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# The importance of structure and trust in developmental work in school: with observations and joint analyses as the key activity

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Organizational conditions and social aspects as requirements for learning, and faculty trust has been highlighted as the foundation for collaboration and school development. The professional development of teachers plays a crucial role in improving teachers teaching together with the pupils. But *how* development work is organized and *how* faculty trust is aimed for are scarcely described in the literature. This article is based on a qualitative study conducted in the frame of cultural historical activity theory (CHAT), focusing on school development in one primary school with nine teachers and two leaders: one principal and one middle leader. The problem formulation for the study presented in the article was the following: *How do teachers experience participation in a developmental work research project designed by researchers within the frame of CHAT?* The study describes how processes leading to a joint focus can be arranged, and how structured analyses of observed teaching can lead to professional dialogues and the development of trust. The study shows that the teachers wanted to continue with observation and joint analyses after the project ended but noted that the principal must facilitate such processes.

## KEYWORDS

teachers' professional development, cultural historical activity theory, school-university collaboration, observation and joint analyses, teachers' experiences

## Introduction

The professional development of teachers plays a crucial role in improving teachers teaching together with the pupils (Loughran, 2014). Teacher professional development is according to Avalos (2011) defined as teachers' learning, how they learn to learn and how they apply their knowledge in practice to support pupils' learning. Teachers can learn through participation in various courses, within the school by reflecting on their own teaching, and by observing and reflecting on others' teaching in cooperation with colleagues, both in planned and unplanned ways. This article is based on a study focusing on school development in one primary school with nine teachers and two leaders: one principal and one middle leader, and all the nine teachers and leaders took part in the development processes. A research group consisting of eight teacher educators with different and complementary competencies collaborated with the school. The objective of the work was to develop the teachers' professional digital competence, supported and led by their school leaders, with the ultimate goal of enhancing the pupils' learning. We researchers<sup>1</sup> acted as resource persons both in terms of

<sup>1</sup> The author of the article was the leader of the research group.

learning processes for teachers and leaders, as well as subject content. The project was framed by cultural historical activity theory (CHAT), meaning that the school was treated as a social system or an organization (Engeström, 2015).

There is little consensus on how teacher professional development should be arranged for (Kennedy, 2016). According to Wolthuis et al. (2020) collective lesson experimentation and observation require complex organizational work in schools. Stoll and Louis (2007) have identified organizational conditions, such as time for collaboration, and social aspects, such as a trustful atmosphere, as essential requirements for the learning of all professionals in schools. According to Louis (2007) and Vedder-Weiss et al. (2019) faculty trust has been highlighted as the foundation for collaboration and school development. Liu et al. (2016) has found that learning-centred leadership strongly empowers organizational trust among teachers. The learning arrangements for teachers are according to Lim and Lee (2014) shifting toward need-driven models and actions with teachers as active participants. Research findings have also shown that teachers' participation in professional learning communities (PLC) resulted in both increased disciplinary and pedagogical content knowledge (Dogan et al., 2015). In PLC teachers work together to improve teaching, and research has also emphasized the importance of school leadership for learning in PLCs by creating desirable school organizational conditions (Stoll et al., 2006). However, Little (1990) stated that interaction between teachers is not the same as meaningful collaboration. From a learning perspective experimenting with new teaching practice is more promising for teachers than just sharing experiences (Kvam, 2018). Lesson experimentation, and observation and reflection often represent new ways of working and learning together, and schools can benefit from external support in such processes. However, dependence on input from facilitators can also impede teachers and leaders to develop intercollegiate collaborative talk about teaching (Horn and Kane, 2015).

As shown, many studies emphasize the role of school leaders and that development work must be arranged for, but *how* development work is organized and *how* it is led, call for further investigation and description. What is actually the structure and the frames for development work conducted? The problem formulation pursued in this article is the following:

*How do teachers experience participation in a developmental work research project designed by researchers within the frame of CHAT?*

The purpose of the study was to investigate how the teachers perceived being participants in the development work designed by the researchers. First, the theoretical framework and related research are presented. Next, the methodological approach and methods are outlined, followed by a presentation of the development work and the teachers' experiences of it. Thereafter, the findings are analyzed and discussed, before some concluding reflections end the article.

