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Capturing Remote Online Teaching Practices within Swedish as a Second Language Context through the Lens of TPACK

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Abstract
This article investigates the adoption of remote teaching practices within Swedish as a second language courses in adult education, with a focus on teachers´ experiences during and after emergency transition to remote teaching. With the aim of understanding how teachers adopt and adapt remote teaching practices, semi-structured interviews with six in-service teachers from governmental adult education schools in Sweden were carried out. Interviews were deductively analysed based on the knowledge components in the TPACK framework (Mishra & Koehler, 2006) to provide a comprehensive understanding of how teachers use their technological, pedagogical and content knowledge to facilitate a remote learning environment for language skill development. Findings reveal the complexities of remote teaching adoption in second language context. Yet, personalised teaching practice, adaptive feedback practices, and digital platforms for assessment and course content design, appear to be valuable to enhance remote teaching sessions. Additionally, contextual factors that shape teachers' remote teaching practice were identified highlighting the interplay between context levels. The findings broadly contribute to the wider conversations in technology-based teaching practices and inform enhancing remote teaching practice for second language teaching.

Keywords: *Remote Teaching; Remote Language Teaching; Swedish as a Second Language*

1. Introduction

Teaching a second language remotely has long been recognized as a complex practice, influenced by both linguistic and non-linguistic factors that impact language learning and acquisition (Kohnke & Moorhouse, 2022; Tümen Akyıldız et al., 2021). For example, Kohnke and Moorhouse (2022) identify several challenges in using Zoom for synchronous online language teaching during the Covid-19 pandemic, particularly when compared to traditional face-to-face (F2F) classrooms. One significant challenge is the loss of body language and facial expressions, which teachers rely on to observe students' engagement, comprehension, and interest. Students are often less willing to participate actively in online settings, perhaps due to the absence of direct physical presence. Another challenge lies in monitoring and facilitating group work effectively. In a physical classroom, teachers can observe and manage group work with ease, however, in Zoom's breakout rooms, these interactions are harder to monitor, which require additional structuring to ensure productive language practice and collaboration (Kohnke & Moorhouse, 2022). Hence, the sudden transition to remote

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teaching during the pandemic exposed these challenges, leading to an increased demand for professional teaching practices (Mahyoob, 2020). Remote teaching practices are meant to describe the delivery of educational content through digital platforms using different modes of communication, including synchronous and asynchronous methods (Ji et al., 2022). Synchronous learning entails immediate communication between two learners or a group of learners through phone calls or video conferencing platforms, which entails precise scheduling for official school settings (Kohnke & Moorhouse, 2022). In contrast, Asynchronous learning refers to the educational activities conducted without real-time interactions, utilising tools like pre-designed videos, emails, and discussion forums. Prior to the Covid-19 pandemic, many educational institutions had limited experience with remote teaching (Sundari et al., 2021). Yet, remote teaching practices were highly adopted during the pandemic to ensure continuity in education (Tang, 2023). Meanwhile, the concept of emergency remote teaching (ERT) emerged to describe certain types of responses to crisis situations, utilising digital technology platforms to facilitate uninterrupted learning experiences (Bond et al., 2021). However, the rapid transition to remote teaching also shed light on the inherent difficulties associated with online teaching (Ghasemi et al., 2023). Against this backdrop of change, the shift to remote teaching has posed significant challenges for classroom instruction and management methods (Goldman et al., 2022), arousing educational inequalities (Bonacini & Murat, 2023). This might be notable within second language learning contexts, where the sudden transition to remote teaching has presented unique obstacles for teachers and students (Alzahrani et al., 2022).

A predominant challenge faced by teachers adapting ERT is ensuring language skills development and assessment. Latif and Alhamad (2023) highlighted teachers' lack of training and support in online assessment methods. MacKinnon and MacLean (2023) further emphasised difficulties in improving speaking skills amidst technical and audio issues. Similarly, Nugroho et al (2021) identified challenges in planning language content, compounded by students' lack of digital competence (Al Shlowiy et al., 2021). Latif and Alhamad (2023) also highlighted the challenge of aligning teaching strategies with students' needs and course objectives. This reflects the increased effort required to promote professional remote teaching practices (Rathert & Ağçam, 2022).

In the light of these challenges, there is a need for effective technology integration into second language classrooms (Fathi & Yousefifard, 2019). Within remote settings, teachers should rely on both their technological knowledge and their technological pedagogical content Knowledge (TPACK) (Mishra & Koehler, 2006), to navigate the complexities of remote teaching within a second language context. Equally, this advocates an understanding of the complex interplay between content knowledge, pedagogical knowledge, and technological knowledge that is essential for successful online second language teaching (Rafiq et al., 2022).

This article investigates in-service teachers' experiences with remote teaching in the context of Swedish as a second language in adult education. The article focuses on current practices and aims to provide a comprehensive understanding of how teachers' Technological Pedagogical Content Knowledge (TPACK) (Mishra & Koehler, 2006) is applied in practice. Specifically, the article explores how teachers adapt their pedagogical approaches and integrate technology to enhance student learning experiences in particular content. It seeks to contribute to the broader research field of remote teaching by illustrating the practical application of the TPACK framework in this specific educational setting. The study uses semi-structured interviews to prompt teachers to reflect on their current practices, experiences, common challenges, success factors and strategies adapted to manage their remote classrooms effectively. An in-depth analysis of these reflections is conducted using the TPACK framework to systematically explore the utilisation of its components in remote teaching practices. TPACK (Mishra & Koehler, 2006) emphasises the integration of three types of knowledge in educational settings: Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) and provides a comprehensive framework for understanding and guiding teaching with technology. Niess (2005) highlighted that the integration of different knowledge domains

supports teachers in teaching their subject matter with technology. In line with Nilsson's (2023) argument that future studies need to focus on TPACK as a whole, and not only a separate analysis of each of the knowledge components, this study focuses on the integrated aspects of the TPACK framework. Moreover, as highlighted by Swallow and Olofson (2017), educational research must incorporate contextual elements, that significantly influence teaching and learning settings (Rosenberg & Koehler, 2015). Therefore, this article also examines how contextual factors interact with teachers' knowledge in their remote teaching practices. To achieve these aims, the following research questions were formulated:

