Check for
updates

Digital communication as part of family language policy: the interplay of multimodality and language status in a Finnish context

Åsa Palviainen[1] · **Tiina Räisä**[2]

Abstract

While mobile app-mediated communication between children and members of their family represents a substantial part of contemporary family communication and language input, we still know very little about the role of these technologies in family language policy (FLP). With an explorative questionnaire survey, the current study set out to examine (1) how Finnish state and language-in-education policies intersect with how families make use of their languages in spoken and in app-mediated communication, and (2) to what extent app-mediated FL practices function as a space for spoken and literacy language development. 1002 nine to twelve year-olds in minority-language Swedish-medium schools in Finland responded to the survey. The results showed the dominance of the two national, high-status languages Swedish and Finnish in the families, with texting being the most common app practice. Languages other than Swedish and Finnish (LOTSF) were used in 17% of the families and to a great extent also in the family apps. While app-mediated family communications overall were shown to serve as significant spaces for language and literacy development, in some cases of LOTSF with a lower status and less educational support, and with linguistic and writing systems deviating from Swedish and Finnish, children refrained from texting in the apps. The findings suggest that the relationship between choice of modalities in language(s) of different status and educational support is complex and needs further attention in future FLP studies.

Keywords Family language policy · Digitally mediated communication · Language status · Literacy · Multimodality · Questionnaire survey

✉ Åsa Palviainen
asa.palviainen@jyu.fi

1   Department of Language and Communication Studies, University of Jyväskylä, P.B. 35, 40014 Jyväskylä, Finland

2   Arcada University of Applied Sciences, Helsinki, Finland

🖄 Springer

Introduction

The current study will examine how Finnish state and language-in-education policies intersect with how families make use of their languages in spoken and digitally-mediated communication. The accessibility, multifunctionality and portability of smartphones (Madianou, 2014; Miller, 2014) have had a profound effect on how families communicate and everyday family talk has expanded beyond only face-to-face encounters (Ochs & Kremer-Sadlik, 2015). Information and communication technology (ICT) and multimodal messaging applications (henceforth, apps) such as SMS, FaceTime and Snapchat are used by family members to keep in contact with one another, to express emotions, and to organize everyday life (Baldassar, 2016; Christensen, 2009; Curdt-Christiansen & Iwaniec 2023; Hänninen et al., 2018; Räisä, 2022; Stæhr & Nørreby, 2021; Taipale, 2019). Digitally mediated communication is deeply integrated into Finnish children's and their families' lives: as many as 97% of children in Grades 3 to 9 (9 to 15 years) in Finland have access to a smartphone of their own and 85% are online daily (Smahel et al., 2020, p. 141). Although app-mediated communication between children and members of their family represents a substantial part of their communication and language input, we still know very little about the role of these technologies in family language policy (FLP). Little (2020) points out that a significant proportion of daily language input in contemporary heritage-language families is technology-mediated and suggests a "digital addendum" to the notion of FLP (Little, 2020: 257). This means that the traditional understanding of FLP as explicit and overt (King et al., 2008), as well as the implicit and covert (Curdt-Christiansen, 2009) planning among the members in a family network in relation to their language use and literacy practices, should also encompass "family digital literacy" (Little, 2020: 257). Digital practices should not only be viewed as outcomes of language planning but also examined as significant mediational and multimodal tools (Palviainen 2020a) with a potentially heavy impact on a family's multilingualism, and on the learning and maintenance of language(s).

The dichotomies of online and offline, as well as between speech and writing, have become blurred as smartphones and other digital communication technologies have entered into the lives of individuals (Maybin, 2013; Stæhr & Nørreby, 2021). To reach a comprehensive understanding of contemporary everyday family interaction, the entire range of possible modes of communication in families—verbal, physical and digital—and how language(s) are negotiated in them, should be covered. This also means a wider conception of what constitutes an FLP. Stæhr and Nørreby (2021) point out that family communication however alternates between two essential modes: spoken face-to-face interaction on the one hand, and digitally mediated on the other. This division will be upheld also in the current study.

The research context of the current study is intriguing from a language policy perspective. Finland is a bilingual country with Finnish and Swedish as equal official languages, both languages with a high status and economic power. In terms of numbers of speakers, Swedish is a minority language: 85% of families

in Finland are Finnish-speaking and 4% Swedish-speaking (Statistics Finland, 2020). In families where children attend Swedish-medium schools, as is the case for the families in this study, the family language distributions are reversed with 51% of children coming from Swedish-speaking homes (Hyvönen & Westerholm, 2016). Finnish is thus a dominating language in society at large, but Swedish has a strong position in this research context, especially as it is the language of instruction and literacy in school. In recent years, the number of speakers of languages other than Swedish and Finnish (LOTSF henceforth) has increased dramatically in Finland and this is also seen in Swedish-medium schools (Hellgren et al., 2020). As will be explained in the next chapter, the status of different LOTSF and the extent to which they are supported and valued in schools vary. In the current study, we will examine in more detail to what extent and how LOTSF are employed by children and their families.

The study examines more closely the within-family mobile app and language practices reported in a sociolinguistic survey by 1002 nine to twelve-year-olds in Swedish-medium primary schools in Finland in the autumn of 2019. In this study we ask:

1. How does the sociolinguistic, national and language-in-education policy context affect spoken face-to-face and in app-mediated communication in the family?
2. To what extent are app-mediated FL practices a functioning space for the development of speech and literacy?

In contrast with a major part of studies within the field of FLP that provide rich data from a small pool of participants (Curdt-Christiansen, 2018), the current study will provide breadth rather than depth, and raise issues that need further attention within the field of FLP.

Mediated family communication

Much research has been carried out on transnational and long-distance families and their use of information and communication technologies to sustain their emotional connections and sense of identity including kinship (Abel et al., 2020; Baldassar, 2016; Baldassar et al., 2007; Cuban, 2017; Madianou & Miller, 2012; Nedelcu & Wyss, 2016; Taipale, 2019), but these studies have rarely focused on the role of languages in those communications. Several researchers have identified this as a gap that urgently needs to be addressed (King & Lanza, 2019; Lanza & Lexander, 2019; Little, 2020, Palviainen, 2020a). Some major strands can be identified in the research conducted on multilingual families and their digital practices (Lanza & Lexander, 2019): the role that digital interaction potentially plays in identity, heritage-language use and language choice (e.g., Rydin & Sjöberg, 2008); the use of digital practices to promote informal language learning (e.g., Cuban, 2014); and the interrelationship

between choices of media and the use of spoken or written modalities (e.g., Lexander & Androutsopoulos, 2019).

A number of recent studies have looked at how video calling activities in transnational families enhance the emotional contact between transnational family members and also impact children's language development (Martín-Bylund & Stenliden, 2022; Palviainen, 2021; Said, 2021). Said (2021) showed how Arabic-speaking families in the UK provided children with exposure to different spoken and literary varieties of Arabic with the help of Skype, and Palviainen (2020b) how a Russian-speaking mother with a young child in Finland kept daily video-call contact on Viber with the grandparents in Russia to uphold Russian as an important language in their multilingual FLP. Others have examined messaging apps: In our case study of two multilingual families in Finland who used the instant messaging application WhatsApp for internal family communication, we found children who had created separate family chat groups with different members to maintain Polish, French and Swedish language and cultural identities (Palviainen & Kędra, 2020). In these chats, they practiced and learned in an informal way how to write in their heritage languages which were not taught at school. Curdt-Christiansen and Iwaniec (2022) examined linguistic and non-linguistic features of affective expressions in WhatsApp/WeChat conversations of Chinese and Polish transnational families in the UK. The preferred language of emotionality for both parents and children was the heritage language: Chinese and Polish were used rather than English. Curdt-Christiansen and Iwaniec argue that culturally shaped language practices of affective expressions constitute an important part of an implicit FLP.