## Theoretical framework

### Cultural historical activity theory

The research study was, as mentioned, conducted within the framework of CHAT, developed from Vygotsky's thoughts and ideas (Engeström, 1999). Human beings are perceived as being active

learners, and language is an important mediating artefact in the learning processes. Language is seen as the tool above all tools (Vygotsky, 2000). Whereas Vygotsky focused on the individual as the unit of analyses, Leont'ev developed CHAT and emphasized the division of labor between individuals and collective development and learning acting on the object (Wertsch, 1981). Leont'ev (1978) wrote: "[ ] The object of the activity is twofold: first, in its independent existence as subordinating to itself and transforming the activity of the subject, second; as an image of the object, as product of its property of psychological reflection that is realized as an activity of the subject" (p. 52). The object may thus be both material and ideal (Cole, 1996). To exemplify, the object could be a lump of clay and its properties that you are attempting to shape into a nice vase, or the object could be a teacher team developing their professional digital competence, but within the frame they themselves have defined by constructing a development question based on their needs. Leont'ev (1981) stated that 'the object is the true motive' (p. 59), meaning that motivation is embedded in the object or the overall goal of the work. Thus, the teachers' motivation should be built into the object so that the object would become "invested with meaning and motivating power" (Sannino et al., 2016, p. 602).

In CHAT, Developmental Work Research (DWR), meaning that development and research go hand in hand, is defined as a formative intervention method. DWR can promote positive change in practices using a participatory, collaborative design (Virkkunen and Newnham, 2013). The role of researchers as formative interventionist researchers is to provoke and sustain an extensive transformation process that is led and owned by leaders and teachers (Engeström and Sannino, 2010), meaning that the starting point must be the needs of practitioners. The potential of CHAT-informed DWR is that the tools of daily work and the tools of analysis are brought together with the aim of opening a new horizon for constructions of the future. The concept of expansive learning is central in DWR and is related to creative processes, indicating that teachers in a collective community can see possibilities and create something new 'that is not yet there' (Engeström and Sannino, 2010, p. 2).

### Professional learning communities

Stoll et al. (2006) have identified six key features of PLCs. The first one is "shared values and vision" that provide the teachers with a sense of purpose and an object to act on, to use the concept from CHAT. The second is collective responsibility stating a commitment and a shared responsibility for the students' learning. The third feature is about reflective professional inquiry, meaning that the teachers are engaged in a joint reflection to share and generate knowledge. The fourth feature focuses on collaboration that emphasizes joint work beyond superficial exchanges of experiences and meanings. The fifth feature is about group and individual learning through meaningful interaction. The last and sixth feature focuses on trust and respect among the members of the community. All these features constitute the overall aim for a PLC.

Shortland (2010) suggests some conditions of peer observation programmes that can enhance the provision and usefulness of feedback. First, the participants should get training that prepares them to discuss interpretations of feedback in an empathetic and constructive manner, second, the right of teachers to choose their observers, third, to use a checklist to guide observation and feedback,

and fourth: conducting pre-observation briefing to determine the development objectives of the teachers' plan for the lesson that should be observed.

## Related research

Research shows that facilitation processes are a key factor for the effectiveness and sustainability of PLC (Marsh et al., 2015). The first role of the facilitator is to coordinate group activities, scheduling and planning meetings, locating resources, and keeping the group focused on task. The second role relates to the support of community building, making sure that everyone has the opportunity to participate, develop a common language and norms for communication, and contribute to the development of mutual trust and development (McLaughlin and Talbert, 2006; Margalef and Pareja Roblin, 2016). However, research also states that teachers do not challenge each other in collaboration processes (Junge, 2012; Mercer, 2004) but is in the land of nice when interacting about teaching (City et al., 2010). According to McLaughlin and Talbert (2006) PLC facilitators should have the role to both create conditions for learning and support learning. Thus, the third role consists of supporting teachers learning, focusing on problems in practice, providing feedback, and stimulating reflection and inquiry. The intention is that the team members should take on the roles of leading the PLC community themselves. Nelson and Slavit (2008) argue that facilitators should promote leadership capabilities of the team members to guarantee the sustainability of the PLC.