RQ1. *What elements of TPACK were captured in teachers' reflections on adopting a remote teaching practice of Swedish as a second language?*
RQ2. *What contextual factors were emphasised within teachers 'reflections on their adoption of remote teaching of Swedish as a second language courses?*

2. Remote teaching within Swedish as a second language context: Swedish for immigrants (SFI) education

There is a growing body of literature on teaching Swedish as a second language in the context of Swedish for immigrants (SFI), mostly recognising teachers' challenges when teaching newcomers (Öbrink Hobzová, 2021). Teaching the newcomers within SFI education has been a question of interest in research with the aim to define pedagogical classroom practice within a culturally and linguistically diverse environment (John & Liubinienė, 2021). The newcomers in Sweden can receive free of charge Swedish courses as a part of their establishment program to support their integration into Swedish society and labour market (Skolverket, 2012). A much-debated question in research on remote teaching of Swedish for immigrants (SFI) is whether it works or not (Alvarez, 2021). Even before the pandemic, remote teaching was an integral part of the educational process in Swedish adult educational institutions (Skollagen 2010:800), yet it turned to adapt with local and regional needs (From et al., 2020). Remote teaching within Swedish as a second language context has been the subject for several studies that were conducted in Sweden (Alvarez, 2021; Elwan & Mehmeti, 2021; Kollberg, 2021; Öllsjö & Söderlund, 2020).

Elwan and Mehmeti (2021) investigated the broader implications of remote teaching on teachers and students, while Öllsjö and Söderlund (2020) focused on adapting digital tools and teaching strategies used for second language instruction. Furthermore, Alvarez (2021 investigated the consequences of teachers' lack of preparedness for remote second language instruction, particularly in relation to students' language acquisition and learning outcomes. Kollberg (2021) examined the challenges faced by SFI teachers in adapting their teaching in transitioning to remote online teaching. Several critical aspects of the transition have emerged as focal points. These included students' skill development, assessment practices, interaction dynamics, motivation and digital abilities among both teachers and students (Alvarez, 2021; Elwan & Mehmeti, 2021; Kollberg, 2021; Öllsjö & Söderlund, 2020).

Previous literature shows that remote teaching can pose challenges for students' language skill development, particularly due to the absence of physical interaction, which can lead to misunderstandings, especially when students choose not to use cameras (Alvarez, 2021; Elwan & Mehmeti, 2021; Kollberg, 2021; Öllsjö & Söderlund, 2020). This lack of face-to-face interaction may hinder students' pronunciation and speech clarity, affecting their overall language proficiency. In addition, studies have noted limitations in the development of reading and writing skills in remote learning sessions, with students facing difficulties in keyboard typing (Öllsjö & Söderlund, 2020). Nevertheless Alvarez (2021) and Kollberg (2021) found a positive impact of remote teaching on

improving students' speaking skills and confidence in using the targeted language, possibly attributed to the perceived acceptability of errors in virtual settings (Kollberg, 2021).

As highlighted by Öllsjö and Söderlund (2020), express concerns about evaluating language development remotely compared to traditional classrooms due to unequal access to digital resources that hinder equitable assessment across language skills. Furthermore, Öllsjö and Söderlund (2020) observe a tendency to rely on in-class activities for evaluation reflecting on challenges in tracking student engagement and task completion remotely. Moreover, Elwan and Mehmeti (2021) note the impact of remote teaching on establishing meaningful relationships with students, which affect feedback quality and student support. The issue of inadequate digital skills of both teachers and students has been identified as a significant hindrance in remote settings. This is often attributed to newcomers' limited exposure to digital tools (Monirzadeh, 2023). Moreover, low digital skills correlate with reduced language acquisition rates and diminished learner production as evidenced by Elwan and Mehmeti (2021).

Generally speaking, Alvarez (2021), Elwan and Mehmeti (2021) and Kollberg (2021) emphasise integrating remote teaching into Swedish as a second language learning and advocate for its continuation post-pandemic. This study responds to the need to enhance language learning experiences by exploring teachers' perceptions of remote teaching continuity and its impact on current teaching strategies and identifying successful practices for ongoing remote teaching methods.

2.1 TPACK as an adaptable approach to technology integrated teaching practice

The TPACK model aims to assist teachers in utilising technology more effectively in the classroom (Padmavathi, 2017). The primary goal of the model is to enhance learning outcomes through refining teaching practices where teachers use digital technologies when teaching a particular content to promote students' learning (Nilsson, 2023). Mishra and Koehler (2006) identify three intersecting knowledge bases crucial for technology integration: pedagogical knowledge, content knowledge, and technological knowledge. The overlapping between these three essential knowledge areas in theory and practice is essential for developing adaptable teaching strategies and fostering a holistic understanding of technology's role in education (Koehler & Mishra, 2009) (see Figure 1).