Much research on digitally mediated family communication has thus concerned transnational families, in which members are physically distant from each other (Abel et al., 2020). It is important to point out however that digital tools are deeply integrated in family communication also when members live under the same roof (Räisä, 2022; Stæhr & Nørreby, 2021). This was the case for the families in this survey. Furthermore, it is important to point out that the difference between face-to-face spoken communication on the one hand, and app-mediated communication on the other, is not simply between speaking versus writing but whether the communication is mediated through a tool or not: for example, a voice message in an app is also "spoken", in physical co-presence family members may chat via an app while sitting on the same sofa, and there can be face contact in a videocall involving similar visual and aural clues as in a normal conversation.

Most messaging apps for smartphones—such as SMS, WhatsApp, Messenger, FaceTime—nowadays provide similar affordances for the production of semiotic content: voice messaging, voice calling, video calling, text messaging, the sending of images etc. But there are still some differences between them which may cause one app to be chosen before another. Users may also prefer to use a certain mode before another. Lexander and colleagues have examined the mediated multilingual communication of families of Senegalese background in Norway. In Lexander and Watson (2022), it was demonstrated how one speaker used Joola, Wolof, and French in voice messages, but texted in French. In Lexander (2021), some of the participants interacted through voice messages in Wolof, but one participant preferred to use text to reply, as she found voice messages "embarrassing". Texting also gave her more time to formulate what she wanted to say and to search for translations in Wolof, which

was not her strongest language. The relationships between personal traits, skills in a certain language and a particular choice of mode can thus be complex. Lexander (2021: 801) suggests that research "needs to deconstruct and unpack media in order to identify the differences in modality in distribution across the family, and the diversity of the network of the different family members." The children who participated in the current survey reported LOTSF such as Arabic, Thai and Vietnamese which are unrelated to Germanic languages such as Swedish, and in addition have writing systems deviating from Latin scripts. As will be discussed later, this may affect whether they use apps to text or prefer voice or video-calling in their languages.

State and language-in-education policies

Finland is constitutionally a bilingual country, with Finnish and Swedish the official languages (McRae, 2007). Finland was part of the Swedish realm for six centuries until 1809 when it became an autonomous Grand Duchy in the Russian Empire. Swedish continued to be the only official language also under the Russian rule, but eventually a strong movement that promoted the use of Finnish language in education, research and administration developed—and also among the Swedish-speaking elite (Salo, 2012). When Finland became independent in 1917, Swedish and Finnish were given equal status in the Finnish Constitution, ensuring that both language groups have the right to use their own language in contacts with the authorities.

Most Swedish speakers in mainland Finland live in areas along the western and southern coasts in officially bilingual districts, but they can also be found in officially monolingual Finnish-speaking areas elsewhere (Liebkind et al., 2007). Within the bilingual districts the proportions of speakers may vary considerably: whereas Swedish is dominant in some, pre-dominantly rural, areas in the north-west, in others, primarily in the south, Finnish has a strong position and dominates the linguistic and societal landscape. The Finnish social system is to a large extent built on separate Swedish- and Finnish-speaking institutions: the Swedish-speaking minority has the right to receive education from preschool to university level, and to receive healthcare and practise their religion in Swedish (Bäckman & Haapamäki, 2023). The language rights, however, depend on the official status of each district (see McRae, 2007). There are also Swedish-language media and cultural institutions and several stakeholders and foundations who support Finland-Swedish culture (Bäckman & Haapamäki, 2023).

Finnish is clearly the majority and dominant language in terms of numbers of speakers in Finland. In 2019, when this study was carried out, there were 4,8 million (87.3%) who had registered Finnish as their mother tongue, 287,958 Swedish (5.2%), whereas 412,644 (7.5%) were foreign language speakers (Statistics Finland, 2023).[1] Whereas the proportion of Swedish speakers has remained the same, the proportion of LOTSF speakers has steadily grown, the latest figure from 2022 being

---

[1] Since only one mother tongue can be reported to the authorities, the statistics do not differentiate between single, bilingual or multilingual situations. All languages but the official languages Finnish, Swedish, and Sámi are categorized as 'foreign languages' in the official statistics.

8.9%. The largest LOTSF is Russian followed by Estonian, Arabic, Somali and English (Statistics Finland, 2019: 422). However, the language distributions look different depending on age: Thai, Tagalog and Spanish dominate among people from 15 to 64 years of age, and German, Russian and Polish who are 65 and older (Bäckman & Haapamäki, 2023). In the age group we are focusing on in this study—children under 14 years—Somali, Swahili and Arabic are the most common LOTSF. Migrants (such as asylum seekers and quota refugees) arriving to Finland can elect which language to learn first, Finnish or Swedish. Although for the majority it means settling in major cities and learning Finnish, some live in Swedish-dominated rural areas and learn Swedish (Bäckman & Haapamäki, 2023) and their children attend Swedish-medium schools.

There is a parallel Swedish- and Finnish-medium education system and the participants in this study all attended minority language Swedish-medium schools. Nationwide there are 220 Swedish-medium comprehensive schools (Grades 1–9) — mainly located in officially bilingual areas—compared with 1996 Finnish-medium comprehensive schools (Palviainen & Räisä, 2022a). Swedish is the language of instruction in Swedish-medium schools but the curriculum includes the compulsory study of *the second national language* (Finnish) and a pupil who has Finnish as the home language (or one of them) is entitled to *a syllabus in native-level Finnish* (FNBE, 2016). In addition to Finnish, one more language is mandatory, and this is almost always English. Additional languages that can be studied as part of the general curriuculum include German, French, and Spanish.

A child who speaks a LOTSF in the family has the right to receive instruction in that language. In the Finnish curriculum this is referred to as *one's own mother tongue complementing basic education* (MT instruction henceforth) (FNBE, 2016, Appendix 3). In 2020, 22,041 children participated in MT instruction, the most taught languages being Russian, Arabic, Somali, Estonian, and English (FNBE, 2020). MT instruction is extracurricular and is arranged only if the resources, financial and otherwise, allow it, and it has been shown to be lacking in many Swedish-medium schools (Hellgren et al., 2020). One reason why MT instruction may not be arranged is because there are not enough children speaking that language and it can also be challenging to find teachers (Venäläinen et al., 2023) and ones who are qualified. Tainio and Kallioniemi (2019: 71) found that while MT teachers were to a high extent qualified in English (89%) and Russian (79%), and to some extent in Estonian (54%), they were rarely so in Arabic (20%) and Somali (12%), and not at all in Thai (0%). Children speaking different LOTSF can thus be in very different positions for obtaining institutional support, and the responsibility to pass on a minoritized language to their children may lie entirely with parents and relatives.

Language in education policy in Swedish-medium schools thus reveals certain hierarchies, where Swedish is the main language and Finnish and English have very prominent positions along with some European languages such as French, German and Spanish. The same type of hierarchy has been identified by Kalliokoski et al. (2021), but for Finnish-medium schools: Finnish at the top (instead of Swedish), English next, Swedish and foreign languages taught at school in the middle, and MT languages at the bottom.