Research findings show that peer observation of teaching can create professional learning communities, promote the professional development of teachers, and increase reflection about teaching practices (Mouraz and Ferreira, 2021; Nguyen, 2020). Furthermore, research findings show that peer observation encourages collaboration in a situated learning context and reduces teacher isolation (Svendsen, 2017). Mouraz et al. (2023) have conducted research on an implemented peer observation programme of teaching, focusing on pedagogical aspects and teacher-pupil interaction, thus having a multidisciplinary aspect. The research shows that teachers saw qualities in colleges that they had not recognized before, and the opportunity for observation and joint reflection allowed the teachers to identify needs for change and to improve their practice. According to Flores et al. (2024) a collaborative culture and collective agency are predictive factors for teachers transferring observed practice to their own classroom.

## Methodology and methods

### The school and the development work conducted

At the 1st to 7th grade school, there are, as mentioned, nine teachers and two leaders: one principal and one middle leader. The school was the first to participate in collaboration between researchers from a university and all the schools in the municipality. During the project initiation phase, in which the school leader and the school owner participated, it was decided to focus on the development of teachers' professional digital

competence and on leaders leading the developmental process, including all teachers at the school. Before the start of the year, the organization of the work throughout the entire school year was planned collaboratively by the principal and the leader of the DWR-project. Eight researchers participated in the DWR-project, and at the beginning of September, they all observed teaching and meetings for a week, collecting mirror data (Cole and Engeström, 2007). The researchers' objective was to gain insights into the school's utilization of digital tools in teaching and the principal's role in guiding the development process, and, furthermore, to bring this understanding into a conversation with the leaders and teachers to develop a joint understanding of the current practice in the school.

At the beginning of the school year, the teachers and leaders had reflected on how they had used digital tools up to that point, conducting historical analyses, as presented in CHAT-informed DWR (Engeström and Sannino, 2010). The leaders led this reflection process. On September 12th, a researcher delivered a lecture to the leaders and teachers on teachers' learning, school development, and ownership for teachers and leaders during their joint meeting. At the end of the lecture, the researcher assigned a task that the teachers needed to complete before their next meeting. This assignment was given to the teachers to make them reflect on the current practice. The task was as follows:

Individual reflection related to your own teaching: What is important to you regarding the topic? This is a written, individual task that you shall share with colleagues in your respective teams.

The intention of this task was for them to start with their individual needs and later develop an object infused by their collective motive, meaning that the development work became "invested with meaning and motivating power" (Sannino et al., 2016). The teachers shared their individual reflections on September 26th. Later, on October 3rd, all the teachers at the school participated in a meeting to create a joint object for the entire school. These meetings were led by the principal. The object developed for the whole school became:

*How can leadership-supported teacher collaboration contribute to learning through the use of digital tools?*

The development question for all grades was initially formulated as follows:

*How can we promote collaborative use of digital tools through apps and programming?*

On October 24th, a researcher delivered a new lecture to the leaders and teachers, this time focusing on teaching observation and communication during the analysis of observed teaching. At the end of the meeting, a new task was presented to the teachers. The task was as follows:

Examine the current situation in your teaching practice by observing it.

This involves gathering information about your current practices through methods such as observation, keeping logs, or other forms of written documentation. The goal is to create a collective description from each team.

This description should elaborate on what the teachers aimed to develop, and they were given four weeks to complete this task.

Throughout the year, four observations followed by joint analyses, referred to as meeting points, were conducted. The first joint analyses were led by a researcher to model how to lead the dialog, and the three next analyses sessions were led by the principal with the intention to develop leadership capabilities to promote sustainability (Nelson & Slavit). The school leader and at least two teachers participated in this process alongside two to four researchers. The first meeting point took place on November 22nd, and the second on January 18th. The school selected the subjects of focus. The next two meeting points were scheduled for March 18th and May 6th, both with a focus on the subject of mathematics.

