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What's in the family app? Making sense of digitally mediated communication within multilingual families

Åsa Palviainen and Joanna Kędra

Abstract

Communication within contemporary families is increasingly and to a significant extent mediated through technological devices and digital applications. Although the everyday reality of many multilingual families is permeated by technology, research on their digital and language practices has been scant. This article argues for the need for eclectic approaches that draw upon theories, practices, and findings from research on transnational families and migration, digitally mediated family communication, parental mediation, multilingualism online, and family multilingualism and language transmission. Two empirical case studies are presented on multilingual family constellations in Finland in which the instant messaging application WhatsApp was used to create space to sustain transnational family relationships, to negotiate about agency, to create cultural identity and group membership, as well as to practise and develop literacy. Whereas previous research has focused on digital practices in families, on multilingual practices on internet platforms, or on language transmission processes in families, we argue that future research should focus more on the digital multilingual family and explore the role of languages as embedded in digital media activities and interwoven in everyday family life.

KEYWORDS: DIGITALLY MEDIATED COMMUNICATION; FAMILY MULTILINGUALISM; WHATSAPP.

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1. Introduction

Communication within contemporary families is increasingly and to a significant extent mediated through technological devices (such as mobile phones and tablets) and digital applications (e.g., WhatsApp, Skype). As these digital affordances facilitate instant multimodal communication across time and space, they play an important role not only for transnational families whose members live in geographically distant places (King-O'Riain, 2014; Madianou and Miller, 2012) but also for family members who share the same household (Christensen, 2009). Communication technologies may serve the whole range from the management and coordination of practical aspects of daily life (such as a parent sending an SMS to a child about when to be picked up from their hobby), to long-term objectives of nurturing and sustaining emotional relationships (such as a migrant worker keeping contact through Skype with his or her family back home). In families where more than one language is used every day, digitally mediated communication also involves explicit or implicit language choices. The everyday reality of many multilingual families is permeated by technology, and although there is a recent growing emphasis on, for example, understanding how multilingual family practices intersect with transnationalism, globalisation, and digital media (King and Lanza, 2019:717–18), empirical research is still scarce.

Against this backdrop, the aim of this paper is two-fold. First, we will argue that an understanding of contemporary multilingual families and their digitally mediated communication requires eclectic approaches in which theories, practices, and findings from different research fields are drawn upon. Examples of such relevant fields, which we will discuss in more detail below, are those around transnational families and migration, digitally mediated family communication, parental mediation, multilingualism online, and family multilingualism and language transmission. After this, drawing on all these fields, we will go on to provide empirical evidence of how the use of the instant messaging application WhatsApp in two different multilingual family constellations created spaces for language and identity negotiation, child agency, and the development of literacy.

2. Insights from previous research

2.1 The connected family

Research on how transnational family members keep contact and manage relationships over long distances has been pursued for a long time within migration studies. A transnational family can be defined as a family (nuclear or extended, or involving other significant kinships) that has living arrangements

spread over two or more countries and an active desire to maintain family relations (Hirsch and Lee, 2018:884). Research includes, for example, the classic works by Olwig (1999), Parreñas (2001), and Baldassar, Baldock, and Wilding (2007) on adult members of a family (typically the mother) moving to other countries to earn a living, and how they care for children or ageing parents from a distance. As communication technologies have advanced and become more accessible, the relationships in these families have increasingly become mediated, sustained, and nurtured through digital technology. Madianou and Miller (2012:8) introduced the concept of ‘polymedia’ to refer to the social and emotional consequences of choosing between a plurality of communication technologies in transnational families. In recent years, we have seen an ever increasing body of research on digitally mediated communication within different geographic, social, and cultural family contexts (Benítez, 2012; Farshbaf Shaker, 2018; Francisco, 2015; Kang, 2012; Lim, 2016a; Nedelcu and Wyss, 2016), as well as studies on families living apart because of education (Jeong, You, and Kwon, 2014), with long-distance love relationships (Greenberg and Neustaedter, 2013), or among refugees (Leurs and Smets, 2018).