Materials and methods

Data collection

The questionnaire survey was a first explorative step in a larger, comprehensive ethnographic project that examined family language and technology practices in three different minority-language communities in Finland.[3] We turned to schools for our data collection as the school setting has shown itself to be efficient: a large number of participants at the target age can be reached, contextual factors are known, and sampling procedures can be kept under control (Palviainen & Räisä, 2022a). Purposive non-probability sampling of children was carried out to access a cross section of the population (Battaglia, 2008). In November 2019 data were collected in 15 schools that made up 6.8% of all Swedish-medium comprehensive schools in Finland at that time. All but one (a Swedish-medium school in a Finnish-speaking municipality) were located in official bilingual areas covering a wide geographical area, including both large and small and urban as well as rural schools. Research permits were acquired from school superintendents and principals, and parents and the children gave their informed consent to participate.

The survey was mixed-mode (de Leeuw, 2005). A digital questionnaire was designed with Webropol software for iPads, and the field researchers took iPads into the classrooms so that the children could enter data on-site under the researchers' guidance. The questionnaire was available in Swedish, Finnish, and English, and took an average of 10 min to complete. The data entered were automatically exported to a protected data server and were subsequently available to researchers as MS Excel spreadsheets. The survey did not collect or process any personal data that could identify either the individual or the school. The entire data collection process, from designing the study to meeting the children in the classrooms, has been described in detail in Palviainen and Räisä (2022a).

Participants

A total of 1002 children, 51% of them girls, participated in the survey study. The proportion of children was evenly distributed among the age groups (Table 1). According to the children's own reports of their family make-up, the vast majority (N = 786) comprised themselves, their parent(s), and one or more siblings; 52 children reported that they were the only child, and 87 children lived in reconstituted families (including step parents and siblings). These figures are similar to those reported for Finland as a whole (Statistics Finland, 2020). In addition, 67 children included themselves in extended families (including grandparents and/or other relatives). Seventy-five percent of the children reported that they lived in the same house as the other family members; the remaining 25% had siblings, parents or extended family members living elsewhere, part-time or permanently.

---

[3] "What's in the App? Digitally-mediated communication within contemporary multilingual families across time and space", funded by Academy of Finland (2018–2022)

Table 1 Participants and family types

		n	%
Gender	Boy	483	48.4
	Girl	509	51.0
	Other	6	0.6
	Total[a]	998	100.0
Age (years)	9	247	24.7
	10	283	28.3
	11	258	25.8
	12	211	21.1
	Total	999	100.0
Family types	Parent(s)	52	5.2
	Parent(s) + 1 sibling	382	38.5
	Parent(s) + 2 or more siblings	404	40.7
	Reconstituted family	87	8.8
	Extended family	67	6.8
	Total	985	100.0

[a]Not all children responded to each item so the total does not add up to 1002

Table 2 LOTSF reported by participants

Language	N	Language (cont.)	N
English	85	Romanian	2
Arabic	13	Sign Language	2
Bosnian	8	Somali	2
Vietnamese	8	Thai	2
German	7	Turkish	2
Spanish	7	Armenian	1
Estonian	5	French	1
Russian	4	Greek	1
Dutch	3	Latvian	1
Farsi/Persian	3	Lithuanian	1
Norwegian	3	Serbian	1
Albanian	2	Swahili	1
Japanese	2	Other	8
Kurdish	2	Total	177

169 children reported that they spoke one (or more) LOTSF in their family, the most common being English and Arabic, followed by Bosnian and Vietnamese (see Table 2).

The questionnaire

The questionnaire[2] consisted of 16 items divided into two sections. The items were of different types, including dropdown menus and tick boxes, as well as open-ended questions for free text (for the question items used in this study, see Table 3). The first part asked for background information about the child (age, Grade, gender, country of birth). Children were also asked to list in their own words the members of their family according to their roles (e.g., mother, step-brother) and to tick boxes for each member to show which language or languages they spoke with them. The second part focused on what apps children and their families used and the language and modality practices within them. The questionnaire included a list of ten apps for communication: Discord, FaceTime, Instagram, Messenger, Skype, SMS, Snapchat, TikTok, Viber, and WhatsApp. The research team selected the apps based both on the findings of up-to-date surveys conducted among Finnish teenagers (Audience Project, 2019; SoMe ja Nuoret 2019) and on their own personal experience of popular apps among school-aged children and families in Finland at the time of the data collection. One key criterion for selection was that the app offered affordances for linguistically coded (spoken and/or written) communication between individual family members. One of the apps, TikTok, was different from the others in this regard as it is a platform for sharing short-form videos rather than for interpersonal messaging. The app became extremely popular, however, among children and young people in Finland during 2019 when the questionnaire was designed and the data were collected, so we decided to include TikTok on the list.

Data analysis

In order to address the research questions, analyses were first carried out on the whole sample (N = 1002 children) and in the following stage, with a sub-sample of those children who reported that they spoke at least one LOTSF at home (N = 169). The first set of analyses was designed to identify what the non-mediated spoken (face-to-face) and the digitally app-mediated practices were, how the apps were used in terms of multimodality, and to what extent the spoken and app-mediated practices overlapped in terms of language choices. In order to be able to statistically examine whether language practices varied in spoken and app modes, two or more reported spoken (and/or app) family language practices were coded as multilingual practices; if only one language was reported, it was coded as a monolingual practice. The relationships across non-mediated (spoken) and mediated (app) modalities were examined at the group level by applying cross tabulation with a chi-square test.

The second set of analyses focused on those 169 participants who reported speaking at least one LOTSF in their family. Their spoken non-mediated FL practices were compared with app-mediated FL practices in order to see the extent to which LOTSF were used also in family apps. Finally, a closer qualitative analysis was performed of 17 speakers of a selection of LOTSF—Arabic, Estonian, Russian, Somali, Swahili, Thai, and Vietnamese—all of them among the most common foreign and

---

[2] A dummy can be found at https://webropol.com/s/whatsintheappkids.

Table 3 Question items used for analysis and their themes

Theme	Question	Type of item	Options	Comments
Spoken family language(s)	*Which language(s) do you speak with each family member?*	Closed question	[Swedish] [Finnish] [Other(s)]	Possible to choose more than one language; if Other(s), the language(s) to be specified
App practices (frequency of use)	*How often do you use the ten listed apps?*	Closed question	[Daily] [Once a week] [Once a month] [Never]	
App-mediated family language(s)	*(If Daily or Once a week) Do you use these apps with them in your family?*	Closed question	[Yes] [No]	Conditional branching
	(If Yes) Which language(s) do you use in them?	Closed question	[Swedish] [Finnish] [Other(s)]	Conditional branching; possible to choose more than one language
Multimodal practices with family apps	*What do you do with the family apps?*	Closed question	[Voice calling] [Video calling] [Texting] [Voice messaging] [Sending pictures/videos/memes]	Possible to choose more than one option
Family and sibling app and language practices	*With whom in your family do you use the app(s) and in what language(s)?*	Open-ended question	Free text	

Table 4 Reported app practices: *How often do you use the following apps?* in order of most frequently used

	WhatsApp		TikTok		Snapchat		Instagram		SMS	
	n	%	n	%	n	%	n	%	n	%
Daily	754	76.5	428	44.9	354	38.1	214	21.4	103	11.1
Once a week	163	16.5	188	19.7	134	14.4	179	17.9	251	26.9
Once a month	18	1.8	47	4.9	51	5.5	75	7.5	260	27.9
Never	50	5.1	290	30.4	391	42.0	462	46.1	318	34.1
Total	985	100.0	953	100.0	930	100.0	930	100.0	932	100.0
	FaceTime		Messenger		Discord		Viber		Skype	
	n	%	n	%	n	%	n	%	n	%
Daily	35	3.8	28	3.1	32	3.5	18	2.1	6	0.7
Once a week	147	16.1	79	8.7	53	5.9	13	1.5	21	2.3
Once a month	218	23.9	83	9.2	71	7.9	14	1.6	66	7.3
Never	513	56.2	717	79.1	748	82.7	819	94.8	813	89.7
Total	913	100.0	907	100.0	904	100.0	864	100.0	906	100.0

immigrant languages in Finland. These languages have a lower status than some others in Finland, their educational support varies, and (except for Estonian) they are typologically unrelated to Swedish or Finnish and have other writing systems. Only those who had responded to all questions (Table 3) and had written at length in answer to the final open-ended question were included in the qualitative analyses.

