



## ARTICLE

### Remote consultation between special educators and teachers in rural schools in Sweden

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DOI Number: <https://doi.org/10.26203/sf9h-jm93>

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**To cite this article:** Pettersson, G. and Ström, K. (2020). Remote consultation between special educators and teachers in rural schools in Sweden. *Education in the North*, 27(2) pp. 56-72.



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## **Remote consultation between special educators and teachers in rural schools in Sweden**

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### **Abstract**

Rural schools in Sweden exist in sparsely populated areas. The schools face a number of challenges; financial, pedagogical, competence-related etc. Mostly special educational expertise is lacking, challenging the principle of equal access to educational support. Special educators placed in community centres have long distances to rural schools. One way of overcoming the distance is to use communication technology for special educational consultation. Remote consultation between special educators and teachers in rural schools is a type of digital innovation in special needs education provision. Special educators working in a rural municipality in Northern Sweden tried out remote consultation by using communication technology. The aim of the study is to contribute to increased knowledge of how special educators implement remote special educational consultation to rural teachers with communication technology as a tool. The empirical data consist of recordings of consultation sessions between special educators and rural teachers. The findings show that the special educators carry out and enable remote consultation by using several strategies; preparing consultation, getting familiar with technology and making use of context related knowledge, observation data and professional competence. The findings indicate that remote consultation with communication technology is a promising strategy for special educational consultation for rural schools.

Keywords: educational consultation; equal conditions; rural education; special needs education; teleconsultation

## Introduction

There is an unequal relationship between urban and rural areas in many countries. Sweden is no exception. For example, population movements from rural to urban areas, which lead to reduced population in rural areas, cause structural changes and lower tax revenues in rural municipalities (Solstad, 2009). These relocations and reduced revenues in rural municipalities often lead to decreased services and even school closures (Cedering, 2016; Dowling, 2009; Pettersson, Ström & Johansen, 2016). One challenge for Swedish rural schools is to ensure access to equal and high-quality education for all students (Jobér, 2015), especially for students who require special needs education (SNE) temporarily or on a regular basis (Pettersson & Ström, 2019). Special educators are usually located in municipality centres and have long commuting distances to rural schools, which might reduce their ability to provide professional support in the form of educational consultation to teachers who work in remote schools (Berry, Petrin, Gravelle, & Farmer, 2011; Pettersson, 2017; Pettersson & Ström, 2019). Educational consultation in the context of SNE, called special educational consultation, is a kind of indirect support for students with various learning challenges that special educators provide (Idol, Paolucci-Whitcomb & Nevin, 1995). A lack of support might endanger equality in education and place rural areas in an even more unfavourable situation.

One way of overcoming and bridging the gap between support needs of students and support provision to teachers in rural schools is to enable access to special educators' expertise by providing special educational consultation with communication technology (Pettersson & Ström, 2019). Few studies report findings on the use of communication technology in the context of SNE (i.e. Butcher & Riggelman, 2018; Ihorn & Arora, 2018; Rule *et al.*, 2006; Saggars *et al.*, 2019) and studies in the Swedish context are lacking. Moreover, most of the existing studies on communication technology use for supporting students with special educational needs (SEN) focus on school psychologists or multi-professional teams (i.e. Bice-Urbach *et al.*, Fischer *et al.*, 2018; Saggars *et al.*, 2019). Research on special educators' consultation (special educational consultation) with communication technology seems to be lacking.

The advancement of communication technologies has enabled service provision and support to remote regions, initially in the context of health disciplines but gradually spreading to the field of education, and particularly, to school consultation (Fischer *et al.*, 2018). Frequent concepts of communication technology use in school related consultation activities are tele-classroom consultation (Saggars *et al.*, 2019) technology-mediated consultation (Rule *et al.*, 2006), teleconsultation (Bice-Urbach *et al.*, 2018; Fischer *et al.*, 2018; Ihorn & Arora, 2018), teleconferencing (Butcher & Riggelman, 2018), e-mentoring (Shpiegelman *et al.*, 2008) and remote school consultation (Schultz *et al.*, 2018). We have chosen to use the concept remote special educational consultation to describe the phenomenon in which we are interested: special educational consultation in rural schools. In this study, we define remote special educational consultation as special educators' provision of consultation services to teachers who work in rural schools using telecommunication technologies. Bice-Urbach *et al.* (2018) define teleconsultation in a similar way; teleconsultation is the provision of consultation services using telecommunication technologies.