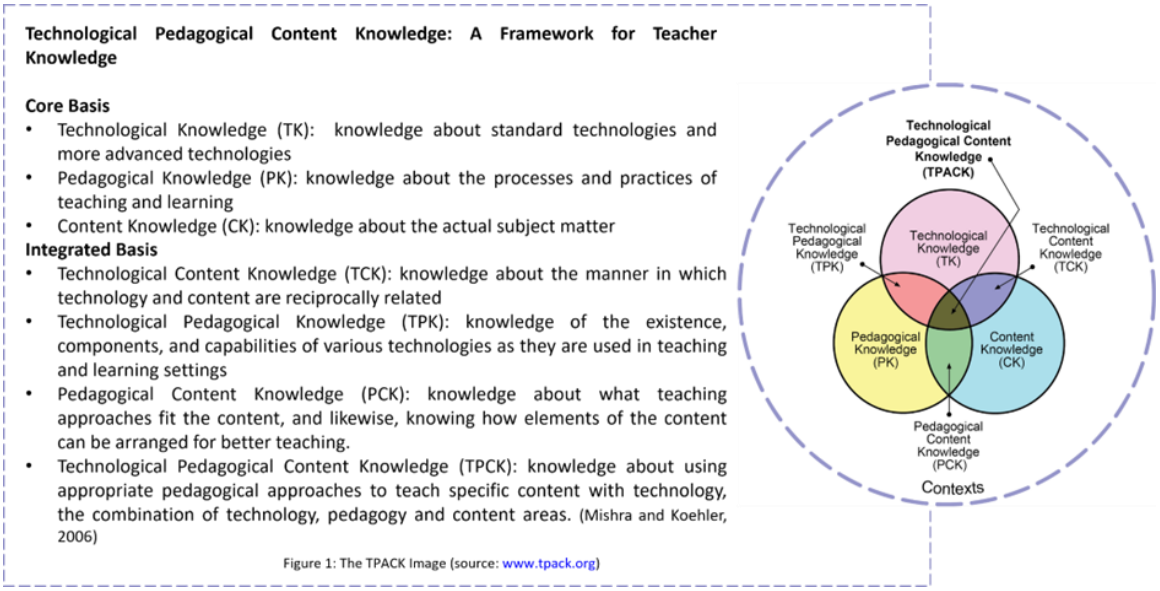

Figure 1 The TPACK Model by Koehler & Mishra (2009). Image (source: www.tpack.org)

Researchers have used the TPACK model to investigate the impact of technology integration in teaching practices and student learning (Trewartha, 2019; Yeh et al., 2021). Studies examine how technology integration influences pedagogical approaches tailored to specific content areas (Aslam et al., 2021), giving insights into the complex interplay between technology, pedagogy, and content knowledge (Koehler et al., 2014). This approach offers insights into addressing teachers' diverse needs, including those in second language teaching contexts (Abubakir & Alshaboul, 2023; Duan et al., 2022; Su, 2023). TPACK is recognised as a valuable framework for understanding technology-based language learning, and a valuable analytical tool (Ouyang & Scharber, 2018), benefiting both in-service and pre-service teachers (Park & Hargis, 2018). Context plays a crucial role in TPACK which refers to the specific environment in which technology, pedagogy, and content knowledge intersect.

Furthermore, context and contextual factors, encompassing students' backgrounds, and available technologies, significantly influence TPACK implementation (Mishra & Koehler, 2006). Contextual factors in research has been asserted by Mishra (2019) as a valuable knowledge that influences teachers with their technology based teaching practice, yet context is often overlooked in the TPACK research (Rosenberg & Koehler, 2015). Although the concept of context is still broadly complex for researchers, numerous interpretations of how to frame the context have been suggested. Hernández & Salinas-Amescua (2013) propose a framework categorising context into three contextual areas which are Micro (classroom level); Meso (school level); and Macro (Societal level), highlighting how teachers and students in these areas affect technology-based teaching practices (see Figure 2):

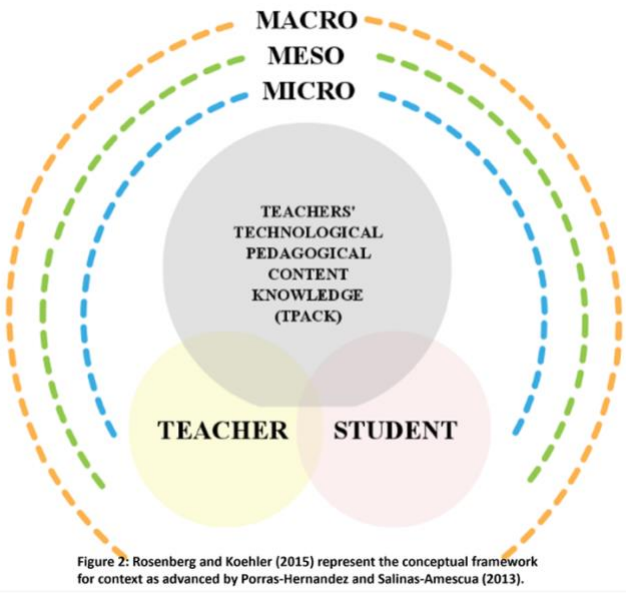

Figure 2 Rosenberg and Koehler (2015) represent the conceptual framework for context as advanced by Porras-Hernandez and Salinas-Amescua (2013)

This model is inspired by Bronfenbrenner's ecological model (1999), which represents context through concentric spheres to illustrate different levels of influence on teaching practice. Similarly, Porras-Hernández and Salinas-Amescua's (2013) framework structure context into different levels capturing the external conditions that shape teachers' practices. At the Macro level, broader social, political, technological, and economic factors impact technology integration in education, while the Meso and Micro levels focus on more school policies and classroom influences.

In this study, the TPACK framework serves as an analytical tool to investigate teachers' remote teaching practices within Swedish as a second language courses. By examining teachers' integrated knowledge areas within the TPACK framework, this study aims to explore their approaches to use their knowledge in remote teaching practices. Furthermore, we seek to identify contextual factors shaping teachers' remote teaching practices, ensuring the significance of context within the TPACK framework.

3. Methodology

This study follows a qualitative research approach to gain an extensive, complex and detailed understanding of participants' experiences and help interpreting particular information by adapting flexible procedures such as interviews (Creswell, 2013). For this purpose, in depth semi structured interviews were conducted to capture elements of TPACK within teachers' reflections. In depth semi-structured interviews are open-ended questions that enable derive meaningful responses (Mack et al., 2005), and a flexible examination of the participants' experiences (Decarlo, 2018). More importantly, this method is commonly used to investigate the TPACK approach within teaching practice (Brianza et al., 2023). To better reveal the complexity of remote teaching, we probed for the integrative nature of the core knowledge components Technological knowledge, Pedagogical knowledge and Content knowledge (TK, PC and CK), and will therefore present the findings through Technological pedagogical knowledge (TPK), Pedagogical Content knowledge (PCK), Technological Content knowledge (TCK) and Technological Pedagogical Content knowledge (TPACK) (Pamuk et al., 2015). The data collection process was carried out with six teachers in adult education schools that provide Swedish for Immigrants courses. These schools were chosen because they serve a diverse population of adult students with varying language proficiency levels and backgrounds, which allows for a comprehensive view of teaching practices and challenges that are likely encountered in SFI settings. Five in person interviews were conducted at the schools and one teacher opted for a remote interview, which was facilitated using the video conferencing app Teams. During the interviews, audio recordings and field notes were produced to assist in documenting reflection for the analysis of the participants' responses (Decarlo, 2018). Each session lasted approximately one hour, in total six hours of recording time for all interviews. Participants were contacted via email and provided with information about the study objectives, ethical consideration and interview questions (n=28 Q).