Findings

App and modality practices

The children were asked whether and how often they used the ten named apps. WhatsApp, an instant messaging app for communication, was by far the most frequently used: by 93% (917 out of 985) of the children on a daily or weekly basis (Table 4). After WhatsApp came TikTok (65%; 616/930), Snapchat (53%; 488/930), Instagram (42%; 393/930) and SMS (38%; 354/932). The findings are consistent with other recent surveys about digital practices in Finland targeting 13-year-olds and older, except for one aspect: teenagers in Audience Project (2019) and Some ja Nuoret (2019) used Instagram more frequently than Snapchat, whereas the order of preference was reversed in this group of pre-teens.
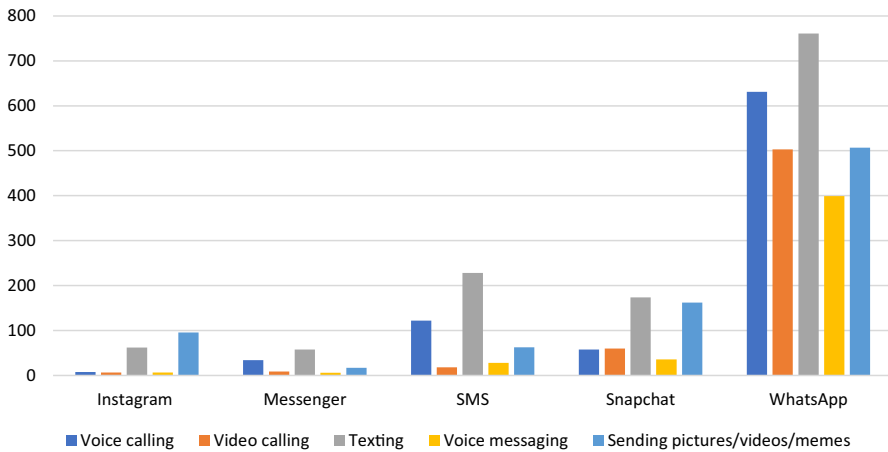
Figure 1 Multimodal practices in the five most frequently used apps for family communication

When asked which apps were used to communicate specifically with family members, 96% of those who used WhatsApp daily or weekly reported using it for family communication, so it continued to be by far the most used app. After this came SMS (83%) and Snapchat (51%). The otherwise very popular TikTok app seemed to be primarily for personal use or with friends: only 19% of its daily or weekly users shared TikTok practices with their family members. The use of TikTok is likely to be driven by entertainment; as Ofcom (2020) found, children find TikTok a good way "to kill time". Moreover, the app is different from the others included in the questionnaire in that it is not suitable for interpersonal communication.

For each app that the children marked as one that they used within their family, we asked what they did with them. Figure 1 shows the reported practices for the five most frequently reported family apps. The figure shows that, across all apps, texting was the favoured family app practice. In addition, SMS was used for voice calls, and Snapchat and Instagram for sending pictures/videos/memes. The results show, further, that WhatsApp was not only the most popular app but was used for multiple purposes: in addition to texting, children used WhatsApp to make voice and video calls, to send visual content, and for voice messages.

All together in these five apps, texting was reported 1283 times followed by voice calling 852, sharing of pictures/videos/memes 845, video calling 597, and voice messaging 476 times. How the affordances of the individual apps are used is important from a language and multimodal perspective: whereas texting is a written (tactile-visual) modality, voice calling/messaging use the spoken (oral-aural) modality, video calling mediates spoken communication but is at the same time visual, while pictures/videos/memes share visual (or multimodal) content which might or might not involve language. These issues will be returned to later.

Table 5 Spoken FL practices, and app-mediated FL practices

	Spoken		App-mediated	
	n	%	n	%
Swedish	412	41.3	488	51.5
Finnish	19	1.9	53	5.6
LOTSF	23	2.3	28	3.0
Swedish + Finnish	397	39.8	267	28.2
Swedish + LOTSF	87	8.7	73	7.7
Swedish + Finnish + LOTSF	59	5.9	39	4.1
Total	997	100.0	948	100.0

Language distributions

The children were asked which language(s) they speak with their family members—Swedish, Finnish, and/or LOTSF—as well as which language(s) they use when communicating with their family members in apps. As for spoken family language practices, the most common language was Swedish, but Finnish or LOTSF were also reported (the first column in Table 5). 46% of the children reported speaking only one language within the family and more than half of the children, 54%, reported that in addition to Swedish they spoke at least one other language at home. By far the most frequent combination was Swedish and Finnish, i.e., Finland's two official languages, sometimes as well as one other language (or more).

These numbers can be compared with those found by Hyvönen and Westerholm (2016), who examined the language backgrounds of children in Swedish-medium primary schools (Grades 1–6). In that survey, from 2013, 51% of the children came from monolingual Swedish-speaking homes and 5% spoke languages other than Finnish or Swedish, compared with 41% and 17% in this study. This indicates a potentially steep increase in the number of multilingual children and those speaking languages other than the two national languages (c.f., Hellgren et al., 2020). The comparative numbers should be interpreted with some caution, however, as in the Hyvönen and Westerholm study teachers and principals were asked to assess the children's language backgrounds, while in this study the children themselves reported on their practices. It is not unreasonable to suppose that children can picture the linguistic landscapes of their family more accurately than the school staff can, so we may conclude that children in Swedish-medium schools in Finland use a larger palette of languages than has previously been thought.

As for app-mediated FL practices, 60% of the children reported that they used one language in the apps, and 40% more than one language. In order to examine the relationships between non-mediated spoken and app-mediated language practices in further detail, we used cross tabulation. A chi-square analysis showed that the differences between the monolingual and multilingual families in their app-mediated language practices were statistically significant ($chi^2 = 316.9$, df = 1, $p < 0.001$). This showed that 91% of those who reported speaking only one language at home with their family also used only one language in the apps (Table 6). Two thirds of the

Table 6 Cross tabulation of reported spoken versus app-mediated family language practices (full sample)

			App-mediated FL practices		Total
			Monolingual	Multilingual	
Spoken FL practices	Monolingual	n	392	39	431
		%	91.0	9.0	100
	Multilingual	n	174	338	512
		%	34.0	66.0	100
	Total	n	566	377	943
		%	60.0	40.0	100

Table 7 Patterns of FL practices across spoken FL and app-mediated FL practices (N = 154)

Spoken FL practices	Pattern of use	App-mediated FL practices	N	%
LOTSF	**A**	**LOTSF**	**12**	**7.8**
	B	**Sw + LOTSF**	**5**	**3.2**
	C	Sw	2	1.3
Sw (+ Fi) + LOTSF	**D**	**LOTSF**	**17**	**11.0**
	E	**Sw (+ Fi) + LOTSF**	**76**	**49.4**
	F	Sw + Fi	8	5.2
	G	Sw	33	21.4
	H	Fi	1	0.6
			154	100

Patterns of app-mediated practices including a LOTSF are marked with bold

children who reported living in multilingual-speaking families also reported multilingual app practices, while the remaining one-third reported the use of only one language in family apps. A closer analysis of the latter group shows that one type of bilingual family stands out: children who reported speaking the two national languages in their family—Swedish and Finnish—preferred one of the languages in the apps.