A related field of research focuses on how family networks are digitally connected: what communication technologies are used by which family members, how, why, when, and with whom (Neustaedter, Harrison, and Sellen, 2013; Taipale, 2019). This research shows that not only does the family shape the practices of technology, but technology contributes to shaping the family (Taipale, 2019). As the technologies develop, so habits change over time: whereas Stern and Messer (2009) in their survey study from 2005 found that the landline phone was favoured over the mobile phone, and that email had emerged as important, Christensen (2009) found mobile voice calling to be the most important intra-familial communication channel. Rudi et al. (2015) found that texting was a crucial activity for the parents who took part, particularly in order to share information and coordinate the activities of their school-age children. Hänninen, Taipale, and Korhonen (2018) found that while young adults used WhatsApp, SMS, Messenger, and Facebook to keep contact with most of their family members, they favoured voice calls to their grandparents. Baldassar (2016) presented a case study of polymedia (Madianou and Miller, 2012) practices in a transnational extended family with members living in Europe and Australia, and concluded that the range of communicative opportunities available to many contemporary families (such as mobile phones, tablets, SMS, FaceTime, Skype, WhatsApp, voice calls, and Facebook) has led to a qualitative shift in the way technologies and mobilities mediate intra-familial relationships across long distances and bring members closer. Clayton et al. (2018) showed that mobile workers (working away from home overnight for extended periods or with some regularity) used a relatively small range of

technologies (smartphones, tablets) to engage in a wide variety of mediated interpersonal interactions, routines, and family rituals when away from home.

The research field of parental mediation (or digital parenting) engages with the complex issue of parents raising children in the twenty-first century and balancing between protecting the child against the potential risks of being online while at the same time enabling and guiding the child in the digital society (Bruess, 2015; Clark, 2011; Lim, 2016b; Livingstone and Helsper, 2008; Mascheroni, Ponte, and Jorge, 2018). Whereas the focus of studies is typically on parents mediating and managing their children's media practices, there are also studies taking into account the fact that children sometimes know more about digital tools and applications than their parents do, and they take the lead in introducing new technology and digital practices into the family. Van den Bulck, Custers, and Nelissen (2016) refer to this as the child-effect. Other related terms used in the literature to refer to child expertise are warm experts, proxies, and digital natives (Hänninen, Taipale, and Korhonen, 2018). In the study of connected family communication, it is important to take into account the dynamics between parental and child competencies, practices, and agencies.

In the complex research interface of migration, family relationships, and digital affordances, there are certain recurring themes, like the mediation of intimacy and emotions, the availability and choice of digital media, parenting, caring and maintaining relationships, kin-keeping and guarding roles, as well as power, gender, and age perspectives on these issues. Studies on digital family communication practices provide important insights into access to, and the employment of, polymedia, and how the practices relate to age, local-global distances, the distance of family ties, and frequency and type of contact. However, within these rich bodies of research, there is a striking lack of (socio) linguistic and multilingual perspectives on the connected family (see Lanza and Lexander, 2019, for an exception).

2.2 Connecting multilingual families

The study of Computer-mediated Communication (CMC) dates back to the 1970s and, as the name indicates, refers to communication in and on computers and the internet. Over the years, and in response to new environments and practices, new and partly overlapping concepts have emerged, including new media, Social Network Sites (SNS), digital media, Web 2.0 and social media (Bakardijeva, 2016). Concepts such as Information and Communication Technologies (ICT) and the more recent polymedia refer to the multitude of tools, applications, and platforms through which communication is mediated today.

The history of the study of multilingualism in digital environments is relatively short; it began only in the early 2000s. The earliest research was mainly on text-based digital discourse in and about English. As time went on there was more interest in other languages too, in aspects like code-switching and CMC-adapted language features, as well as (youth) language practices in online communities (Androutsopoulos, 2008; Danet and Herring, 2007; Lee, 2017). Current research focuses on multimodality, multiliteracies, heterogeneity, creativity, and language teaching and learning (Leppänen, Kytölä, and Westinen, 2017). Rather than examining internet language practices as an isolated phenomenon, Leppänen, Kytölä, and Westinen (2017) call for sociolinguistic perspectives on digital media activities as connected and enmeshed with other aspects of everyday life, because physical and virtual settings are often intertwined. This embeddedness of digital media in everyday life is particularly evident in the doing of family. It is enhanced by the wide accessibility and use of smartphones, that hand-held and mobile device that is a combination of familiar media and new applications constantly being developed (Miller, 2014; Pettegrew and Day, 2015). Research on multilingualism online therefore needs to expand its focus and understanding of applications beyond the internet and world wide web, and begin to include family networks.