This study is a part of a larger development and research project (2017-2020), conducted by Swedish university researchers together with practitioners. The overarching aim of the project is to develop digital innovations for special educational consultation in rural schools. Within the project, special educators who work in the centre of a municipality in Northern Sweden utilized communication technology as a tool for consultation. In the present study, we report findings from the first project year (2017-2018). The aim of the study is to contribute to increased knowledge of how special educators implement remote special educational consultation to rural teachers with communication technology as a tool. We seek to answer the following research question: *How do special educators carry out and enable remote special educational consultation?*

### Rural areas and Rural Schools

Understanding rural schools and their characteristics includes understanding the context: the community of the rural school (Bæck, 2015; Dowling, 2009; Hargreaves, 2009; Howley, 2004; Monk, 2007). However, there is neither a uniform international definition (Kimonen & Nevalainen, 2013) nor a Swedish national definition (Pettersson, 2017) of the concepts rural area and rural schools. Swedish authorities have adopted varying definitions of the two concepts (Table 1).

Table 1 Swedish authorities' definitions of rural areas and rural schools.

Authority	Definition of rural areas	Definition of rural schools
Growth Agency [Tillväxtverket]	Minimum 45 minutes by car to the nearest community/town with more than 3000 inhabitants	A rural school with a maximum of 50 pupils aged between 6 and 13 years
Statistics Sweden	What is not an urban area is rural - urban areas have a maximum of 200 meters between the houses and more than 200 inhabitants	Definition not available
Municipalities and regions of Sweden [Sveriges kommuner och regioner]	Municipality with less than 7 inhabitants per km <sup>2</sup> and less than 20 000 inhabitants	Definition not available

The Growth Agency is the only Swedish state authority that defines, in a numerical way, a rural area and rural school. However, numerical data only partly characterize a rural school, as the numerical data vary over time (Pettersson, 2017; Åberg-Bengtsson, 2009). This indicates that the number of students is not the sole criterion. However, when researchers use the number of students in rural schools as a criterion, the rural school context can be misleading. For example, a rural school in the US may have 350 students (Anderson, 2010), while a Scottish or British rural school rarely has more than 120

students (Hargreaves, 2009; Wilson & McPake, 1998). Rural schools are part of different rural contexts in different countries (Anderson, 2010; Kimonen & Nevalainen, 2013), which renders international comparisons difficult for both organizations and researchers in the rural education field. Transferring the findings from rural school research between two countries is difficult. However, comparisons within countries are possible. A study of SNE in 58 rural schools in Sweden concluded that certain characteristics are representative of rural Swedish schools (Pettersson, 2017).

Rural schools are *geographically* located in isolated mountain, inland, coastal or island regions. *Demographically*, rural schools are located in sparsely populated communities. Depending on the geographical conditions, the distances to the municipality centres vary, but rural schools are always peripherally located in relation to the municipality centre. A typical Swedish rural school has between 33 students and 55 students (statistical characteristic). On average, these schools employ 3.7 class teachers and educate student groups that are characterised by great variation. The pedagogical characteristic is that teaching occurs in age-mixed groups by teachers who teach several courses in parallel. The rural school environment is calm and safe. The learning environment is characterised by social coexistence, well-being and good relations established via well-functioning cooperation between school stakeholders (social characteristic). Rural schools have a significant position in their respective communities (contextual characteristic) but mostly have poor finances (economical characteristic). The competence related characteristic indicates that Swedish rural schools usually have qualified class teachers and that most schools have access to a teacher with special educational competence but not on a regular basis. A special educator is usually located in the municipality centre, with a long commuting distance from a stationary workplace to a rural school. This fact together with characteristics above place challenges on rural schools' possibilities to provide special educational support for students with SEN.

### **Applying communication technologies for rural schools**

Swedish policymakers have shown interest in how technology and computers could be applied to school development and teaching (From, Pettersson & Pettersson, 2020). Parallel to the overall digitalization of schools, teaching practices that require access to digital technology are often rooted in schools' needs and aim to provide students and teachers with equal conditions regardless of a school's geographical location (Pettersson, 2009; Stenman & Pettersson, 2020). Some of Sweden's rural municipalities have encountered problems complying with the legal requirements imposed on education, a fact that has increased the interest for digital solutions (Pettersson, 2009; Pettersson & Olofsson, 2019). Teachers use digital technologies mainly for teaching and instruction (From & Pettersson, 2018; From, Pettersson & Pettersson, 2020, but researchers also point at other applications of digital technology, for example, for remote special educational consultation (Pettersson & Ström, 2017).