Spoken and app-mediated language practices in LOTSF families

A total of 169 children reported speaking a LOTSF at home, either only on its own or in combination with Swedish and/or Finnish. Considering the dominance of Swedish and Finnish in the research context, their high status in society, and Swedish being the main language of school and literacy, it is worth examining to what extent they pushed LOTSF out to the margins in the apps. We identified eight different patterns of FL practices: four of them meant a LOTSF was used in non-mediated spoken as well as in app-mediated FL interaction, and the other four that the LOTSF was *not* used in the apps. As shown in Table 7, a majority (N = 110; 71%) represented FL practices where LOTSF were employed also in the family apps (patterns A, B, D and E, marked with bold in table). In the remaining cases (N = 38, 29%), the

children used only Swedish, only Finnish or a combination of the two in the family apps (patterns C, F, G and H). These numbers point to LOTSF having a fairly robust position in the families. In fact, when selecting a subset of LOTSF representing major immigrant groups in Finland—Arabic, Estonian, Russian, Somali, Swahili, Thai, and Vietnamese—it emerged that they make use of their LOTSF in their digital family communication to a greater extent than the LOTSF average: in 80% of the cases, compared with 71% in the group as a whole.

In our final case we analyzed the use of a variety of apps and their modes of use in 17 children who reported speaking either Arabic, Estonian, Russian, Somali, Swahili, Thai or Vietnamese in their family (Table 8). The data is admittedly very complex and challenging, as it includes not only the variety of apps and their use but also different languages and several family members. Nonetheless there are certain features that stand out which we wish to address.

First, in some families the LOTSF had a very central position as it was the only family language: Arabic in #070 and #435, Russian in #053, and Somali in #462. This does not necessarily mean, however, that children used the LOTSF in both speaking and writing. Some children used the apps to share visual content (sending images) and/or mediate oral content (voice calls, video calls, voice messages). This was true for #070 in Arabic, #053 in Russian, #462 in Somali, #191 in Thai, and #203 in Vietnamese. Thus linguistically encoded written language was avoided, perhaps because of personal preferences or because the written competence in that script and language may not have been developed. With the exceptions of Estonian, Somali and Swahili, the LOTSF in this sample have non-Latin scripts. All three Estonian cases in this sample—#080, #166, and #237 —used their apps (Snapchat, WhatsApp, and SMS) multimodally, i.e. in texting as well as in calling. The child speaking Somali (#462) however used only voice calls with her mother.

In some other families, dominant societal languages impacted the app-mediated practices. In this sample, there were two cases where the LOTSF was used in spoken face-to-face interaction but *not* used in the family apps: #719 did not use Russian but only Finnish in the apps, whereas #93 spoke Swedish and Swahili with the mother but left out Swahili in their WhatsApp conversations. In other families, siblings used the school language Swedish with each other but LOTSF with their parents (Arabic in #482, Thai in #191, and Vietnamese in #826), showing the strong influence of school and peer communication.

Discussion

Our first research question asked how the sociolinguistic and the national and language-in-education policy context affects spoken face-to-face and in app-mediated communication within the family in this cohort of minority-language speakers. Although Swedish is clearly a minority societal language in terms of the number of speakers in Finland, it had an extremely strong position in this sample: 91% of the children in this study spoke Swedish only or in combination with another language within their family. This shows the importance of school as a hub for minority language communities and their families (Conteh & Brock, 2011). Moreover, the

Table 8 Language and app practices in families speaking Arabic, Estonian, Russian, Somali, Swahili, Thai, or Vietnamese

ID#	age	Country of birth	Spoken FL practices with whom	Family apps[1] and modes	App-mediated FL practices with whom	Pattern of use
070	11	Syria	Mother, father, five siblings: **Arabic**	Visuals[2] Voice calling, Visuals	"**Arabic** mother, father, brother, sister"	A.
435	11	Iraq	Mother, father, sister: **Arabic**	Video calling, Voice calling, Text, Visuals	"In **Arabic**"	A.
482	10	Finland	Mother 2, father, sister, stepbrother: **Arabic** Mother 1: Swedish	Video calling Text Video calling, Voice calling, Voice message, Text, Visuals	"**Arabic**. With my sister Swedish."	E.
080	11	Estonia	Mother, father, sister, brother: Swedish, English, **Estonian**	Text Video calling, Text	"Mother, father, sister in **Estonian**"	D.
166	11	Estonia	Mother: Finnish, **Estonian** Father, grandmother: Swedish Grandfather: **Estonian**	Voice message, Text Visuals Video calling, Voice calling, Voice messaging, Text, Visuals	"Mother and father in Swedish, Finnish and **Estonian**"	E.
237	11	Finland	Mother: **Estonian** Father: Swedish Brother: Finnish	Video calling, Voice calling, Voice messaging, Text, Visuals	"With father in Swedish and Finnish, brother in Swedish and **Estonian**"	E.
053	9	Finland	Mother, father, brother: **Russian**	Voice calling	"**Russian**"	A.
096	11	Finland	Mother, grandmother: **Russian** Father, two brothers: Swedish	Text, Visuals Video calling, Voice calling, Text	"I use WhatsApp with mother and grandmother in **Russian**, but with father in Swedish, Snapchat with everyone in Swedish"	E.
719	11	Finland	Mother: Finnish Father: Swedish Step brother: **Russian**	Text, Visuals	"Mother and father and brother in Finnish"	H.
438	10	Finland	Mother, father: Swedish, **Somali**	Video calling, Voice	"Instagram and Snapchat in Swedish	E.

dominance of Finnish in society and in the school curriculum showed in the high proportion of bilingual Swedish- and Finnish-speaking families, confirming previous findings (Hellgren et al., 2020; Statistics Finland, 2020). More than half of the children reported multilingual FL practices in face-to-face spoken interaction and

Table 8 (continued)

				calling, Voice message, Text, Visuals	with my parents. WhatsApp in **Somali**."	
462	11	Finland	Mother, father, sister: **Somali**	💬 Voice calling	"With mother in **Somali**."	A.
937	11	Africa	Mother: Swedish, **Swahili**	🟢 Video calling, Voice calling, Voice messaging, Text, Visuals	"With mother in Swedish, Finnish, English."	F.
191	9	Thailand	Mother, sister: Swedish Father, two sisters: **Thai**	🔵 Video calling, Voice calling ⬛ Visuals	"Skype in **Thai**, TikTok with sister in Swedish"	E.
215	12	Thailand	Mother: Swedish, Finnish, **Thai** Father, two brothers: Swedish, **Thai**	📷 Visuals 🔵 Text ⬜🟢 Video calling, Voice calling, Voice message, Text, Visuals	"Instagram in **Thai**. WhatsApp in Swedish with all family."	E.
032	9	Finland	Mother, father: **Vietnamese** Two brothers: Swedish	🟣 Voice calling 🟡 Text 🟢 Video calling	"**Vietnamese**, father, mother, big brother"	D.
203	9	Vietnam	Mother, father: **Vietnamese** Sister: Swedish,**Vietnamese**	📷 Visuals 🔵 Voice calling ⬛ Visuals	"Mother and sister in **Vietnamese**"	D.
826	11	Vietnam	Mother, father, siblings: Swedish, **Vietnamese**	🟢 Video calling, Voice calling, Voice messaging, Text, Visuals	"Mother father in **Vietnamese**, siblings in Swedish"	E.