3.1 Participants within research context

The participants of this research are in-service teachers recruited at governmental adult education schools within Swedish as a second language program, particularly Swedish for immigrants (SFI). Generally, SFI program consist of three paths (1-2-3) and every path involves four levels which are A-B-C-D levels. Path 1 is provided to students with a low level of education, path 2 for students with middle schooling level, and path three for students with higher schooling level. However, according to the school system, each course can involve students from all paths 1, 2, and 3 as the students move back and forth among levels. A typical course at adult education for SFI program is face to face meeting classes where teachers meet students at campus and give lessons in traditional form. After the pandemic, SFI program courses took another form when all courses should be delivered remotely. Accordingly, the decision to focus on this group of participants stems from the unique circumstances that may be encountered during the transition from traditional face-to-face classes in light of their lack of prior exposure to remote teaching. Thus, the main criteria to select the participating teachers was that they were involved with remote teaching of Swedish as a second language courses. Accordingly, six teachers from two different schools were involved. Both schools integrated digital aid platforms to help in performing remote teaching sessions. One of the schools is using a digital teaching aid platform that is customised for SFI courses and provides teachers with Swedish as a second language content covering courses A, B, C, D, BC, and CD. In addition to that, the platform

provides teachers with exercises in six modules focusing on students' skill enhancement; translation into nine languages; blog and chat room; locking and unlocking the material; monitor students activity; homework assignment and automatic correction. The other school is using Its Learning which is a learning management system platform that does not provide ready language tasks and exercises but is designed for teachers to plan their courses offering messaging; real-time announcements; reminders; week events, and follow up features to tasks, and activities created by teachers. All participants had the experience of changing from campus teaching to remote teaching of Swedish as a second language under the Covid-19 pandemic period. Thus, the data were reflected to represent their experiences of changing to remote teaching, and after the restrictions were lifted. The teachers were responsible for different course levels which are B, C, and D courses. All participants were experienced teachers and have a teaching degree to teach Swedish as a second language, in addition to a specific course to teach in Swedish for immigrants SFI courses. Names are fictitious, giving the letter T in teacher with a number for every participant teacher. The following codes were created: T1, T2, T3, T4, T5, T6 (see Table 1).

Table 1 Participants profile

Table 1: Profile of participants	School 1		School 2			
Gender	T1: Women	T2: Man	T3: Man	T4: Women	T5: Women	T6: Women
Age	43	52	49	50	61	55
Years of teaching swedish as a second language	14	14	14	15	9	20
Educational background	Bachelor Degree in teaching Swedish and English Master degree in Educational Leadership	Bachelor's degree in German and Swedish	Bachelor's degree as teacher in primary and secondary school in Swedish and history	Bachelor Degree in teaching Swedish English	Master degree in German and English	Bachelor in Swedish and Swedish as a second language
SFI course teaching level	C Level	C Level	C 2 Level	D Level	C 1 Level	B Level

3.2 Data Analysis

For the purpose of probing for aspects of TPACK within the teachers' reflections, a deductive approach of content analysis was conducted to systematically analyse qualitative data gathered from the interviews. The initial step toward deductive analysis was coding (Bingham, 2023). The transcripts of interviews were coded allowing for the generation of data under a predetermined set of themes (Elo & Kyngäs, 2008). For this study, the data was analysed in relation to both the core elements TK, PK and CK and for the integrated knowledge bases of the TPACK approach (TCK, PCK, TPK). According to Pamuk et al., (2015), even though the core elements TK, PK, and CK have an impact on the TPACK model in a way that cannot be separated, the integrated knowledge elements seem more powerful to represent participants' experiences (Pamuk et al., 2015). Furthermore, the core knowledge bases had an indirect impact on teachers' experiences, yet the integrated knowledge bases

appear to be more reflected on and had a direct impact on their teaching practice (Pamuk et al., 2015). In addition to that, the analysis process involved coding the data according to predefined context levels (micro, meso, macro), capturing reflections where participants use crucial components in their remote teaching practice (see Table 2):

Table 2 Themes to analyse interviews

Table 2: Main themes to analyse interviews:

Technological Knowledge (TK): use of technology platforms appropriately including solving technical problems, and digital competence

Pedagogical Knowledge (PK): use of appropriate teaching methods to enhance students learning of Swedish as a second language

Content Knowledge (CK): educational background and experiences relevant to teaching Swedish as a second language subject

Technological Content Knowledge (TCK): use of technological platforms, digital tools and devices to develope Swedish language skills for remote teaching practice

Technological Pedagogical Knowledge (TPK): use of technological platforms to design remote teaching, assess students, considering Learners needs and learning objectives

Pedagogical Content Knowledge (PCK): use of approriate and adaptive remote teaching methods based on students level and needs to promote Swedish language skill development

Technological Pedagogical Content Knowledge (TPCK): use of appropriate technological platform, digital devices and resources to enhance students Swedish language learning via remote sessions based on their language level and learning abilities and needs

Contextual factores:

Micro: discuss classroom factores affecting remote teaching for Swedish as a second language learning
Meso: discuss school factores affecting remote teaching for Swedish as a second language learning
Macro: societel factores affecting remote teaching for Swedish as a second language learning

3.3 Ethical consideration

Upholding ethical principles ensures the protection of participants' rights and privacy throughout the research process following ethical guidelines by the Swedish Research Council (2017). For this account, informed consent from all participants, permission for recording interviews, and anonymising participants' identities are essential (Swedish research council, 2017). The participants were informed about how the data would be analysed and used. The data was securely stored in protected files accessible only to the researchers involved in this article.