Internationally, remote school consultation is a relatively recent phenomenon. According to Fischer *et al.* (2018), remote consultation in school settings appeared in empirical literature in 2009. The first empirical studies with a SNE focus addressed behavior assessment and intervention. The results were promising and paved the way for further studies, which provided evidence for remote consultation as a

promising modality to provide access to specialized consultative services for individuals who live in underserved and remote areas (Fischer *et al.*, 2018). Effectively applying remote consultation, schools and special educators must have access to equipment, software, and reliable internet connections and networks (Bice-Urbach *et al.*, 2018). Bice-Urbach *et al.* further claim that issues regarding privacy and confidentiality must be taken into account when schools make decisions about the implementation of technology.

Researchers have observed several benefits with remote consultation. Remote consultation seems to be an option for overcoming challenges regarding service production in underserved areas, such as rural and remote areas (Butcher & Riggleman, 2018; Ihorn *et al.*, 2018). Ihorn *et al.* further claim that remote consultation increases access to educational opportunities while addressing the needs of underserved populations. Moreover, remote consultation is cost-effective as it reduces travel time for consultants (Bice-Urbach *et al.*, 2018; Schultz *et al.*, 2018). In a case study of remote team-consultation in Australia, Siggers *et al.* (2019) discovered that remote consultation on a regular basis contributed to increased capacity building in remote schools compared to the “fly-in” consultation model. However, there are also concerns and limitations in remote consultation. Although a lack of personal contact can be concerning (Bice-Urbach *et al.*, 2018), most reported concerns seem to relate to the reliability of current communication technology, availability of support staff and communication technology familiarity among users (Bice-Urbach *et al.*, 2018; Rule *et al.*, 2006). Remote consultation seems to be a promising tool for SNE provision, most likely for use in rural districts and municipalities with remote schools by teachers who are familiar with communication technology (Schultz *et al.*, 2018).

### **Special educational consultation - a way to support teachers**

According to Swedish policy documents, special educators have a consulting role (Government Offices of Sweden, 2010; SKOLFS, 2014). The policy documents do not specify the character of the consultation in which special educators are supposed to engage. Nevertheless, special educators are required to function as qualified dialogue partners and advisors to teacher colleagues, parents and other stakeholders (SFS, 2011; Sundqvist *et al.*, 2014). There are various ways to conceptualize and approach consultation in the international literature regarding remote consultation. The differences relate to the roles and responsibilities of the consultant and the consultee. In case-centered consultation, the aim is direct professional problem solving, while in consultee-centered consultation, the focus is on giving the consultee tools to solve his or her professional problems (Bice-Urbach *et al.*, 2018). The dominant model in the Swedish context is the consultee-centered model, but a model that focuses on professional collaboration between the consultant and the consultee is gaining popularity (Sundqvist *et al.*, 2014). This collaborative model is internationally prevalent in special educational consultation (Dettmer *et al.*, 2013).

Previous research on special educational consultation in rural schools is sparse, but findings from rural school studies indicate that regular and meaningful support, professional collaboration, collegiality and supportive teacher relationships seem to promote retention and resiliency among teachers who work in rural schools (Castro, Kelly & Shih, 2010; Jarzabkowski, 2003; Malloy & Allen, 2007). Regarding the previously mentioned rural school characteristics, assuming that special educators are crucial to the

professional well-being of rural teachers is reasonable. A previous Swedish study (Pettersson & Ström, 2019) on consultation in rural schools supports this claim. The researchers discovered that teachers highly appreciate the support that they receive from special educators during consultations. The support seems to contribute to the professional growth of rural teachers.

### **The study context**

The context of the study is a rural municipality in a county in northern Sweden. The county consists of urban areas, sparsely populated areas, and very sparsely populated areas (Sweden's Municipalities and County Councils, 2016). The rural municipality is sparsely populated and located in the rural inland. Four of the municipality's schools are rural schools, located in small villages. All four schools are included in the study. During the study, the average number of students in the four rural schools was 15, and the number of teachers varied from one to five teachers. The teachers simultaneously teach student groups of different ages and grades in the same classroom (multi-grade teaching). Each school has access to one special educator, who is responsible for SNE in the school.