The language practices of bilingual families and bilingual development in children have been under the microscope for decades (e.g., De Houwer, 1990, 2009; Döpke, 1992; Lanza, 1997; Ronjat, 1913). In processes of (home) language maintenance and change, the family is regarded as a critical domain (Fishman, 1991; Schalley and Eisenchlas, 2020; Spolsky, 2012). Over the last decade, research on multilingual families has grown exponentially as part of the field of family language policy (FLP) (King and Fogle, 2017; King and Lanza, 2019; Smith-Christmas, 2017). Over time, the focus in this field has developed from questions about how language planning, strategies, and parental beliefs—as well as the impact of contextual, societal factors and language ideologies—relate to children’s bi-/multilingual development towards an increased interest in processes of meaning-making in multilingual families, the inclusion of wider ranges of family types and societal contexts, and the roles of emotions and child agency. However, despite the deep embeddedness of digital media in contemporary family life, research within FLP has, so far, only to a very limited extent taken this reality into consideration empirically, methodologically, and theoretically. To adjust to the circumstances of contemporary families, Palviainen (2020a) suggests that the classic definitions of FLP (Curdt-Christiansen, 2009; King, Fogle, and Logan-Terry, 2008) should be expanded to include digital practices. FLP is then to be understood as explicit and overt, as well as implicit and covert, planning among members in a family network for their language use, and digital and literacy practices. The digital practices should

be seen not only as an outcome of family language planning but also as a significant mediational tool.

Some relevant work has, however, been conducted at the intersection of digital media and multilingual family practices (for a comprehensive overview, see Lanza and Lexander, 2019). By way of example, there are studies on how FLP is negotiated in public space in online media. Piller (2001) examined online communities (newsletters and mailing lists) for bilingual families, with a focus on parents' reports on their language planning, while Hirsch (2018), in her seven-year longitudinal study, traced the negotiation of FLP over time in Facebook online communities with English-speaking transnational settler mothers in Israel. Lanza (2019) has used online blogging and vlogging as sources of data and points out that the private family has become public in the age of social media. In a study that combines questions from the field of heritage language transmission with those from parental mediation, Little (2019) conducted a survey and interview study of 212 families in which she examined the potentials of game-based technology for heritage language and literacy development. The results showed that the reported use of digital technologies to support the heritage language depended on complex variables such as the availability of resources, technical skills, and the attitudes of parent and child towards both the heritage language and online games and applications. Similarly, Szecsi and Szilagyí (2012) found that the use of media technologies positively affected children's heritage skills in Hungarian, but also that this relied on parental mediation and effort.

Video calling as a means of keeping contact within transnational families has already been researched for some time (Ames et al., 2010; Share, Williams, and Kerrins, 2018). Studies have shown that video calling enhances 'shared living' (Greenberg and Neustaedter, 2013), 'emotional streaming' (King-O'Riain, 2015), and 'omnipresent co-presence' (Nedelcu and Wyss, 2016) in contexts where family members live apart. King-O'Riain (2014), in her study of transnational families in Ireland, showed that Skype was an important means for families to keep contact with extended family members abroad and maintain emotional as well as cultural and linguistic connections between grandparents and grandchildren. Palviainen (2020b) examined two single-mother family constellations with preschool-age children in Finland and explored how they kept video-call contact with family members elsewhere in Europe. In the first family constellation, Finnish, English, and Dutch were used and mediated via daily FaceTime calls that required active collaboration among the participants to make them work. In the other family, Russian was used in daily Viber calls with grandparents in Russia and served as a counterweight to the dominant presence of Finnish and English in the daily life of the mother and son.

A call for further research attention to the multilingual family as situated in a mobile and digital world has been put forward by several researchers (King and Fogle, 2017; King and Lanza, 2019; Palviainen, 2020a). Lanza and Lexander (2019:245) conclude that greater research emphasis should be placed on digital as well as non-digital family language practices in order to gain further insight into important questions such as ‘how families make sense of multilingualism across generations, how language is woven into family dynamics, and how families make decisions about language.’ We will now turn to a discussion of how these types of study can be framed, and present two empirical case studies.