4. Findings

The results are presented by highlighting TPACK elements in an integrated manner (i.e. TCK, PCK and TPK) as main themes followed by explanations from teachers' reflection and selected extracts from the interviews.

4.1 Technological content knowledge (TCK)

Under the TCK concept, teachers considered that technology and content can influence and hinder each other in many aspects. Digital tools play a vital role in diverse communication modes, enabling synchronous sessions via platforms like Teams and asynchronous activities on 'Lunis' and 'Its Learning'. These platforms are tailored to enhance specific language skills, such as speaking,

listening, and reading. By using multimedia resources like audios, videos, and online news, alongside traditional textbooks in digital settings, language content delivery is enriched, thereby improving students' language skills.

(T1): "it (remote real time session) can help with both the listening part and the speaking part and I think when it comes to speaking, they don't interrupt each other that much. They let people finish, which is also good".
(T5): "On YouTube they have both grammar and short films, for instance, how to write about a certain topic and writing exercises as well and they are very good. We discuss, and we train. We practise both listening and text reading and we discuss the news"

Additionally, challenges in creating language content for remote sessions are alleviated by digital teaching platforms offering pre-made texts, exercises, quizzes, and tests. On the other hand, teachers find creating language tasks and quizzes for remote sessions challenging, especially in aligning them with course learning objectives.

(T5): "Since we have this platform, it (design of remote session) is not so difficult really because you get so much, one can for some time follow Lunis chapter by chapter. We have themes there, and we are supposed to read through all of them and students work on different chapters".

In another aspect, teachers find creating language tasks and quizzes for remote sessions challenging, especially in aligning them with course learning objectives. A teacher noted that it takes time before students go from being able to log in to producing things:

(T1): "Achieving the objective is really hard and it takes time before they (students) go from being able to log in to producing things. For example, I have to see how it (digital quiz) works when they actually write. If it actually made any difference, I would continue with it".

In summary, teachers in their reflections revealed diverse perspectives on TCK that acknowledge the interplay between technology and content in their instructional approaches. This demonstrates an understanding of how technology can be effectively integrated to enhance language remote instruction, yet they recognize the challenges posed by the need to align technological tools with specific language learning objectives and design appropriate activities for remote sessions.

4.2 Technological pedagogical knowledge (TPK)

In this context, teachers reflected on adapting their pedagogical practices in remote sessions to create a flexible learning environment that addresses diverse student needs, participation, and engagement. They established individual meetings post-session to offer personalised teaching and feedback based on students' learning needs and challenges. Additionally, teachers clarified that students could practice language skills within private settings since students' needs are expressed by them individually. Teachers said that:

(T4): "I think it (real time remote session) could be individual for some students who do not like to talk in front of the class. When you are sitting by yourself and the others are not listening, you feel a little bit more secure".

Teachers also valued students' access to online resources provided at their convenience as students can watch videos several times. Teachers clarified that remote teaching sessions help them in recognising students' needs by having a better possibility to listen to students in a way which they

could not in the classroom. Teachers also talked about managing students' stress, participation and engagement during real time sessions. The teachers noted that:
(T1): "I did not ask my students to put on the cameras, because it can be really stressful to read out loud if you're struggling with pronouncing and reading and if you are also going to have the camera on, where all eyes are going to be on you".
(T5): "it is more difficult for them to follow the lesson when they are online, students will tend to not interact and perhaps turn off the camera. I tended to pose questions to those who I could not see".

A teacher noted that maintaining students' engagement within real time meetings can be challenging, especially when students participate from a distractive environment, such as sitting on a bus or being with friends. These non-institutional learning settings can hinder focus and active participation. However, a teacher mentioned that student engagement can be increased by involving students with the design of remote course sessions. Teachers said that:

(T1): "we plan it together. I always have one day where we plan like seven days or more together. I invite my students to plan the content, so they feel included. That gives them a chance to self-assess to figure out what their needs are".

However, one of the teachers highlights difficulties to recognize student needs during remote real time sessions as you do not see the students faces and gestures.

(T3): "It is more different because in the classroom I can always see if they understand, but it is difficult to see that in Teams because you just have small faces. Yes, more easily in the classroom".

Compared to in-person meetings, teachers noted a lack of opportunities for community building practices, citing limited social connections among students and reduced student-to-student interaction, especially in synchronous sessions. Teachers also highlight that remote teaching limits teachers' ability to use their unique teaching styles due to the lack of direct interaction. This makes conveying body language and using classroom tools like a whiteboard for explaining new vocabulary more challenging. Teachers added that:

(T3): "It (unique teaching style) is more difficult online because I like to do a bit Drama. I use my body very much and I show them examples. It makes them understand more and I think they also feel a bit more relaxed when I give more of myself".

In summary, teachers demonstrated an understanding of the interplay between technology and pedagogy as indicative of their TPK. Their reflections highlight their ability to integrate technology and pedagogy to enhance remote language learning experiences. The teachers created adaptive learning environments that address student engagement and participation such as providing personalised support through individual meetings and offering flexible access to recorded sessions and resources. Yet teachers' desire to foster community building and peer interaction was challenged by factors such as limited student-to-student interaction in synchronous sessions and the difficulty of conveying non-verbal communication online. These challenges highlight the importance of refining TPK to better support meaningful interaction and a sense of community in remote teaching environments.