### **Method**

In the section below, we describe the empirical study procedures.

#### **Participants and data collection**

The study participants are four special educators who carry out remote special educational consultation sessions using communication technology and their counterparts, four rural teachers. However, the special educators constitute the main informants in this study. The selection was a convenience selection (Bryman, 2015) as the special educators participating in the study worked with the municipalities' four rural schools. The four female special educators had a substantial amount of work experience, from six to 18 years. At the time of the study, the ages of the special educators ranged between 38 years and 63 years. We refer to the special educators as Flora, Lisa, Sally and Sarah (pseudonyms). The teachers are numbered (teachers 1-4).

The data collection took place in the autumn term in 2018. The empirical data consist of 13 audio- and video-recorded consultation sessions. The software used was Screencastify for Google Chrome. The special educators independently recorded four to six authentic consultation sessions with their consultees (the teachers) each, in total 19 sessions. However, six of the recordings were discarded because of problems with the sound quality. Lisa recorded six sessions, of which five could be utilized. In one of the sessions, Lisa collaborated with another special educator (Sarah). Sarah and Flora recorded five sessions each, but only one of Flora's recordings was usable. All of Sarah's recordings had a sufficient sound quality. In Sally's case, three out of her four sessions were usable.

#### **Data processing and analysis**

Prior to the analysis, the recordings were transcribed verbatim. We read the transcripts several times and repeatedly listened to the recordings, during which we took notes, which functioned as memory support and preliminary codes. In the actual analysis phase, the aim was to identify categories that reflect the meaning of data in relation to the research question. We analyzed our data according to the

principles of qualitative content analysis (QCA). QCA is a method used for describing, analyzing and interpreting various types of qualitative data (Graneheim & Lundman, 2004), in our case 13 recordings from consultation sessions. The analysis followed a step-by-step procedure, from defining the unit of analysis to focusing on a certain content area and ending up with creating categories which reflect the manifest and latent meaning of the content in question. As the amount of data was manageable, we conducted the analysis manually. The color-coded text passages in the transcripts including the preliminary codes gradually merged into five categories that answered our research question.

### **Credibility and ethical aspects**

We have throughout the whole research process considered credibility. By systematically describing data collection and analysis procedures, and relating our findings to previous research we have in line with Bryman (2015) tried to make sure that our construction of the study participants' own reality construction is trustworthy and valid. The responsibility for following principles of research ethics has been present throughout the research process (Swedish Research Council (VR), 2013). The present study followed ethical requirements and principles regarding information, consent, confidentiality and use for humanities and social sciences (VR, 2013). The study participants received information by a letter distributed by e-mail. The letter clarified that collected data would be used for scientific publication. In contact with the participants, we made sure that we received the participants' consent and that they were aware that collected data met confidentiality criteria. We also informed the participants that they had the right to withdraw from the study at any time and without notice. The recordings contained confidential and private information about students, but the recordings were used for research purposes only. The recordings were stored on an external hard drive at the university and the access to data was available only for the researchers.

### **Findings**

The analysis procedure resulted in five categories that reflect the research question: 1) Preparing consultation, 2) Getting familiar with technology, 3) Utilizing context-related knowledge, 4) Utilizing observations, and 5) Utilizing professional competence.

### **Preparing consultation**

Prior to the remote consultation, the special educators visited the rural schools they were assigned to work with at the beginning of the autumn term. The special educators conducted the site visits over a two-day period, during which they made systematic observations. The purpose of the observations was to increase the knowledge of the rural schools' learning environment and their capacity to provide SNE. Another aim was to observe how the teachers worked with the students and to identify possible teaching-related challenges. For the observations, the special educators applied an observation protocol, designed by the project researchers in collaboration with the special educators. With the protocol, the special educators gathered data about individual students' learning and behavior challenges. In addition, the special educators documented the school environment, playground, surroundings, community-school relationship etc. The special educators collected individual and contextual data to obtain insights into factors that could be important when assessing the students'



learning challenges and support needs. The gathered data gave background information and served as a basis for the consultation sessions.

The four special educators expressed that the visits and systematic observations gave them new knowledge of teaching-related aspects, which were of use when they planned the consultation sessions. Special educator Lisa's comment to the teacher illustrates this point.

