Supporting small remote school teachers' professional development through networked learning designs

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Abstract

Equal education is a buzzword, but the description of how it will arise differs. Spatial educational inequality is shown in several studies, and one explanation of this is the lack of professional development for teachers in remote schools due to the distance to peers. In the small remote schools, the teachers are few, and they are often solitary teachers, according to grade and subject. Therefore, the networked learning design needs to be adapted to these unique conditions. In this study, networked learning is put in the context of rural education, more specifically in relation to teachers' professional development. In rural and remote schools, networked learning designs enabled by digital technologies can afford equal education. The web-based professional development could compensate for the distance between schools. Therefore, the aim of this study concerns the relationship between networked learning designs and the professional development of teachers in small remote schools. It is guided by the research question: How is networked learning designed and arranged to support teachers' professional development in small remote schools? The sampled data contains transcripts from meetings and interviews from an ethnographic study. The study applied the theory of practice architecture (TPA) to analyse the data. The concepts of *sayings*, *doings*, and *relatings* from TPA provided the analysis to understand the studied practices. In TPA, these concepts and practices all 'hang together' in a *project*. The project in the studied practices is professional development. The preliminary findings show the networks emerge in the district of several small remote schools and are arranged in two different networked learning designs. One is meetings in real life, with time-consuming travels, but a networked learning design with many social aspects embracing time for dinner and visiting different schools. This design enabled sensemaking, an important process in remote areas, including meetings adapted to the sense of place. The other networked learning design for professional development in the district was web-based meetings, including fewer social arrangements but a higher frequency of meetings. When this meeting was combined with real-life meetings it worked well and enabled sayings, doings, and relatings in the professional development practice.

Research Context

In the Swedish context, schools in remote areas are small, and only a few teachers work in each unit. Within a bigger geographical area, several remote schools form a head teacher district. Usually, the head teacher only occasionally visits the schools in the district (Lund, 2022). In the district, the head teacher has the main responsibility to provide conditions for professional development for teachers in these schools. Moreover, according to this and legislation emphasising head teachers' responsibility for districts with several schools (Lund, 2023; Lund & Karlberg-Granlund, 2023). The head teacher as an autonomy, by law, should provide opportunities for teachers' professional development including designing different arrangements for professional development (Lund, 2023; Lund & Karlberg-Granlund, 2023).

Introducing networked learning designs is a possibility for head teachers to enable professional development for teachers working in remote schools. Networked learning is suitable due to its promise to recognise critical and emancipatory educational issues; in other words, equity and social justice are important to support from a networked learning perspective (Littlejohn, Jaldemark, Vrieling-Teunter, & Nijland, 2019; Networked Learning Editorial Collective, et al., 2021). Moreover, networked learning also links to the professional development of teachers in remote schools while it focuses on practices and social interplay, including collaborative engagement and human/interpersonal relationships enabled by digital technologies (Herbert, Campbell & Loong, 2016; McLean, Verenikina & Dixon, 2015). The aim of this study concerns the relationship between networked learning designs and the professional development of teachers in small remote schools. It is guided by the research

question: How is networked learning designed and arranged to support teachers' professional development in small remote schools?

From earlier studies, several conditions and issues have an impact on the networked learning design and arranging for professional development in these remote schools. An important condition is that remote communities provide a capacity to afford strong social capital for, and with, their teachers (Falk & Kilpatrick, 2000). This includes teachers developing relationships with a high percentage of the residents in these remote communities. The number of relationships also set particular conditions for teachers working in remote schools (Lind & Stjernström, 2015; Lund, 2023; Lund & Karlberg-Granlund, 2023; Muijs, 2015).

One of these conditions is that teacher education has become more oriented towards subject specialists. Therefore, school units need to employ authorised teachers in each subject. This implies that some teachers have a peripatetic workplace (Lund & Karlberg-Granlund, 2023; Skolinspektionen, 2015). This peripatetic workplace could constrain the teachers' retention. In earlier studies, networked learning has proven to enable the retention and recruitment of teachers to schools in remote areas (Kaden, Patterson, Healy, & Adams, 2016).