4.3 Pedagogical content knowledge (PCK)

In the interviews, teachers discussed adapting their pedagogical practices to meet students' language learning needs in remote settings, emphasising the importance of using appropriate teaching methods tailored to students' language abilities. A teacher noted that:

(T4): "As a teacher, I have to be some way in the middle, at least when I am talking to them. Then, if I am going to give them assignments, the students that have a lot of problems, I can give them an easier assignment. And for those who have come a long way they can have a little more difficulty".
This adaptability demonstrated how teachers successfully apply their existing differentiation strategies even in a remote context. However, it also illustrates how the remote teaching environment requires further development of these strategies, leading to a more individualised approach. For instance, the need for personalised feedback in online settings prompted teachers to reconsider their feedback activities, considering students' language levels more closely. Unlike face-to-face environments where immediate verbal and visual encouragement can support students, remote feedback often needs more explicit and detailed positive reinforcement. One teacher added that, when providing feedback, she aimed to highlight the strengths in students' texts, as excessive criticism could undermine their self-confidence. This approach in remote teaching required tailored strategies that differ from in-person teaching, such as utilising digital tools to provide differentiated instruction and individualised support through digital platforms. For example, teachers described using learning management systems (LMS) to distribute assignments based on student ability levels and incorporating multimedia resources to enhance engagement. These methods are not always necessarily implemented in traditional classrooms.

In summary, teachers' reflections showcased their PCK and its practical application in remote teaching contexts. This demonstrates their understanding of pedagogical approaches aimed at scaffolding learning experiences while also illustrating how the challenges of remote teaching have led them to refine and adapt their differentiation strategies to foster student confidence and autonomy in language acquisition.

4.4 Technological Pedagogical Content Knowledge (TPACK)

In terms of TPACK, the teachers asserted that remote teaching sessions should be tailored to enhance students' learning experience and develop students' language skills. The teachers value the use of certain digital teaching aid platforms such as 'Lunis' to measure student language progress and track their work with ready tests, quizzes, and exercises in asynchronous remote settings. They highlighted the benefits of using the platform to capture students' progress and observe their improvements, as well as to monitor their activities and completion of exercises. Teachers pointed to key characteristics that enhance its effectiveness: adaptability for various language proficiency levels, interactive features, ability to track student performance, and ease of use for both teachers and students. The platform's ability to promote self-paced learning and maintain student motivation through engaging content was also noted as essential for successful remote teaching.

One of the teachers utilised students' home environment to introduce new Swedish vocabulary during real-time remote sessions. A teacher said that:

(T6): "As I could see their kitchens, their children, their balcony, their garden and their bus stop. I can use the environment 'You are waiting for the bus' and things like that. If they know a few verbs I can connect them with normal sentences so they know what the word read is, such as read on the Internet, read paper, and then I can build their vocabulary by using repeating".

The example above is interesting in relation to how another teacher (above) raises the challenges with maintaining students' engagement within real time meetings if students for example are sitting on a bus. While one teacher sees this circumstance as a distractor, the other teacher turns it into a vocabulary extending opportunity. However, a teacher emphasised that synchronous sessions present

difficulties for students in acquiring a second language, as the remote setting triggers their struggles in comprehending the new linguistic content. Teachers added that:

(T1): "Because you have a wall which is a language barrier and then you have another barrier which is the computers. If you struggle with the language and you struggle with the technique, then you might not hear what I say, and we might talk about other things instead of what we are going to talk about".

In summary, teachers' reflections highlight their use of creative and adaptive instructional approaches, such as incorporating, and dealing with challenges of students' home environments into lessons. Teachers used digital platforms like 'Lunis' for personalised progress tracking, and creating individualised assignments adapted to students' different learning needs, to foster language acquisition and support student learning in remote teaching settings. The teachers' reflections made explicit their TPACK in emphasising the integration of technology, pedagogy, and content knowledge to enhance teaching and learning experiences. The way teachers also encountered challenges associated with effectively applying technology in their teaching for second language students such as difficulties with maintaining student engagement, managing technical issues, and addressing the language barrier presented by limited non-verbal communication during remote sessions indicated TPACK (or foundations of TPACK) important for promoting students´ learning.

4.5 Contextual Factors of teaching

Within their reflections, teachers highlighted the context for current teaching practice and noted their experiences as the Covid-19 pandemic forced them to integrate remote teaching in the SFI courses. The context was brought up on two levels: the micro (classroom level) and the meso (school level).

At the classroom level, teacher and student factors influence the adoption of remote teaching for Swedish as a second language. Teachers' personal experiences also affect their attitudes, emphasising challenges to technical issues that decreased students' access, participation and learning pace. A teachers said that:

(T4): "It (Remote real time session) is really difficult because, for example, I see that the students are with me online and then all of a sudden, I cannot hear the student. then I ask the student please is there something wrong, is that something technical? and the student is still not there. So, I think that is really hard".

Additionally, teachers' level of technological knowledge seems to affect their attitudes towards remote teaching sessions. Those with low technological proficiency often exhibit a preference for traditional teaching methods due to a lack of confidence and skills, making them hesitant to use technology. One teacher noted that some colleagues were afraid of using computers and technology because they were not familiar with them. Conversely, teachers with more technological knowledge were more positive and confident about using remote teaching methods.

This challenge also extended to students, whose limited experience with digital tools impacted their participation and comfort in remote learning. One teacher noted that many students become anxious when asked to use computers, often due to age, a lack of prior exposure, or over-reliance on smartphones:

(T1): "Many of them freeze up as soon as I put the computer in front because of age, or they never had a computer or rely too much on their phones".

To address this, teachers reflected on developing student computer skills to reduce their uncertainty and increase their learning pace. One teacher pointed out that students' improved competence in handling computers is crucial for their overall learning of the course content.

In addition to developing technical skills, teachers face challenges due to the fluid nature of course enrolment. Students can move between levels, re-enter courses after dropping out, or join at different times, which adds complexity to creating an inclusive learning environment within a single course. One teacher emphasised this challenge, explaining that it is difficult to manage a group with varying skill levels, ranging from students who are highly proficient in Swedish to those who have just begun learning the language.

Moreover, teachers reflected on the importance of considering students' life situations, abilities, and prior knowledge when adopting remote teaching for Swedish as a second language students. This involves addressing individual differences such as schooling level, learning speed, age, and digital competence within a single SFI course. Teachers noted that students' low technological competence influenced by their low schooling level, particularly impacts their ability to use digital devices. Teachers stated that:

(T6): "These people have not been to school before, maybe two or three years. So they start really from the beginning. That is why we did not use Teams because it would take me months to get them familiar with how to log into a computer and how to find this program because they have never seen a computer before".