"The school visit and my observations have contributed to a greater insight in your teaching, which facilitates the consultation." (Lisa)

The special educators' site visits and observations also seemed to be important for the teachers. The findings indicate that the teachers appreciate the collaboration and the opportunity to discuss their teaching with another professional. The special educators seem to provide support for the teachers' professional development. This support is apparent in a teacher comment to Sally.

"I look forward to your [Sally] coming next time [in the coming spring term] to observe us. Then you can determine with your own eyes if you think there has been some changes in my teaching." (Teacher 3)

Another teacher asked the special educator (Sally) to visit the school to observe a new student. She apparently wanted a professional opinion from the special educator.

"It would be very good if you, who have not met the student, could come and observe. I have difficulties in understanding why he behaves as he does for instance during breaks. Maybe I am too involved?" (Teacher 4)

Another part of the special educators' preparatory work during the site visits consisted of creating a fixed and regular timetable for the remote consultation sessions. Scheduled consultation enabled regular follow-ups and probably enabled the special educators to gain a deeper understanding of the students' special educational needs. Establishing a fixed time for a consultation session each week also seemed important to the teachers. One of the teachers asked special educator Sally the following question:

"Is it possible for us to meet every Tuesday at this time so that we can continue the consultation?" (Teacher 3)

### **Getting familiar with technology**

The empirical material shows that the teachers were unfamiliar with the technology in the beginning. Some of the initial recordings failed due to mistakes by the special educators. Indications of this uncertainty during the initial remote consultation sessions were comments about the computer program, nervous expressions and laughter. Special educator Lisa's words at the beginning of the first consultation session is an example of this uncertainty.

"Welcome to this session, ha ha!" [Lisa laughs a little nervously]

Sally's unfamiliarity with the equipment and stress also shows clearly in the first recordings. The conversation breaks several times, Sally sighs loudly, and thus shows her irritation with her inability to handle the computer software properly.

After a few weeks, the special educators learned how to use the software without mistakes. The computer technology was no longer an obstacle. The special educators did not comment on the computer tool and were able to start the consultation session immediately. After greeting the teachers, the special educators employed expressions such as let us start! Another example of the increased skills needed by the special educators to use the computer software is Sarah's comment at the beginning of the third consultation session:

"Hello! Now we will start and I wonder if you can tell what has happened since our last consultation session?" (Sarah)

The findings reveal that sound and picture are important aspects of remote consultation. However, sound seems more important than picture. Lisa reacts when the sound disappears.

"Hey, now I lost you, you have to repeat what you just said!" (Lisa)

### **Utilizing context-related knowledge**

During the remote consultation sessions, the special educators applied the knowledge that they had gained from their observations and their contextual knowledge. This application was apparent in the special educators' questions and comments during the consultation sessions. In the following example, Lisa applies her contextual knowledge of the student's siblings to understand the student's challenges.

"The siblings of the student are doing very well academically." (Lisa)

"Yes, we know that, and that is why we are concerned." (Teacher 1)

However, problems can arise if the special educator and teacher do not share the same context-related knowledge. One example of this disconnect is when the special educator (Sally) arrives at the session in a hurry. Apparently, Sally is not very prepared and at the beginning of the session informs the teacher that the parents of a student in the teacher's class has contacted the school psychologist about a possible school change. This information surprises the teacher, who becomes clearly irritated.

"Aha, ooh, this came as a complete surprise! I knew nothing about this and the parents have not asked me. I cannot get involved through you. The parents must discuss this with somebody else. I have just made a summary of all educational adaptations we make here, and this shows that we very much adapt the teaching for the student. I am sure the psychologist can use this information in the discussions with the parents."  
(Teacher 3)

The special educator failed to build trust in the beginning of the consultation session. This lack of trust affected the remainder of the consultation session, and to some extent, affected the professional

relationship between Sally and the teacher. The technology seems in this case to have contributed to a split in the relationship between Sally and the teacher.

### **Utilizing observations**

The school visits, which aimed at expanding the knowledge of individual students' educational needs, enabled the special educators to focus on student- and subject matter-specific content in the consultation. In the following example, Lisa and the teacher discuss a specific student.