Before every lesson that should be observed the teachers filled out a form asking for:

- Formulate a focused problem formulation for the teaching within the framework of the development question.
- Briefly describe the objective, and theme and content for the lesson/teaching session with justification.
- What do you want feedback on

The teachers were asked to decide what they wanted feedback on, to help them have some control of the situation, thus creating a secure atmosphere. The teachers could also get feedback on their plans from the researchers, but they did not use that possibility for help.

In early February, the principal facilitated a meeting where teachers had the opportunity to revisit their development question. Specifically, teachers in grades 1 to 4 expressed difficulty in identifying with it and found it challenging to plan teaching within the context of this question. They revised their question and modified it to: *How can digital tools enhance adapted teaching for both students with Norwegian as their first language and those with Norwegian as a second language?*

The structure for the joint analyses based on the observed teaching was as follows:

## Self-analyses

- The teacher who has taught first analyzed the lesson/session based on objectives and implementation.

## Feedback (with justification)

- Leaders and teachers took turns giving one positive feedback. The positive feedback should be linked to a specific action in the teaching.
- Then, there was a round with one or two questions/comments for elaboration or clarification. These questions/comments should be linked to a specific action in the teaching.

## Summary of the lesson/session

- What have we learned? What do we want to take with us/think about further? Everyone takes part.

The structure laid the foundation for the observed teachers to receive both positive and constructive feedback in a friendly manner, thus hopefully moving beyond the boundaries of being just in the 'land of nice' (City et al., 2010). The intention of using the word 'we' was also to place the responsibility for learning on all participants, thereby reducing the pressure likely to be experienced by the teacher being observed.

During the year, the researchers in addition to the two forementioned lectures, conducted presentations focusing on professional digital competence, another focusing on professional learning communities, and a third one modeling a teaching lesson framed by a plan similar to the one that was required from the teachers. The intention of this modeling lesson given by researchers was to help the teachers to develop an understanding of the structured activities initiated.

## Research on the development work

The developmental work was accomplished throughout the entire year at the school, with researchers continuously in contact with the teachers and leaders through team meetings or phone calls to clarify matters or plan upcoming activities. Both the school principal and the researcher leading the project could initiate these dialogs. When a researcher gave a lecture at the school based on the teachers' needs, the other researchers observed the staff and participated in discussions when the staff was asked to reflect on a topic by the lecturer. The researchers' logbooks became a valuable tool for jotting down reflections and preliminary analyses. In this project, where development and research went hand in hand (DWR), the researchers aimed to analyze and understand the situation at the school throughout the entire year. The researchers' planning documents also became essential for describing the processes over the year. However, this material represented an understanding developed from the researchers' perspective. The analyses were intensified when collecting material in a qualitative interview study (Kvale and Brinkmann, 2015) at the end of the school year to gain a deeper understanding of the emic perspective (Wolcott, 2008) and thus the teachers' experiences participating in the developmental work.

## Data collection

Two teachers were interviewed individually, and a focus group interview was conducted with four teachers. This organization was due to the teachers' time schedule, and all grades from 1. -7. were represented, except the 2. grade. In the semi-structured interviews (Kvale and Brinkmann, 2015; Postholm, 2019) the following questions guided the dialogs with the teachers:

- 1 How would you describe this year with the project?
- 2 What factors do you believe have contributed to your sense of ownership (or lack thereof) in the project?
- 3 How would you describe the process of developing the research question (5–7, 1–4)?
- 4 What way do you feel that the work is based on the development needs you have in teaching?
- 5 How have the staff at the school worked on the project throughout the school year?

- What do you think about having a focused problem formulation for the observed lessons?
- What do you think about the structure for the joint analyses of the observed teaching?

- 6 What impact has the development work had on the professional learning community at the school?
- 7 What impact do you feel the development work has had on your own teaching, and what have you learned and taken with you?
- 8 If we return to the school in half a year, would we recognize the work then?"

The interviews were audio recorded and transcribed verbatim afterwards.