A second condition is to recruit authorised teachers to remote schools (Skolinspektionen, 2009). Professional development supported by networked learning designs is particularly important for small schools while there is a risk that the low number of professionals impedes the development of teachers' work, e.g., practical doings that afford learning for their students (Skolinspektionen, 2011). The design of teacher education suits larger schools that employ enough teachers to reach a critical mass that can uphold the professional development of the subject. However, it is ill-suited to support professional development in remote schools with few teachers.

A third condition that differentiates the Swedish context from many educational systems is the open school market. In order to motivate higher quality in schools, the headship of the schools was decentralised in 1992 (Jarl, 2013). The funding system in Swedish education is organised as a voucher system (Brandén & Bygren, 2022). The voucher system strikes hard in remote areas. In times of economic-driven education, schools in remote areas must struggle for their existence (Knutas, 2017).

Methodological Framework

This study analyses data from a study of leadership and networked learning design in geographical periphery (Lund, 2023). It was an ethnographic study that embraced participatory observations and interviews in three small remote schools in Sweden. Participating observation was made in a total of three weeks in each school, and all observations were made during one year. The participating observation was in the schools during teaching, parent meetings, professional learning, and meetings with head teachers, community members, and companies. All meetings and interviews were audiotaped. The sample was made according to the schools' location (in remote areas), school size (no more than three teachers), and workforce (experienced and resilient teachers). The current study includes data sampled from two of these schools due to their way of building networked learning. The third school, also part of the first ethnographic study, had no fruitful networked learning in the head teacher's district. The interviews contain two group interviews with a total of five teachers and interviews with two head teachers. The data used in the presented study enables an understanding of how networks for professional development are arranged in the head teacher district. Therefore, this study builds on field notes and transcripts from observations of meetings with teachers. Further, interview transcripts are added where teachers and head teachers describe their experiences of participating in professional development meetings and how these meetings enable or constrain networking and networked learning.

The theory of practice architecture is applied in analysing the professional development of the sampled teachers. In the theory of practice architecture, practice is focused on where sayings, doings, and relatings hang together for the purpose, also referred to as the project, of the practice (Kemmis, 2021). Kemmis (2021) states 'practices are the principal means by which individuals participate in the world cognitively, materially, and socially, that is in their being and their happening' (p. 283). The cognitive aspects of individuals participation in practices are showed in their sayings, the materially is showed in their doings and the socially is showed in their relatings. Kemmis (2021) continues to problematise the definition of learning emphasising that 'learning is a process of coming to practise differently' (p. 289). Therefore, learning is not only the acquisition of knowledge, but also a part of the happening in sites. Kemmis (2021) refers to Lave (2019) who argue that learning could be understood as an ontological transformation, for both learners and practice. Applying the theory of practice architecture to analyse networked learning designs recognises the importance of cognitive, material, and social aspects.

Preliminary Findings

The findings are organised as two networked learning design narratives and a common analysis. Both these design narratives have their sites in small villages in remote Sweden. These villages are surrounded by mountains and are located far away from the municipality seat. The small schools in these villages are located at least a one-hour drive from the nearest school, two hours to the municipality seat, and about 500 km to the nearest university. The small remote schools are organised in head teacher districts with other schools of equal size. Digital technologies, including web-based meetings, enable the first design narrative. Physical meetings mainly enable the second design narrative.