3. Towards an eclectic framework

We argue that in order to understand contemporary digital multilingual families one must be very ambitious: the goal must be to encompass the full ecology of non-mediated as well as mediated communication in a family network. In order to achieve this, already existing knowledge, theory, and methodologies from neighbouring fields can inform, and also assist in transforming, the field of research (Figure 1).

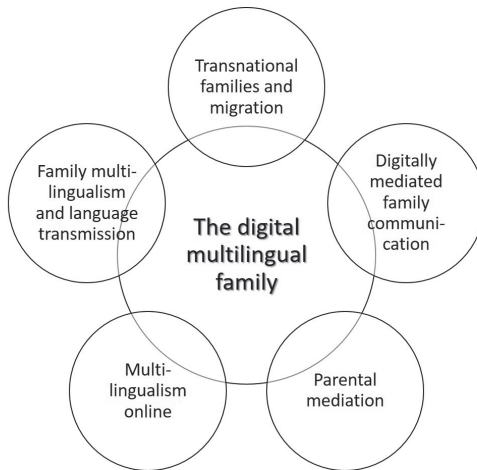


Figure 1. The study of the digital multilingual family at the centre of different fields of research.

Research on transnational families and migration has provided important insights into how families keep up their emotional relationships across distances using communication technology, and studies on digitally mediated family communication have demonstrated how individual members of

different generations make use of, and make choices between, a range of media. The field of parental mediation has shown that parents have a pivotal role in guiding as well as protecting their children in their media use, but also that children themselves can have a strong agency and sometimes have more advanced digital competence than their parents. Research on multilingualism online has provided rich knowledge on CMC-adapted features, mediated linguistic creativity and multimodality, and code-switching/translanguaging practices online. Socio- and psycholinguistic research about family multilingualism and language transmission has provided ample evidence of how family language planning and practices, the amount and quality of linguistic input, and the sociocultural and sociolinguistic environment relate to child language development and to processes of language transmission across generations.

Neighbouring fields have thus made different, valuable contributions to our understanding, but they also have their blind spots: research on the connected family lacks the perspective of language practices, and research on the multilingual family often lacks technology-mediated communication as part of its protocol. An eclectic framework can help us to understand many relevant but often overlooked aspects: how linguistic and cultural relationships and identities are digitally mediated across time and space in transnational family constellations; which media and applications individual family members use to communicate, using what linguistic resources, for what reasons and with what linguistic consequences; the role of child agency and the internal dynamics of the digital family; the hybrid and multimodal family communication that integrates online with offline practices; and how language is negotiated and transmitted across generations as a function of these environments.

Although the goal of describing a full ecology of communication is a very ambitious one, a bottom-up perspective can be applied and can reach far. In the following we will demonstrate how analysis of the use of one single mobile application—WhatsApp—in two different multilingual family constellations can produce knowledge about several of the issues mentioned in the previous paragraph. The data collection was carried out as part of the research project “What’s in the app? Digitally-mediated communication within contemporary multilingual families across time and space,”¹ which focuses on Swedish-, Russian-, and Polish-speaking families in Finland. The project has the explicit goal of trying out different methodologies, and this led to the choice of two case-study families: both of the families were multilingual and used WhatsApp on a daily basis, and the choice allowed for the exploration of different data collection methods and methods of analysis. While the first case study relied on interview data, an auto-driven visual elicitation methodology, and a qualitative analysis, the second combined interviews with access to full WhatsApp conversation data, which were analysed both quantitatively and qualitatively.

4. WhatsApp as a space for family language interaction

In both of the multilingual families to be presented in this section, the instant messaging application WhatsApp played a significant role in their intrafamilial communication. As Pettigrew (2009) found in his study of text messaging in close dyadic interpersonal relationships, it can be regarded as a constant, private, and direct way of communication that facilitates connectedness and enhances autonomy. Instant messaging applications also allow for group messaging. In their study of intergenerational families in Finland, Hänninen, Taipale, and Korhonen (2018) found intra-family messaging groups to be frequent. The members of these groups did not necessarily post important information, but they were rather ‘hanging out’ together: they asked how someone was doing, shared opinions, photos, video links or humorous messages, or asked for advice about trivial problems, etc., all of which contributed to the sense of belonging in a family.