## Data analyses

With continuous and preliminary analyses throughout the DWR-project, an anticipation that structure was important for the teachers, both during observations and the joint analyses following these observations, was developed. Thus, during the analyses for the research question posed in this article the focus was on the structure of the DWR-project. The constant comparative method of analyses and open coding (Strauss and Corbin, 1998; Corbin and Strauss, 2008) was used to analyze the interview to understand the teachers' experiences when it came to how the DWR-project was organized. With the ongoing and preliminary analyses in the background and the transcriptions in the foreground, the analyses continued. On the right hand side of the transcriptions of the interview codes such as the following were written during the open coding phase: "difficult development question," "revising it," "developed ownership," "more focused," "stick to the case," "more in depth," "thinking more of why," "meta-gaze on own teaching," "dare to ask critical questions," "structure important," "everyone has a voice" easier to assess our goals," "conducting research." Text blocks that had got labels related to each other were gathered under more abstract headings condensing the data material into main categories. The main categories that were developed from the data material with the help of the open coding process became: From "Chaos to direction and focus," "Important to focus the observations," "The importance of a structured approach during joint analysis sessions," and "Experiences and learning from the structured development work." The developed categories organize the presentation of the teachers' experiences from participation in the DWR-project.

## Quality and ethics

Quality of the research was ensured by using member checking (Lincoln and Guba, 1985), which means that all participants read the presentations of the findings and found them accurate. The study was based on informed consent, as the participants signed a consent form. Moreover, as the article complied with the ethical principle of keeping participants anonymous (NESH, 2020), all the persons referred to in the text were given fictitious names to avoid recognition.

In the following, the teachers' experiences of the project, as expressed and understood from the interviews, are presented.

## Findings about the teachers' experiences

### From chaos to direction and focus

At the beginning of the year, some teachers encountered difficulties with the development question they had formulated. Certain teachers in grades 1 to 4 felt uncomfortable with this question and believed they could not plan teaching lessons within the frame of it. One of them said: "We had not quite grasped what to, we did not know where we were going." They had worked on this development question during the autumn semester, but in February they got the opportunity to revise it. "Then it became really good," one of them uttered, and another stated: "It was crucial that they were allowed to revise the development question, as this helped us develop a sense of ownership over the work and became interested because we received something back in our everyday work."

### Important to focus the observations

The principal had posted on the walls in the teachers' workspaces what they should prepare for lessons that would be observed. The teachers perceived that they managed to keep to one theme when having a focused problem formulation for their observations. Then it does not skip, we stick to the topic," we go more in depth, we do not touch everything, one of them said. Another added: "It is easier to assess whether we have achieved the lesson goal if we have a clearly defined problem formulation for our lessons."

### The importance of a structured approach during joint analysis sessions

The teachers believed that the structure made them challenge each other in their joint analyses of observed teaching lessons. One of them uttered: "We dare to say more, and we realize that everyone has a voice. I can be afraid of taking up too much space, and in that context, the structure is important." They said that they had not dared to challenge each other about teaching before. One of them uttered: "They have wrapped up and supported each other, but now they are forced to say something." The structure of the joint analyses sessions was also posted on the walls in the teachers' workspaces, and it helped them because they were a little bit uncertain of what to do in the beginning. Another teacher had a clear opinion of this structure, saying:

Oh, I really like that. Because it requires something from everyone, and then you have to, you have to contribute something. And if you do not have the structure, well, in all contexts, you know that it might happen that someone takes over completely, everything [laughs a little]. And it does not necessarily have to be that the person who talks the most has the most to contribute either. But it makes everyone think and participate. And I think that's important for the observer as well. Then you get different feedback, not just from one person. And that kind of structure, well, it has definitely been useful in my opinion.

## Experiences and learning from the structured development work

The teachers told that initially they were anxious about conducting lessons that would be observed, but after this year, they want to continue with observations and joint analysis of observed lessons. They now believe that they think more about why they initiate activities in their teaching. They also mention that previously, they were not as focused on the pupils' learning but prioritized creating an enjoyable experience using digital tools. They now consider the added value of using digital tools. One of the teachers said: "Now we have an eagles' eye on our own teaching and think about its purpose." They also dare to ask challenging questions to each other. They realized that the development work had influenced how they discuss teaching. One of them said:

We dare to challenge each other in a professional manner. I do this as your colleague, not as your friend. We distinguish between the personal and the professional, and we all understand what we are aiming for.