[1] 💬 Discord, 🟩 FaceTime, 📷 Instagram, 🔵 Messenger, 🔵 Skype, ⬜ SMS, 🟡 Snapchat, ⬛ TikTok, 🟣 Viber, and 🟢 WhatsApp. [2] Pictures/videos/memes.

two-thirds of them used all their languages also in the apps. However, one-third chose to use only one language in the digital, app-mediated communication. Again, the dominance of Swedish and Finnish was evident, in that the language chosen was typically one of them. The data also reflected that Finland—and Swedish-medium schools—are multilingual: nearly every fifth child in the sample reported speaking a LOTSF in the family. In our analysis of this LOTSF cohort, 71% used their LOTSF (either alone or in combination with Swedish and/or Finnish) also in the digitally mediated FL communication (see Table 7). In families with Arabic, Estonian, Russian, Somali, Swahili, Thai, and Vietnamese the percentage was even higher (80%). For many LOTSF families, app-mediated communication is thus a significant space for maintaining a family language that is not necessarily supported elsewhere in the community or school.

The second research question concerned the extent to which app-mediated FL practices function as a space for spoken and literacy language development. The

survey focused on apps that allow for multimodal use and are examples of smartphone polymedia (c.f., Lexander, 2021). WhatsApp was by far the most commonly used one for family communication, followed by SMS and Snapchat, and verbally encoded forms (texting, voice calling/recording, and video calling) by far outnumbered visual ones (exchanging pictures/videos/memes). Across the apps, the most common choice for communicating between family members was text. The frequent and extensive use of texting points not only to the clear expansion of family talk beyond (face-to-face) spoken interaction (Ochs & Kremer-Sadlik, 2015) and the transformation of family language practices (Little, 2020), but also to contemporary children's engagement in a lot of informal writing activities, perhaps more than ever before. These activities benefit incidental language learning and the development of digital and writing literacy (Lanza & Lexander, 2019; Palviainen & Kędra, 2020).

Children can also refrain from texting, however, and choose a more comfortable way out, such as leaving voice messages (Palviainen & Räisä, 2022b; Lexander, 2021). Instant messaging apps can help develop written literacy in languages not taught at school, but not necessarily always. In the detailed analyses of some of the LOTSF families, it was found that some children did not text in the LOTSF in the family apps, but made voice or video calls using the oral mode. The reasons for this we cannot be sure about, but the languages in question are typologically unrelated to Swedish and Finnish and have different writing systems. We do not have data on whether these children have participated in MT instruction and having been taught how to read and write in that language. We do however know that Russian, Arabic and Somali are among the most taught MTs in Finland whereas MT teaching in Vietnamese and Thai is more seldom arranged (FNBE, 2020). Arabic, Somali, Vietnamese and Thai however all have in common the fact that teachers are rarely qualified (Tainio & Kallioniemi, 2019: 71). The amount and quality of formal teaching of spoken as well as written literacy in these languages may therefore vary considerably in quality, or even be non-existent. In these cases, the responsibility for transmitting spoken and written skills in the LOTSF relies heavily on the family (Hollebeke et al., 2020; Schalley & Eisenchlas, 2020).

Conclusion

The data in this study came from a sociolinguistic survey in which the fundamental idea is to gather information about the social organization of language behaviour in a certain population (Cooper, 1980; Djité, 2013), in this case families with children attending minority-language Swedish schools in Finland. As such, it has provided a wide angle rather than a focal lens on the language and digital behaviours of a minority language population. It has shown that the strong educational and legal support for Swedish in Finland had an impact on practices within families. It has also been shown that many families are multilingual, speak languages other than Swedish or Finnish (LOTSF) and that the LOTSF are often employed in instant messaging apps within the family. Sometimes however only in oral mode.

In terms of taking a child's perspective and focusing on non-mediated as well as mediated family language practices, this survey is among the first of its kind in

the field of FLP research. As for its limitations, the current survey was explorative in nature and designed to map complex and unpredictable behaviours in a certain minority language population. It did not ask for family members' attitudes towards certain languages or digital practices or why they chose a particular practice. Admittedly, some question items could have been formulated differently to improve the analyses and the conclusions that could be drawn from them. It was, quite challenging, for example, to interpret some of the children's open-ended responses. Moreover, the questionnaire was not designed for correlational analyses between variables, i.e. for examining causal relationships (Cooper, 1980). Therefore we cannot draw any definite conclusions about the relationship between a certain behaviour and linguistic outcomes, such as how language is transmitted in a long term perspective (Hollebeke et al., 2020). We have identified certain variables, however, that should be more systematically examined in future FLP studies, such as how people choose their modes of communication, certain apps, and which languages to use with whom, and how these variables correlate with minority language development in children, for example. Also, more statistically advanced methods, such as cluster or loglinear analyses, could help to sort out which variables are the strongest predictions of a certain outcome (Loerts et al., 2020).

As Stæhr and Nørreby (2021) conclude, most studies about how family members coordinate their daily life through digital tools tend to exclude the complementing mode of non-mediated face-to-face communication. By contrasts, studies on FLP—including questionnaire surveys—tend to leave out digitally mediated family communication. To achieve a rich description of family interaction both modes need to be taken into consideration and take into account "the full ecology of non-mediated as well as mediated communication in a family network" (Palviainen & Kędra, 2020: 95). When FLP questionnaries are to be employed**,** we recommend that the regular sets of questions—such as language(s) spoken, language skills, literacy (Hollebeke et al., 2020) and media habits such as reading books, watching TV, playing computer games (Kang, 2015; Little, 2019; Slavkov, 2017)—are updated to reflect the everyday complex communicative reality of contemporary families. As for the status of different languages, further research on multiple language use in digital contexts could provide more knowledge about factual language competences among children and families in a society, and to make the covert overt for a larger audience and policy makers.

Declarations

Conflict of interest No potential conflict of interest was reported by the authors.

References

Abel, S., Machin, T., & Brownlow, C. (2020). Social media, rituals, and long-distance family relationship maintenance: A mixed-methods systematic review. *New Media & Society*. https://doi.org/10.1177/1461444820958717

Audience Project. (2019). Insights 2019. App and social media usage. US, UK, Germany, Denmark, Sweden, Norway, Finland. https://www.audienceproject.com/wp-content/uploads/audienceproject_study_apps_social_media.pdf

Bäckman, L., & Haapamäki, S. (2023). Learning Swedish in contexts of migration to Finland. In S. Pöyhönen, & J. Simpson (Eds.), *Minority Language Learning for Adult Migrants in Europe*. Abingdon, Oxon; New York: Routledge

Baldassar, L. (2016). De-demonizing distance in mobile family lives: Co-presence, care circulation and polymedia as vibrant matter. *Global Networks, 16*(2), 145–163. https://doi.org/10.1111/glob.12109

Baldassar, L., Baldock, C. V., & Wilding, R. (2007). *Families caring across borders*. Palgrave Macmillan.

Battaglia, M. P. (2008). Purposive sample. In P. J. Lavrakas (Ed.), *Encyclopedia of survey research methods* (pp. 645–647). Sage Publications.

