can contribute to knowledge development, thus providing a basis for asking questions about how teachers preside over collective knowledge processes during the collaboration which takes place as an integral part of their daily work. This is relevant because teachers' micro-level knowledge processes in schools will influence how the teaching profession maintains and develops its knowledge base.

Questions may be raised about the extent to which society should be assured that professional practitioners preside over their knowledge base and ensure its development. For example, ever since the OECD presented its previously mentioned survey on quality in education during the early

2000s, Norwegian schools have been undergoing constant renewal in order to strengthen Norway as a knowledge nation. During this process, teachers have been presented as key participants in order to ensure the desired societal developments, almost as guarantors of future welfare. This has resulted in an increased belief in teacher communities being able to strengthen their knowledge base and professional practices (Dahl *et al.* 2016).

On this basis I wish to present a challenge for further discussion. It is the teachers themselves who are being challenged to take responsibility for knowledge development in the teaching profession, although the collective knowledge processes at the micro level within the school organisation, due to their nature, may require support structures to prevent these processes from standing in a vacuum. Consequently, the question boils down to arenas for collective knowledge development and the interplay which takes place between these. We need more research on how collective knowledge processes as an integral part of teachers' everyday work can interact with knowledge processes as an aspect of guided development measures. We need insight into how the nature of the practical tasks can serve as a starting point and provide conditions for knowledge development, while at the same time it should be possible to include external knowledge resources when different knowledge areas are combined in order to carry out good teaching. Taken to the extreme, this concerns complementing the conception of how we can develop a teaching profession which is capable of managing and developing its knowledge base for schools in the future and is thus, over time, also capable of responding to the confidence that society has in it. Vrikki *et al.* 2017, Helstad 2013.

Notes

1. The empirical material was collected in connection with my PhD in Educational Sciences at the University of Oslo (Kvam 2014). This article expands on unpublished parts of the empirical material contained in my dissertation.
2. The transcribed material consists of about 200 pages of text (Times New Roman, font size 12, one and a half spacing).

Disclosure statement

No potential conflict of interest was reported by the author.

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