Another teacher uttered:

We have become better at justifying what we do, generally in all subjects. It's likely related to our use of research methods and approaches. It's not something we have discussed extensively or used much before. Now, we have formulated development questions and focused problem questions for observed lessons. We've been quite research-oriented in much of what we've done, which may also be why we've become more reflective.

And another teacher added: "We need to have a joint object if we are going to develop together. I appreciate the systematization, and I believe we are on our way to achieving collective development at the school." All of them stated that they want to continue with observations and joint analyses, but they realized that the principle must find time and create a structured plan for further development work.

## Analyses and discussion

The purpose of this study was to understand how the teachers experienced being participants in the DWR-project. According to [Lim and Lee \(2014\)](#), learning arrangements for teachers in schools are shifting to a need-driven model, as was also the case in this study. The object construction and the development questions formed during the first months eventually resulted in focuses that the teachers found meaningful and could identify with. The study shows that the development of ownership can take more than six months, and that a discrepancy between needs and the words forming a development question became obvious when words had to be translated into concrete practice. They could not plan teaching lesson within the frame of it, but after the revision it became "invested with meaning and motivating power" ([Sannino et al., 2016](#), 602). The object became the joint motive and the driving force for the work ([Leont'ev, 1981](#)), because the teachers had managed to put their needs into words in a development question that both gave direction for

their actions and which they also acted on. It was both ideal and material ([Cole, 1996](#)). They had developed a shared vision as [Stoll et al. \(2006\)](#) identify as a key feature for PLCs.

The role of researchers as formative interventionist researchers is to provoke and sustain an extensive transformation process that is led and owned by leaders and teachers ([Engeström and Sannino, 2010](#)), meaning that the starting point must be the needs of practitioners. The leader of the DWR-project and the principal organized the work in the start-up phase, requiring the teachers to conduct assignments including both to reflect on and observe their own practice to become aware of it and their needs for development. This followed CHAT and its focus on history and what they were doing to manage to develop something new that is not yet there ([Engeström and Sannino, 2010](#)). This study confirms other studies that state the start-up phase is the foundation for further development ([Postholm, 2008, 2020](#)). However, this study also describes how the processes leading to joint focuses can be arranged.

The starting point and focus for the development work was the teachers' practice together with the pupils. The teachers received a form to fill out when planning lessons that were to be observed. They were also required to formulate a focused problem statement for the lesson within the framework of the development question and describe what they wanted feedback on. It is evident that they found the structure of this planning document useful, as they managed to stick to one theme during the joint analyses afterwards, allowing for more in-depth reflection rather than discussing everything. With this structure, they were able to engage in joint reflection to share and generate knowledge ([Stoll et al., 2006](#)), within a defined focus. The structured planning document helped them stay organized during the observation task ([McLaughlin and Talbert, 2006](#); [Margalef and Pareja Roblin, 2016](#)), and it also assisted them in analysing afterwards whether they had achieved the lesson goal.

The following joint analyses after an observed teaching lesson was led by the principal, that also had observed the lessons. However, the first meeting point was led by the leader of the project to model how to conduct these joint analyses. [Horn and Kane \(2015\)](#) and [Marsh et al. \(2015\)](#) state that lesson experimentation in the classroom, along with observation and reflection, are new ways of learning in schools, and that schools can benefit from external support during these processes. According to [McLaughlin and Talbert \(2006\)](#) and [Margalef and Pareja Roblin \(2016\)](#) facilitators should make sure that everyone can participate and support the development of a common language and norms for communication. As previously described, these analysing sessions were clearly structured, and the structure developed was based on research stating that teachers do not challenge each other in collaboration processes ([Junge, 2012](#); [Mercer, 2004](#)) but find themselves in the land of nice when interacting about teaching ([City et al., 2010](#)). The current study shows that the structure of the analyses encouraged the teachers to challenge each other. They dared to say more, meaning they went more in-depth in their feedback to each other, making their collaboration meaningful ([Little, 1990](#)). They felt that the structure both compelled them to contribute and ensured that some were more concise than they might otherwise be, preventing any one person from dominating the analyses. It also helped them initially that the structure for the analyses was displayed on the walls in their workplaces by the principal, as they were somewhat uncertain about how to proceed in the dialogs. A teacher also mentioned that by following the structure of the dialogs, they

received diverse feedback, not just from one person, indicating that they recognized qualities in every colleague (Mouraz et al., 2023). Thus, the structure of the dialogs can promote teachers' professional development and enhance their reflection on teaching (Mouraz and Ferreira, 2021; Nguyen, 2020).