The varying levels of technological competence among students have widened the digital gap within the same course. Teachers noted tensions between students who possess strong digital skills and those who struggle with basic technological tasks, which became evident in their ability to record, upload, and engage with course activities. This gap is influenced by factors such as students' different technological backgrounds, the choice of device used for remote classes (e.g., computers versus smartphones), and the types of activities and content selected by teachers. However, recognising that many students are proficient with smartphones, teachers sought to leverage these existing skills to facilitate remote learning. In this context, teachers remarked:

(T2): "I will use the phones more because I realised that they know a lot about using them and that is a digital skill as well and maybe we can include that as well".

The students' individual differences within the same course highlighted the need for students grouping within each course level. Yet **at the school context,** the teachers highlighted difficulties of performing students grouping due to the low economy and low number of teachers in the school. Teachers also highlighted that the school might choose a digital aid platform that is not efficient for teaching Swedish as a second language, thus teachers assert that choosing digital platforms should be measured by students' benefits of learning as students need to be digitally competent. Moreover, teachers stressed the need for the 'Camera on' regulation during real time sessions; however, the school had not implemented such a policy. This absence highlights the meso-level factors influencing the teaching and learning environment, particularly in how it affects student engagement and participation during remote sessions. Teachers said that:

(T5): "a lot of them tend to turn off the cameras, so you cannot see them and that maybe for various reasons, maybe because some of them are a little bit shy but I also noticed that some of them have other plans".

In summary, the contextual factors identified by teachers reflect at both the micro (classroom) and meso (school) levels and play a critical role in shaping the remote teaching practices in Swedish as a second language courses. Results emphasise the interplay between levels and highlight how factors such as teachers' personal experiences, students' digital competencies, and institutional decisions intersect to influence the adoption of remote teaching practices.

5. Discussion

In addressing the first research question "What elements of TPACK are captured in teachers' reflections on adopting a remote teaching practice of Swedish as a second language", the data showed that the integrated knowledge bases (TCK, TPK, PCK, TPACK) were prominently considered more than TK, CK, PK, exhibiting a direct impact on teachers' remote teaching practice. As mentioned by Pamuk et al (2015), core knowledge bases and the integrated bases are significantly different in their predictive power giving the integrated knowledge bases a more direct impact to teachers' ways of planning and performing their teaching. For instance, a teacher who possesses strong pedagogical knowledge (PK) may be successful in structuring lessons but may struggle to adapt them to online platforms without the integrated knowledge of how to apply technology effectively. For this account, the use of the Technological Pedagogical Content Knowledge (TPACK) framework in this study shows the manner in which teachers use their Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), Pedagogical Content knowledge (PCK) and Technological Pedagogical Content Knowledge (TPACK) in their remote teaching practice with the primary objective of fostering language skill development among their students. In line with Sundari et al (2021), the teachers in this study also perceived difficulties integrating technology, pedagogy and content into their teaching practices.

However, teachers' reflections and practices demonstrate a holistic integration of technology, pedagogy, and content knowledge to enhance language learning experiences. Teachers' positive remarks regarding the use of digital teaching aid platforms demonstrate the utilisation of technological tools to enhance pedagogical practices and support language learning. This exemplifies the intersection of technological tools, pedagogical strategies, and content knowledge to facilitate language learning in remote teaching environments. Although the challenges associated with synchronous sessions highlight the complexities posed by language barriers and technical limitations, teachers used pedagogical strategies to promote effective communication and comprehension among students. Synchronous tools like Teams were found beneficial for fostering real-time communication, enhancing students' listening and speaking skills. Similarly, asynchronous platforms effectively support language skill development by offering different learning resources (e.g., videos and exercises). On the other hand, synchronous sessions often require students to overcome barriers of language and technology, which hinder students' comprehension and engagement. Further, asynchronous design of tasks might fail to align with course objectives. Yet using appropriate technological tools and tailoring pedagogical practices to students' language proficiency levels can maximise students learning language remotely. These findings highlight the importance of scaffolding in remote language teaching. Scaffolding which is rooted in cognitive load theory and reflects cognitive learning principles emphasises building students' skills through providing learning tasks that are appropriately challenging that reduce complexity (Van Nooijen et al., 2024). This approach helps students transition from simpler to more complex tasks while maintaining engagement and comprehension. This was reflected in the findings of this article as teachers tried to simplify quizzes for beginners and provided more advanced tasks for proficient students, which align with scaffolding strategies.

This article focuses on understanding how teachers adopt strategies to support students who are struggling to improve both their language and digital skills, thereby easing the learning process for the students. MacKinnon and MacLean (2023) assert that the adoption of remote sessions can have

significant implications for second language teaching, as it can either enhance or hinder the delivery of language content, as echoed by Harris et al. (2009). Yet, teachers make their TCK explicit, by utilising multimedia and online resources such as pre-recorded videos to enhance students' learning through remote sessions. Öllsjö and Söderlund (2020) and Sangermán Jiménez et al. (2021) emphasise how these tools provide flexible and convenient opportunities for remote teaching. However, challenges arise for teachers using digital platforms lacking pre-designed language content, as noted by Akbana et al. (2021). This necessitates additional effort to align content with learning objectives, and manage time which highlights the importance of TCK in navigating such challenges (Sundari et al., 2021). Similarly, the variability in teachers' experiences regarding the efficacy of remote teaching sessions in developing students' language skills, as observed by Lo (2023) and Rathert and Ağçam (2022), further emphasises the role of teachers TCK in addressing such challenge by deepening their understanding of appropriate digital resources tailored to enhance language acquisition.