Texting is always mediated through language(s), and in a multilingual family, the messaging activity also involves the choice of language (or, in the case of other semiotic contents, choice of pictures, emojis, etc.). Lanza and Lexander (2019) point out that engaging in instant messaging can lead to informal language learning. In the following, we will examine the role WhatsApp can play in doing and shaping the multilingual family, as well as the potential of instant messaging for multilingual practices and the development of language skills.

WhatsApp is an example of an instant messaging application that is available free for all major mobile platforms. WhatsApp allows for both one-to-one and one-to-many interactions and offers a wide range of multimedia functions, such as making voice and video calls, exchanging text contents, pictures, emojis, or audio and video messages, or posting updates and stories (Kaufmann and Peil, 2020; Taipale, 2019:87–88). It is by far the most popular social media application in Finland (Audience Project, 2019). The first family, the Nowak-Dantons, represents a transnational family constellation with members living in Finland, Poland, and France. They used WhatsApp for group chats. The second family, the Aho-Strands, had members in Finland as well as in Sweden, but the analysis here will focus on WhatsApp interactions between the mother and son who lived in the same household.

4.1 The Nowak-Danton example

Olga, the mother in the Nowak-Danton² family, moved from Poland to Finland some 15 years ago where she met Olivier, from France. The couple lived in Finland and had two daughters who were born there: Julia, ten years old, and Lidia, aged eight. The family used four languages at home: Polish, French,

Finnish, and English. The parents communicated with each other mainly in English but sometimes in French. The daughters communicated with their father in French and with their mother in Polish or in a mixture of languages. Julia and Lidia attended a French-Finnish bilingual school and had a heritage language class in Polish once a week.

At the first research visit to the family, the mother was interviewed while she created a collage of family constellations and communication practices (see Figure 2). She was provided with pictures with human silhouettes and icons of communication technologies. The technique of an interactive collage was used as an auto-driven visual elicitation methodology, further inspired by the 'circle of reference' (Prieto-Blanco, 2016) and the 'mediagram' (Lexander and Androustopoulos, 2019).



Figure 2. The family collage of the Nowak-Danton family, created by Olga (visualised as a female silhouette on a green background, centre, in the bottom line of the collage).

In this family collage (Figure 2), Olga has placed the cards of the nuclear family in the centre and has played with colours to depict family members based on their country of origin. She has chosen to depict Olivier (the father) and the French-speaking extended family in France in yellow (to the left), Olga herself and the Polish-speaking extended family in Poland in green (to the right), and the two daughters in pink. Olga said that the family maintained regular contact with relatives in both France and Poland: they spent several weeks in France each summer and often made shorter visits to Poland. The father organised video calls (usually via Skype) on quite a regular—even daily—basis with his parents in France. The mediated communication practices with the extended family in Poland were more diverse: the daughters kept in contact with cousins in Poland mainly via Messenger and with grandparents via WhatsApp—texting, sending photos and emojis—and Skype videocalls. Olga herself preferred voice calls when contacting her parents.

WhatsApp was frequently used, both for intrafamilial purposes and in communication with the Polish extended family. In the following extract (Example 1), Olga relates that their ten-year-old daughter Julia has created a family community group, the ‘Polish group,’ including herself, Olga, and her Polish grandparents.

Example 1: Transcript from interview in Polish with Olga (mother)³

- | | | | |
|----|-------|--|---|
| 01 | Olga: | mamy grupę też ((śmiech)) (.) mamy grupę, ale oczywiście też (.) to moja córka założyła tą grupę (.) jest grupa polska, się nazywa | <i>we have a group as well ((laugh)) (.) we have a group, but of course also (.) my daughter created this group (.) this is called the Polish group</i> |
| 02 | Res: | acha, i kto jest w tej grupie? | <i>okay and who is in this group?</i> |
| 03 | Olga: | dziadek, babcia i ja (.) i Julia (.) więc to jest takie nasze wspólne i głównie tam jakieś też (.) głównie zdjęcia (.) właśnie teraz też zachęcam, żeby dziecko pisało bardziej, żeby po polsku umiało poprawniej pisać (.) ale właśnie ten whatsapp rzeczywiście jest teraz | <i>grandpa, grandma and me (.) and Julia (.) so it's something of our collective and there we share mainly (.) mostly photographs (.) I also encourage the child to write more so that she can write more correctly in Polish (.) but yes, this whatsapp is actually now on</i> |

The utterance in line 03 also shows that the mother made use of this space to encourage her daughter to develop her Polish literacy skills.