The observation of teaching lessons and the subsequent joint analyses have clearly fostered an atmosphere of trust and respect among the teachers and between the teachers and the leader, which is identified as a key feature of a PLC (Stoll et al., 2006). Initially, the teachers were anxious about participating in this activity, but by the end of the year, they expressed a desire to continue on their own. When teachers trust each other, they will support one another in collaboration and reflective dialogs, and they will deprivatise their own practice, sharing it with others and learning together (Svendsen, 2017). The teachers received training on how to give and receive feedback (Shortland, 2010), and they had a structured approach to follow that helped them stay focused in their feedback and challenge each other in a professional manner. The joint analyses also made them think more about the purpose of their teaching and consider the added value of using digital tools. Thus, the observation of teaching and joint analyses became promising for their own learning and pedagogical knowledge competence, as stated by Kvam (2018), and this was true for all subjects, according to the teachers. This finding confirms previous research stating that PLCs can increase both teachers' disciplinary and pedagogical content knowledge (Dogan et al., 2015). The teachers believed that they had become more research-oriented and that being more focused had helped them to be more reflective. They felt that having a joint object to act on was the reason they were on their way to achieving collective development at the school; the object had become "the true motive" (Leont'ev, 1981, p. 59). The collaborative culture can also predict that teachers will transfer practices they have observed to their own classrooms, thus leading to the improvement of teaching (Flores et al., 2024).

## Concluding reflections, limitation, and future research

Research focusing on teachers' professional development and PLCs emphasizes the importance of organizational conditions, social aspects, and faculty trust at schools as prerequisites for development (Wolthuis et al., 2020; Louis, 2007; Vedder-Weiss et al., 2019; Stoll et al., 2006). However, these studies do not illustrate how these factors can be managed during development work supported by external resource persons. The purpose of this study was to illuminate *how* DWR can be organized and led, and to understand *how* these arrangements and leadership processes are perceived by the teachers involved. The study does not confirm that the structure for lesson planning and joint analysis has become part of the school's practice; it is not ingrained or imbedded in the walls, but at least the structure is posted on the wall, and the staff at the school have practiced it and they want to continue. This could indicate that these processes will hopefully become part of the everyday practice in the school in the future. The principal at the school was not just supporting the processes but was actively involved in them. The leader was guiding the joint analyses, thereby developing the leadership capabilities of the leader in their collaborative analyses, which, according to Nelson and Slavit (2008), can lead to a sustainable practice. The teachers also expressed their desire to continue with

observation and joint analyses but noted that the principal must facilitate such practices. The principal at this school has the prerequisites to both create conditions for learning and support the learning processes.

It could be interesting to return to this school after a year to find out if the practice has continued, and if so, how, and if not, why. This study includes just one school, and the findings are not generalizable to other contexts in a traditional way, but the structured processes could be adapted and transferred to similar school contexts through the reader conducting naturalistic generalization (Stake and Trumbull, 1982). Future research could also benefit from focusing more on structured processes, both for the entire project and for individual processes within it, such as observed teaching and joint analyses, to provide more detailed descriptions of how such development work can be led and conducted. It could also be interesting to find out if such structured processes have any negative consequences, and if the structure for, for instance, joint analyses become redundant when teachers trust each other and have developed a collaborative culture that recognizes the qualities in everyone, giving everyone a voice.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by the SIKT <https://sikt.no/kontaktjeneste-alternativ/personvern-meldesjema-skjema-datainnsamling>. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

MP: Writing – original draft.

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## Conflict of interest

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