Christensen, T. H. (2009). "Connected presence" in distributed family life. *New Media & Society, 11*(3), 433–451. https://doi.org/10.1177/1461444808101620

Conteh, J., & Brock, A. (2011). 'Safe spaces'? Sites of bilingualism for young learners in home, school and community. *International Journal of Bilingual Education and Bilingualism, 14*(3), 347–360. https://doi.org/10.1080/13670050.2010.486850

Cooper, R. L. (1980). Sociolinguistic surveys: The state of the art. *Applied Linguistics, I*(2), 113–128. https://doi.org/10.1093/applin/I.2.113

Cuban, S. (2014). Transnational families, ICTs and mobile learning. *International Journal of Lifelong Education, 33*(6), 737–754. https://doi.org/10.1080/02601370.2014.963182

Cuban, S. (2017). *Transnational family communication*. Palgrave Macmillan.

Curdt-Christiansen, X. L. (2009). Invisible and visible language planning: Ideological factors in the family language policy of chinese immigrant families in Quebec. *Language Policy, 8*(4), 351–375. https://doi.org/10.1007/s10993-009-9146-7

Curdt-Christiansen, X. L. (2018). Family language policy. In J. W. Tollefson & M. Pérez-Milans (Eds.), *The Oxford handbook of language policy and planning* (pp. 420–441). Oxford University Press.

Curdt-Christiansen, X. L., & Iwaniec, J. (2023). '妈妈, I miss you': Emotional multilingual practices in transnational families. *International Journal of Bilingualism, 27*(2), 159-180. https://doi.org/10.1177/13670069221125342

de Leeuw, D. (2005). To mix or not to mix data collection modes in surveys. *Journal of Official Statistics, 21*(2), 233–255.

Djité, P. G. (2013). *Sociolinguistic surveys in language planning*. Wiley. https://doi.org/10.1002/9781405198431.wbeal1088

Finnish National Board of Education (FNBE). (2016). *National Core Curriculum for Basic Education 2014*. Helsinki: Finnish National Board of Education.

Finnish National Board of Education (FNBE). (2020) *Omana äidinkielenä opetetut kielet ja opetukseen osallistuneiden määrät vuonna 2020* [Languages taught and number of participants in one's own mother tongue in 2020]. https://www.oph.fi/sites/default/files/documents/Omana%20%C3%A4idinkielen%C3%A4%20opetetut%20kielet%20ja%20opetukseen%20osallistuneiden%20m%C3%A4%C3%A4r%C3%A4t%20vuonna%202020.pdf

Hänninen, R., Taipale, S., & Korhonen, A. (2018). Refamilisation in the broadband society—The effects of ICTs on family solidarity in Finland. *Journal of Family Studies*. https://doi.org/10.1080/13229400.2018.1515101

Hellgren, J., Silverström, C., Lepola, L., Forsman, L., & Slotte, A. (2020). *Hur hanteras två- och fler-språkigheten i de svenskspråkiga skolorna? Resultat av en utvärdering i åk 1–6 läsåret 2017–2018 [How is bi- and multilingualism handled in the swedish-medium schools? Results of an evaluation of year grades 1-6 in 2017-2018].* Helsinki: Finnish Education Evaluation Centre.

Hollebeke, I., Struys, E., & Agirdag, O. (2020). Can family language policy predict linguistic, socio-emotional and cognitive child and family outcomes? A systematic review. *Journal of Multilingual and Multicultural Development.* https://doi.org/10.1080/01434632.2020.1858302

Hyvönen, S., & Westerholm, A. (2016). Elevernas språkbakgrund i årskurs 1–6 i de svenskspråkiga sko-lorna. In A. Westerholm & G. Oker-Blom (Eds.), *Språk i rörelse—skolspråk, flerspråkighet och lärande [Languages in motion: School language, multilingualism and learning]* (pp. 12–35). Board of Education.

Kalliokoski, J., Lehtimaja, I., Nissilä, L. & Vaarala, H. (2021). Näkökulmia nuorten monikielisyyteen ja Suomen kielivarantoon [Perspectives on the multilingualism of young people and the Finnish language reserve]. *Kieli, koulutus ja yhteiskunta*, 12(4).

Kang, H. (2015). Korean families in America: Their family language policies and home-language mainte-nance. *Bilingual Research Journal, 38*(3), 275–291. https://doi.org/10.1080/15235882.2015.1092002

King, K. A., Fogle, L., & Logan-Terry, A. (2008). Family language policy. *Language and Linguistics Compass, 2*(5), 907–922. https://doi.org/10.1111/j.1749-818X.2008.00076.x

King, K., & Lanza, E. (2019). Ideology, agency, and imagination in multilingual families: An introduc-tion. *International Journal of Bilingualism, 23*(3), 717–723. https://doi.org/10.1177/1367006916684907

Lanza, E., & Lexander, K. V. (2019). Family language practices in multilingual transcultural families. In *Multidisciplinary perspectives on multilingualism* (pp. 229–252). Berlin, Boston: De Gruyter. https://doi.org/10.1515/9781501507984-011

Lexander, K. V. (2021). Polymedia and family multilingualism: Linguistic repertoires and relationships in digitally mediated interaction. *Pragmatics and Society, 12*(5), 782–804. https://doi.org/10.1075/ps.20052.lex

Lexander, K. V., & Androutsopoulos, J. (2019). Working with mediagrams: A methodology for collabo-rative research on mediational repertoires in multilingual families. *Journal of Multilingual and Mul-ticultural Development.* https://doi.org/10.1080/01434632.2019.1667363

Lexander, K. V. & R. Watson. (2022). Things you cannot do in Norway: Multilingual transnational action and interaction in digital communication. *Nordic Journal of African Studies, 31*(1), 45–71. https://doi.org/10.53228/njas.v31i1.539

Liebkind, K., Tandefelt, M., & Moring, T. (2007). Introduction: Why a special issue on the Swedish-speaking Finns? *International Journal of the Sociology of Language, 2007*(187–188), 1–11. https://doi.org/10.1515/IJSL.2007.047

Little, S. (2019). 'Is there an app for that?' Exploring games and apps among heritage language families. *Journal of Multilingual and Multicultural Development, 40*(3), 218–229. https://doi.org/10.1080/01434632.2018.1502776

Little, S. (2020). Social media and the use of technology in home language maintenance. In A. C. Schal-ley & S. A. Eisenchlas (Eds.), *Handbook of home language maintenance and development* (pp. 257–273). De Gruyter. https://doi.org/10.1515/9781501510175-013

Loerts, H., Lowie, W., & Seton, B. (2020). *Essential statistics for applied linguistics* (2nd ed.). Macmil-lan International, Red Globe Press.

Madianou, M. (2014). Smartphones as polymedia. *Journal of Computer-Mediated Communication, 19*(3), 667–680. https://doi.org/10.1111/jcc4.12069

Madianou, M., & Miller, D. (2012). *Migration and new media: Transnational families and polymedia.* Routledge.