"I think in mathematics, there can be a problem with concepts. My colleague has helped and practiced a lot with the student, but we do not work with her individually."  
(Teacher 1)

"Exactly, I also noticed that that her working memory span is short." (Lisa)

Another example of how the special educators apply their observations during the consultation sessions is visible in the following dialogue:

"We discussed already in the spring that we might start a formal assessment, but I stopped it because I was not sure what the purpose was. But now, when I am teaching Swedish in grade 2 I have come to realize that this student, who is now in grade 4, does not have a developed language. It shows very clearly now." (Teacher 1)

"Oh yes, I know what you are talking about. I sat beside the student and noticed that his language and pronunciation are on a very low level. If you have not developed your first language, how can you learn another?" (Lisa)

Statements that indicate the importance of the special educators' school visits and observations of the learning environment and the individual students appear when the special educator and the teacher start discussing a new case. Data gathered during the observations can help the special educators understand the support needs of the teacher. The dialogue between Sarah and the teacher illustrates this point.

"I would need consultation regarding another student in our school. It is a new student. Do you know whom I mean? He was sitting in the right corner at the front when you were here." (Teacher 2)

"Oh yes, I have a visual memory of the student and know who you mean." (Sarah)

Another special educator, Flora, also expressed that she remembered the student in question.

"Yes, absolutely, I remember her from my school visit." (Flora)

### **Utilizing professional competence**

When special educational consultation develops into equal collaboration between two professionals with different duties, different knowledge of individual students and different perspectives on SNE, a common and deepened knowledge of individual students' educational challenges can occur. In the

interactive process, which characterizes consultation, the special educators and teachers ask questions to gain an understanding of the case under discussion. In the following example, Flora asks questions to gain knowledge of the student in question and help the teacher to reflect on her teaching.

“In the last consultation session, we talked about how important it is to give the student a work scheme in order to clarify the assignments and the procedures. Is that something you have had time to test since last time? We also talked about the student’s comprehension and that you could try to observe what she seems able to understand. Have you worked with that? In the coming consultation sessions, we make a follow-up on the student’s reading challenges and the methods you are now testing.” (Flora)

Another strategy that the special educators employ is giving positive feedback.

“Right, as we said last time. Proceed as you started, you have done a lot which benefits the student’s learning and development. The fact that the student is happier, looks more contented and enjoys being at school confirms this. It is only two weeks since our last session, and already you notice a change to the better. It is evident that you have succeeded in implementing what we have been discussing during our last consultation sessions.” (Sarah)

The special educators use active listening especially when the teachers discuss a new case. The starting point is a concern regarding a specific student. The special educators need to understand what the teacher is attempting to convey. The teacher describes a new student, while the special educator (Sarah) listens without interrupting and gives feedback and suggestions for further actions.

“I am very worried about the new student who came to my class two months ago. He lives with a single parent. He has difficulties in reading and writing although he is in grade four. He has also social difficulties. I seem to have a rather good relationship with him though. I am worried that he does not get proper support from the parent. The student himself thinks he is worthless. This became very clear when the student’s guardian told me how poorly he is doing while the student was listening! What kind of self-concept is the student getting? I try to do the opposite, whenever I get a chance I tell the student what he is good at. I have asked the guardian to come for a discussion.” (Teacher 2)

“I do understand your concern. Very good that you support the student by encouraging and praising. Good that you have asked the guardian for a discussion, try to express your concern directly, but it is also important that you describe what the student is good at. Maybe we need to think about a reading and writing assessment? My suggestion is that we schedule a consultation as soon as possible after the discussion with the guardian.” (Sarah)

“Perfect!” (Teacher 2)

The discussion topics in the consultation sessions vary depending on the challenges that the teachers choose to address. The special educators sometimes give professional advice and use their therapeutic skills to support the teachers in distressing situations emotionally. A dialogue between Sarah and a teacher illustrates this point.

“It is important that you show that you are there for the student, although he sometimes says stupid things. I think that the student’s life is a bit messy, at school as well as at home. You are already doing a great job, and the fact that he is less recalcitrant towards you means that he has a better relationship with you than with other teachers. Try to hang on and endure!” (Sarah)

“I do not have a very long teaching experience and the student’s weak academic progress worries me. What can I do?” (Teacher2)

“One option could be that you discuss with him and ask questions about his own learning. Ask for instance how he thinks he learns best and what we teachers can do in order to make it easier for him to learn. To ask questions increases the sense of belonging!” (Sarah)

## Discussion and conclusions

The aim of the study was to contribute to increased knowledge of how special educators implement remote special educational consultation to rural teachers with communication technology as a tool. We seek to answer the following research question: *How do special educators carry out and enable remote special educational consultation?*

Rural communities are vulnerable, and rural schools face many challenges, not least when it comes to providing support for students with SEN. One way of bridging the gap between support needs and support provision is to offer remote special educational consultation with communication technology. The findings from the present study indicate that remote special educational consultation is a promising innovation. However, there are a number of challenges to address.