Digitally Enabled Networked Learning Design: Web-based meetings
The teachers met regularly for two hours every second week in the digitally enabled networked learning design. They gathered in one classroom and joined the web-based meeting. They used the big screen on the wall to see everyone in the meeting. A camera on the wall also displays them to participants from other schools. They turned off the light in the classroom ceiling to get a better view of other teachers, but the effect is also that other teachers' views are constrained: they became silhouettes. This leads to difficulties concerning jokes that get misunderstood when they don't see the gestures or mimics. In the meeting, four sites are connected, one from each of the three schools and a fourth includes a teacher being home due to her sick leave. They have all prepared for this meeting by testing a teaching strategy in their classes. They have one hour to meet, but there is some problem with the meeting software, so they change and get a 30-minute meeting. All participating teachers reflect on the teaching strategy, and the meeting is effective. After the meeting, the teachers explained their gratitude for the digital design. 'Instead of wasting all these hours in a car, this is gold! When it works, but it often does' (quote from participating observation). This last sentence was added due to their struggle to join the meeting with full sound this very meeting. The teachers explain the frequency of these meetings as essential for their learning. If they weren't able to meet in web-based video conferences, they had to solve everything by themselves. There are only two teachers at the school, and they have visits from the head teacher once every second week.
With the departure from a practice that entitles sayings, doings, and relatings that hang together with a project, the following text will explain each of these units of the practice. Sayings in the practice are developed over time. The teachers challenge cognition, and the sayings change over time. The teachers also share their doings by preparing for the meeting, connecting to the meeting, discussing their understanding of concepts, and trying new things in their teaching afterwards. According to the relatings, the teachers have a hard time to relate to each other and each other's schools. They do relate to the text they have been reading, so they come to practice with a form of understanding. The digitally enabled networked learning design of the web-based meetings is emphasised by teachers as important. The recurring meetings led to the formation of a network that the teachers in these small remote schools emphasised as essential. The networked design counteracted professional development problems related to teachers being the lone professionals in their school in both the subjects and the grades they teach.

Physically Enabled Networked Learning Design: Dinner Meetings
In the physically enabled networked learning design of the dinner meetings, teachers go by car to another school to meet other teachers from their head teacher district. It could be a two-hour drive one way to the school where the meeting occurs. The teachers leave their pupils a bit earlier on the day they are going to the dinner meeting, and in the car, a practice is established by listening to another teacher who read the text they were supposed to read before the meeting. While travelling, they also allocate time to discuss the text and put it in relation to their everyday practices. By arriving at the host school for the dinner meeting, they greet teachers from other schools with hugs and chit-chat. On their way to the school building, they have already started the meeting according to relatings. One teacher stated: 'anyway, we are so incredibly grateful to meet each other like this sometimes. We are so small and lonely otherwise' (quote from participating observation). The experience of loneliness and the importance of the network for learning seems central for all the teachers and is repeated often in their sayings. The teachers problematise the distance to go by car every time they meet and state that now, when they have met several times in each school, they could meet in web-based video conferences instead. But they are worried that the other schools in the district will meet in person and only they, in the smallest school with the longest way to travel, are going to connect on the web.
The sayings in this physically enabled networked learning design are similar to web-based meetings. The doings are time-consuming, and the teachers sometimes say it would be better to use web-based meetings to save time. As every school in the head teacher district hosts dinner meetings twice a year, all teachers visit all schools and can relate to the different schools in the conversation. The dinner meeting is more time-consuming than web-based meetings. Still, the teachers in rural areas are dependent on relationships with colleagues from further away

than urban teachers, and to relate to each other is afforded by dinner meetings. The teachers describe how important real-life meetings are. They also mentioned that digitally enabled networked learning design could work well now when they know each other better, but only if everyone meets in the web-based meeting, not a hybrid with only them, the smallest and most remote school, online.

Conclusions and Further Directions

Networked learning designs for the professional development of teachers in small remote schools are important. Nevertheless, the two different arrangements both enable and constrain practices. The digitally enabled networked learning design, including web-based meetings, enabled teachers to meet in the district rather often, and it is not perceived as time-consuming. Nevertheless, it constrains relations between teachers and the teacher's possibility to relate to each other's teaching practices. On the other hand, the physically enabled networked learning design, including dinner meetings, is more time-consuming, and the teachers do not meet as often as in web-based meetings. Sayings and doings are similar in the two networked learning design practices, but the relatings differ. Future relevant studies are longitudinal studies of small remote school teachers' professional development. This study identified some differences that emerged after teachers visited each other's schools, but how this continued is not noticed. In addition, it would be interesting to study other professional development practices, such as those that emerge through social media.

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5