Martín-Bylund, A., & Stenliden, L. (2022). Closer to far away: Transcending the spatial in transnational families' online video calling. *Journal of Multilingual and Multicultural Development, 43*(7), 587–599. https://doi.org/10.1080/01434632.2020.1749643

Maybin, J. (2013). Working towards a more complete sociolinguistics. *Journal of Sociolinguistics, 17*, 547–555. https://doi.org/10.1111/josl.12047

McRae, K. D. (2007). Toward language equality: Four democracies compared. *International Journal of the Sociology of Language, 187–188*, 13–34. https://doi.org/10.1515/IJSL.2007.048

Miller, J. (2014). The fourth screen: Mediatization and the smartphone. *Mobile Media & Communication, 2*(2), 209–226. https://doi.org/10.1177/2050157914521412

Nedelcu, M., & Wyss, M. (2016). 'Doing family' through ICT-mediated ordinary co-presence: Transnational communication practices of Romanian migrants in Switzerland. *Global Networks, 16*(2), 202–218. https://doi.org/10.1111/glob.12110

Ochs, E., & Kremer-Sadlik, T. (2015). How postindustrial families talk. *Annual Review of Anthropology, 44*(1), 87–103. https://doi.org/10.1146/annurev-anthro-102214-014027

Ofcom. (2020). *Children's media lives: Life in lockdown report*. Retrieved from https://www.ofcom.org.uk/__data/assets/pdf_file/0024/200976/cml-life-in-lockdown-report.pdf

Palviainen, Å. & Kędra, J. (2020). What's in the family app? Making sense of digitally mediated communication within multilingual families. *Journal of Multilingual Theories and Practices, 1*(1), 89–111. https://doi.org/10.1558/jmtp.15363

Palviainen, Å. (2020a). Future prospects and visions for Family Language Policy research. In A.C. Schalley, Andrea C. & S.A. Eisenchlas (Eds.), *Handbook of home language maintenance and development: Social and affective factors* (pp. 236–253). Berlin: de Gruyter Mouton.

Palviainen, Å. (2020b). Video calls as a nexus of practice in multilingual translocal families. *Zeitschrift Für Interkulturellen Fremdsprachenunterricht, 25*(1), 85–108.

Palviainen, Å. (2021). This is the normal for us: managing the mobile, multilingual, digital family. In: L. Wright & C. Higgins (Eds.), *Diversifying Family Language Policy (*pp. 123–142). Bloomsbury.

Palviainen, Å. & Räisä, T. (2022a). The Winding Road to Accessing the Voices of One Thousand Schoolchildren: A Nexus Analysis of Collecting Data for a Survey. *Scandinavian Journal of Educational Research, 66*(5), 793–807. https://doi.org/10.1080/00313831.2021.1939137

Palviainen, Å. & Räisä T. (2022b). "Pikkuhiljaa hem å äta": Flerspråkighet och multimodalitet i en familjechatt. ["Pikkuhiljaa hem å äta": multilingualism and multimodality in a family chat.] In K. Lepistö, R. Kosunen & E. Risto (Eds.), *Humanisten med många roller: En festskrift till Paula Rossi på hennes 60-årsdag* (pp. 243–262). Faculty of humanities, University of Oulu.

Räisä, T. (2022). Family relations: Emotional overload. In K. Kopecka-Piech & M. Sobiech (Eds.), *Mediatisation of Emotional Life* (pp. 151–167). Routledge. https://doi.org/10.4324/9781003254287-13

Rydin, I., & Sjöberg, U. (2008). Internet as a communicative space for identity construction among diaspora families in sweden. In I. Rydin & U. Sjöberg (Eds.), *Mediated crossroads: Identity, youth culture and ethnicity* (pp. 193–214). Nordicom.

Said, F. F. S. (2021). "Ba-SKY-aP with her each day at dinner": Technology as supporter in the learning and management of home languages. *Journal of Multilingual and Multicultural Development*. https://doi.org/10.1080/01434632.2021.1924755

Salo, O.-P. (2012). Finland's official bilingualism – a bed of roses or of procrustes? In J. Blommaert, S. Leppänen, P. Pahta, & T. Räisänen (Eds.), *Dangerous multilingualism. Northern perspectives on order, purity and normality* (pp. 25–40). Palgrave Macmillan.

Schalley, A. C., & Eisenchlas, S. A. (Eds.). (2020). *Handbook of social and affective factors in home language maintenance and development*. Mouton de Gruyter.

Slavkov, N. (2017). Family language policy and school language choice: Pathways to bilingualism and multilingualism in a canadian context. *International Journal of Multilingualism, 14*(4), 378–400. https://doi.org/10.1080/14790718.2016.1229319

Smahel, D., Machackova, H., Mascheroni, G., Dedkova, L., Staksrud, E., Olafsson, K., . . . Hasebrink, U. (2020). *EU kids online 2020. Survey results from 19 countries*. London: EU Kids Online, LSE. Retrieved from http://hdl.handle.net/10852/77940

SoMe ja Nuoret, 2. (2019). Suomessa asuvien 13–29 -vuotiaiden nuorten sosiaalisen median palveluiden käyttäminen ja läsnäolo [13–29 year-olds in finland and their use of and presence in social media]. Retrieved from https://wordpress.ebrand.fi/somejanuoret2019

Stæhr, A. C., & Nørreby, T. R. (2021). The metapragmatics of mode choice. *Pragmatics and Society, 12*(5), 756–781. https://doi.org/10.1075/ps.20050.can

Statistics Finland. (2019). *Statistical Yearbook of Finland 2019c.* https://pxhopea2.stat.fi/sahkoiset_julkaisut/vuosikirja2019/pdf/julkaisu.pdf

Statistics Finland. (2020). *Families [e-publication]* Helsinki: Statistics Finland. http://www.tilastokeskus.fi/til/perh/2018/02/perh_2018_02_2020-01-31_en.pdf

Statistics Finland. (2023). *Population structure.* https://www.stat.fi/en/statistics/vaerak

Tainio, L., & Kallioniemi, A. (Eds.) (2019). *Koulujen monet kielet ja uskonnot Selvitys vähemmistöäidinkielten ja -uskontojen sekä suomi ja ruotsi toisena kielenä -opetuksen tilanteesta eri koulutusasteilla* [The schools' many languages and religions. Survey of the situation of minority mother tongues and religions and the teaching of Finnish and Swedish as a second language at different levels of education]. Helsinki: Prime Minister's Office.

Taipale, S. (2019). *Intergenerational connections in digital families*. Springer. https://doi.org/10.1007/978-3-030-11947-8

Venäläinen, S., Laimi, T., Seppälä, S., Vuojus, T., Viitala, M., Ahlholm, M., … Metsämuuronen, J. (2023). *Kielellisiä taitoja ja koulunkäyntivalmiuksia – valmistavan opetuksen ja oman äidinkielen opetuksen tila ja vaikuttavuus -arviointi* [Linguistic skills and readiness to go to school - assessment of the status and effectiveness of preparatory education and teaching in one's own mother tongue]. Helsinki: Finnish Education Evaluation Centre.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Åsa Palviainen is Doctor in General Linguistics from University of Gothenburg, Sweden, and Professor of Swedish at the Department of Language and Communication Studies at the University of Jyväskylä, Finland. Her research interests include bi- and multilingualism, family language policy, technology-mediated language practices, mediated discourse analysis, language education policy in Nothern Europe, as well as (early) second language learning and teaching. She has been the leader of several externally funded projects. The two most recent ones -- "Language conceptions and practices in bilingual early childhood" and "What's in the App? Digitally-mediated communication within contemporary multilingual families across time and space" -- were funded by The Academy of Finland. Her scholarly works include over 70 items in renowned journals, handbooks and edited volumes.

Tiina Räisä holds a doctoral degree in Scandinavian languages from Helsinki University. She currently works as a principal lecturer in culture and media at Arcada University of Applied Sciences, Helsinki, Finland. Räisä has a background as a news journalist and media producer, and she has conducted research within applied linguistics, especially discourse analysis. Her research interests are within media studies, more specifically digitalization of culture, media anthropology, practices of othering, and mediatization theory.