In the initial stages of the remote consultation process, a substantial uncertainty was apparent. This uncertainty related to technology and computer software. The special educators did not have enough skills to use the software in question properly and seemed concerned that the technology would be too complicated. Previous studies (Fischer *et al.*, 2018; From & Pettersson, 2018) also indicate that consultants have to overcome the barrier and fear caused by computer technology before they can concentrate on the consultation task. Another possible reason for the initial uncertainty might relate to the social distance in remote consultation. Consultants who are accustomed to face-to-face discussions with consultees might find it difficult to adapt other strategies. However, the findings reveal that once the special educators become familiar with the technology, the initial uncertainty disappears, and the special educators can focus on the consultation process. The initial uncertainty indicates that consultants need to practice how to use the computer software before engaging in remote consultation. This conclusion is consistent with previous research on remote teaching (From & Pettersson, 2018;

From, Pettersson & Pettersson, 2020) and remote consultation (Pettersson & Ström, 2017). Another challenge related to the software deals with ethical and legal considerations. In this study, we made sure to maintain a high standard of data security in order to protect confidential and personal information. If remote special educational consultation will become a permanent means of providing special educational services to rural schools, data security need to be addressed.

In order to overcome the distance, the special educators made physical visits to the rural schools prior to the consultation sessions. During the two-day visits, the special educators had opportunities to make observations and obtain reliable context-related knowledge of the learning environment and individual students' learning profiles. The findings indicate that physical site visits facilitate the special educators' consultation task. The special educators could rely on their documentation and were able to relate to the knowledge that they had gained during the site visits. Shared knowledge and understanding of individual students and their learning environment has shown to be important for effective consultation (Dettmer *et al.* 2013). The findings indicate that special educators and other consultants benefit from thorough school visits, including systematic observations at the beginning of a school term. The findings further indicate the importance of scheduled and regular weekly consultation sessions. Regular consultation might be more effective than "fly-in" consultation when a teacher summons the consultant to solve an acute problem in the school (Saggers, 2019). Regular consultation enables early intervention as well as systematic follow-up.

In line with previous research on teleconsultations (Bice-Urbach *et al.*, 2018; Butcher & Riggleman, 2018; Ihorn *et al.*, 2018; Saggers *et al.* 2019; Schultz *et al.*, 2018) remote special educational consultation seems to be a promising strategy for distributing special educational expertise to rural schools. Remote consultation can contribute to overcoming the challenges of rural schools in terms of geographic isolation, lack of services and scarcity of qualified special educational expertise. The use of digital tools in special educational consultation to remote schools can be an innovation that reduces travel time and costs, and simultaneously gives teachers access to special educational expertise.

However, the findings from this study indicate that certain criteria need to be met in order to develop successful remote consultation. First, special educators and other consultants need training on the use of digital tools. The initial technological obstacles seem relatively easy to overcome. Second, physical site visits, including systematic observations performed by the consultants, seem to be important for gaining context-related knowledge, which facilitates consultation. Third, scheduled and regular consultation sessions seem to be beneficial for the consultation process and enable systematic follow-up. To conclude, the findings from this study indicate that remote special educational consultation is a promising modality for SNE provision, but is not likely to replace physical consultation completely.

### **Limitations and future directions**

There are limitations to this study. The sample is small, based on convenience selection. In addition, the empirical material from the first project year is relatively limited. Lack of multiple data sources might also have biased the findings. Thus, the findings and conclusions must be viewed as preliminary and the generalizability is therefore unclear. Further research is needed to gain a comprehensive

understanding of the benefits, challenges and collaborative processes in remote special educational consultation.

**Sponsorship:** This study is part of a larger ongoing digital innovation study in SNE-consulting that was founded by the Swedish Special Education School Authority [Specialpedagogiska skolmyndigheten], (SPSM) in a three years (2017-2020) development project.

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