Teachers' TPK was also evident in their promotion of personalised remote teaching practices during both synchronous and asynchronous remote sessions. For instance, one teacher shared that they adapted the format of online quizzes during synchronous remote sessions to suit the varying language levels of students. This aligns with findings from Kollberg (2021) and Stoian et al (2022) that indicate teachers' ability to tailor remote sessions to meet individual student needs. Moreover, the emphasis on valuing students' abilities to navigate technological platforms reflects teachers' abilities in using their TPK into remote teaching practice. Similarly, teachers PCK was valuable in addressing students with low language level by providing asynchronous learning activities based on the student abilities. One teacher described creating online assignments according to students' language proficiency, incorporating simplified texts to enhance comprehension and allowing more advanced students to tackle challenging questions while providing simpler tasks for those who needed additional support. This supports findings in a previous study by Sundari et al (2021) investigating teachers PCK and reports that teachers adapt their planning of learning activities in accordance with students language abilities. Teachers' PCK was also reflected in their adaptive written and oral feedback practices. This differs from the findings presented by Mäkipää (2022) which suggested that feedback practices in remote teaching do not match students' needs and perceived the oral feedback to be sacred.

Nevertheless, as identified by Kollberg (2021), challenges regarding decreased group learning may arise due to limited group activities and community building practices in remote sessions. This is attributed to the lack of student-to-student interaction in remote sessions (Toscu, 2023). Moreover, the challenge of teaching students with different mother tongue languages, highlights the critical role of digital communication in developing language skills as mentioned in MacKinnon and MacLean (2023). This highlights the need for teachers to further develop their TPK to foster collaborative remote learning experiences and enhance their TPK through utilizing various communication tools and strategies to foster meaningful interactions. Additionally, Sundari et al (2021) report that teachers encounter challenges in accurately assessing students' language skill development. This finding was also reported by Akbana et al (2021) who suggest the need for clear assessment strategies for remote sessions to meet students' needs. Yet, our findings indicate that teachers can take advantage of certain digital aid platforms that involve pre-designed language tests and quizzes to monitor and assess students' language skill development. This demonstrates how the teachers use their TPACK to address challenges and ensure students' language skill development.

In consistent with prior work by Swallow and Olofson (2017) dealing with identifying TPACK context levels and contextual factors, this research found two levels (classroom and school) as having a direct impact on technology integration into remote teaching practice. For this account, students and teachers as actors in micro (classroom level) and meso (school level) influence the adoption of

remote teaching sessions within Swedish as a second language context. Interestingly, the macro level, which covers broader systemic factors such as social and political at the national level, did not appear to significantly influence teachers' teaching practices in this study. This indicates that while macro-level factors are important for understanding the overall landscape of education, they may not directly affect the day-to-day decision-making and practices of teachers within the classroom or school settings.

These results reflect those of Greene and Jones (2020) which show that teachers and students' perception, attitudes and backgrounds are influential contextual factors in technology integrated teaching practice. In addition to that, teachers' understanding and addressing students' backgrounds and needs (language and digital abilities, level of schooling) seemed highly influential at micro level. This is in line with previous work by Lewthwaite et al (2015) that assert contribution of students' characteristics and needs into online teaching. Teachers and students' attitudes of uncertainty towards remote teaching adoption due to their past experiences appear to be derived and perceived during the Covid-19 pandemic. This era remarks on challenges reported by Alvarez (2021) represented by low technological competence of students as a predominant challenge. Interestingly, other contextual factors can be represented by notable individual differences among students within a single course appointing digital competence, language level and schooling level as the most influential within Swedish as a second language context. This finding broadly supports the work of Monirzadeh (2023) linking students' low schooling with low digital competence. This can be attributed to students' low exposure to digital devices and online resources which was reported earlier by Elwan and Mehmeti (2021).

While our findings focus on the factors impacting teachers' adoption, it can be argued that the micro (classroom) and meso (school) levels factors are not only influential but also interplayed. This means challenges of regulations at meso level reflect those at micro level. Grouping of students, decision of digital aid platform and Camera on regulations at the meso level can impact teachers' needs at micro level. This also accords with earlier findings that report the interplay between levels of TPACK context (Greene & Jones, 2020). On the other hand, creating adaptive teaching strategies to manage remote teaching sessions has also appeared as a response to challenges at micro and meso levels. As reported in Lewthwaite et al (2015), teachers provide awareness to students' needs by adapting their teaching accordingly. This involves not only adapting students' language level but also investing in students limited digital skills to create adaptive learning activities.

6. Conclusion

This study investigated the experiences of in-service teachers with the adoption of remote teaching practices in Swedish as a second language courses. Through the lens of the TPACK framework, the integration of (TCK), (TPK), (PCK) and (TPACK) was evident in teachers' reflections on their practices. Teachers used a range of specific strategies to tailor their teaching, including utilising the digital platforms for tracking student progress, conducting individual post-session meetings to provide personalised feedback, and integrating students' home environments into lesson content to make learning more individualised. These approaches demonstrate how teachers adapted their methodologies to foster language skill development in remote settings, despite the challenges posed by integrating technology, pedagogy, and content. Contextual factors such as the absence of regulations, varied levels of students' technological skills, and differing access to devices also played crucial roles in shaping teachers' experiences. The interplay between these micro level factors such as individual students' capabilities and preferences and meso level factors such as school policies and low economy indicates the complexity within remote second language teaching. By deepening our understanding of the strategies, teachers used and the contextual factors influencing their experiences through the TPACK framework, this study provides insights that can guide teachers and policymakers in enhancing remote second language learning. Ultimately, this research contributes to the broader

conversation surrounding technology-enhanced teaching practices, highlighting the need to address the diverse needs of learners in digital contexts. Future research should continue to explore the dynamic interactions between contextual factors and teachers' TPACK practices in remote second language teaching, including students' perspectives on remote teaching adoption and the long-term effects of these practices to inform best practices for remote instruction.

7. Limitations

While this study provides valuable insights into the experiences of in-service teachers with remote teaching adoption in Swedish as a second language courses, there are some limitations that should be acknowledged. The study sample consists of only six teachers from two schools in Sweden. While these participants offer valuable perspectives on remote teaching practices, the small sample size limits the generalisability of the findings to a wider population of teachers. Teachers' reflections may introduce potential biases, as participants may provide responses that align with their perceived expectations or experiences. This could impact the reliability of the data collected. Future research could address these limitations by using larger and more diverse samples.

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