As Olga’s family collage shows (see Figure 2) WhatsApp was, in her opinion, primarily connected with the Polish-speaking members of the family. However, during the second research visit, when the two daughters were also interviewed about it, it turned out that Julia had created a ‘group France’ as well, including the girls, their father, and their grandfather in France (who had recently bought a smartphone). This came as news to the mother, and she expressed her surprise during the interview. Julia replied with a laugh and said, ‘Yes, we have a group France, but you are not in it.’ In this sense, the creation of different WhatsApp spaces may serve to strengthen relationships between certain members of the family and at the same time exclude others. Hänninen, Taipale, and Korhonen (2018) discuss the fact that differences in ICT skills can lead to exclusion, but in the case of the Nowak-Danton family, it seemed to be technical skills in combination with aspects of language and cultural identity that were decisive for who was to be included in the groups. We see a child-effect in this process, as it was ten-year-old Julia who was the administrator of both groups, who had the agency to include and exclude

and was in power (Hänninen, Taipale, and Korhonen, 2018; Van den Bulck, Custers, and Nelissen, 2016).

In Example 2, the researcher and Julia are having a conversation about Julia's creation of these WhatsApp groups (from utterance 07). There is, however, a parallel activity going on here, starting at line 01 and involving the two sisters and at least one more participant, a French-speaking family member who is not physically present. Both girls had their own smartphones with them and the girls were engaged in a message exchange in French on WhatsApp (lines 01–06). Julia texted this person in French, and after her little sister had asked in Polish (02) as well as in Finnish (05) what the message said, Julia read it aloud in French (06).

Example 2: Transcript from conversation in Polish between Researcher, Julia (aged ten) and Lidia (aged eight)

01	Jul:	((píše/czyta jakieś wiadomości w telefonie))	((writes/reads some messages on her phone))
02	Lid:	co napisała?	what did she write?
03	Jul:	trudno jest pisać po francusku	it's difficult to write in French
05	Lid:	mitä tos lukee, julia?	((in Finnish)) what does it read, Julia?
06	Jul:	je suis au travail de mama, j'accorde no	((reads aloud in French)) I'm at mum's work, I agree ((in Polish)) yes
07	Res:	julia, to ty założyłaś tą grupę francuską?	Julia, did you create the French group?
08	Jul:	no	Yes
09	Res:	[a tą polską?	[and this Polish?
10	Lid:	((píše/czyta wiadomości w telefonie; wymawia po polsku)) bonjourne (.) jor (.) jour]	((writes/reads messages in her phone and speaks aloud with Polish pronunciation)) bonjourne (.) jor (.) jour]

- 11 Jul: ja też, bo wtedy jak ja dostałam ten telefon, to od razu założyłam i potem dodałam lidie tylko. *me as well, because then when I got this phone, I immediately created it and then I just added Lidia*
- 12 Res: a, jak ona już miała telefon, tak? *when she already had a phone, yes?*
- 13 Jul: tak *Yes*
- 14 Res: a to skąd miałas taki pomysł? *and where did you get this idea from?*
- 15 Lid: ((pisząc wiadomość w swoim telefonie)) bonjourne ((chichocząc)) umiem pisać *((writing a message on her phone in French)) bonjourne ((giggling)) I can write*
- 16 Jul: zobacz, kiedy założyłam *see when I created*
- 17 Res: 7. stycznia, w tym roku *seventh of January this year*
- 18 Jul: no, to dawno dosyć i potem tylko dodałam Lidie *yes so quite a long time ago and then I added Lidia*
- 19 Res: a to była ta polska, tak? *and this was that Polish one right?*
- 20 Jul: no i ta francuska *yes and that French*
- 21 Res: a to skąd miałas taki pomysł, żeby taką polską grupę założyć? *and where did you get this idea from to create this Polish group?*
- 22 Jul: no nie wiem (.) żeby jak mam *well I don't know (.) that when I have*
- 23 Lid: ((czyta w telefonie)) salut (.) salut (.) salutte:: (.) salutte:: (.) *((reading on her phone)) salut (.) salut (.) salutte:: (.) salutte::*
- 24 Jul: no i tą grupę [francuską] niedawno *and this [French] group recently*
- 25 Res: no, widzę, tak 31. sierpnia *yes I see yes thirty-first of August*

Lidia had received her first phone on her eighth birthday, only one month before this interview. As the conversation unfolds between the researcher and Julia, Lidia actively engages with someone in WhatsApp and manages to both read and produce text in French (utterances 10, 15, and 23). She is thrilled when she exclaims in Polish that she realises she can write in French (line 15).

4.2 The Aho-Strand example

The Aho-Strand nuclear family consisted of mother Stina, father Timo, and their son Lukas, who was 12 years old at the time of data collection. Stina was of Swedish origin and had lived with Timo in Finland for about 15 years. Lukas was born in Finland and attended a Finnish-medium school. The family used Finnish, Swedish, and English at home. The main language between the parents was Swedish, and Lukas used Swedish with his mother and Finnish with his father. As Lukas had acquired high proficiency in English through gaming and engaging with English media in his spare time (Sundqvist and Wikström, 2015), he and Stina also spoke quite a lot of English with each other at home.

As for communication technology devices, all three members had a smartphone and a laptop but they had no landline phone. Timo almost exclusively made voice calls to the other members of the family, and voice calls were also the main mode of communication between Timo, Stina, and Lukas (cf. Christensen, 2009). Stina used messenger, SMS, email, and voice calls to keep in touch with her family in Sweden in Swedish, and WhatsApp or voice calls with Timo's family in Finland in Finnish. Lukas got his first smartphone at the age of seven when he started school, and he was a skilled user of different applications and technologies, switching between Finnish and English depending on the type of application and activity and who he was interacting with. The Aho-Strands met up with the Swedish extended family about once a year, when they went to Sweden or members of the Swedish family visited Finland.

When Lukas was eight years old, Stina and Lukas began to communicate via WhatsApp. All the messages sent between them over a period of four years and four months were collected for the current study and exported to a data server for closer analysis.⁴

The output came out as one textfile (.txt), in which each contribution appeared on a single line with a time stamp and contents. The export procedure also created separate files of attached multimedia contributions including audio (.opus), videos (.mp4), and photos (.jpg). The textfile was transferred to Excel for coding of the language(s) used and type of content. The total number of contributions exchanged between Lukas and Stina during this four-year period was 1,522, of which 719 were sent by Lukas (see Table 1). The content analysis showed that the vast majority of the contributions consisted of text

(rather than voice messages, pictures, or video clips) and that Swedish clearly dominated over Finnish and English.

Table 1. WhatsApp contributions (N=1,522) by son (Lukas) and mother (Stina): distribution of types.

	Son		Mother	
	n	%	n	%
Swedish text only	514	71	555	69
Emoji	53	7	73	9
Photo	31	4	104	13
Finnish text only	26	4	4	0
English text only	15	2	3	0
Number	14	2	3	0
www-link	11	2	13	2
mixed Swedish/ Finnish text	5	1	11	1
misc.*	50	7	37	6
Total	719	100	803	100

*Video clip, voice message, punctuation marks, mixed Swedish/English text, copied text in Finnish from another source.

As the table shows, about 70% of the contributions consisted of Swedish text only. The number of (Swedish) words produced was 1,360 by Lukas and 3,331 by Stina, adding up to a total of 4,691 words. This extensive exchange of messages written in Swedish should be considered against the background that Lukas attended a Finnish-medium school where he was taught Finnish and English—but not Swedish. The mother reported that Swedish was the main spoken language used in their home, but the WhatsApp conversations were actually the only space where Lukas wrote (and read) in Swedish. WhatsApp therefore served as a critical space for the boy's informal literacy acquisition in Swedish.

As the data included time stamps, it was possible to follow Lukas's literacy development over time, from age eight to age 12. One of the very first exchanges included a language policy request by Lukas in Swedish—'Kan vi skriiva på finska' (Eng. 'Can we write in Finnish')—and Stina responded, in Swedish, 'Du kan skriva på finska så svarar jag på svenska!' (Eng. 'You can write in

Finnish and I'll respond in Swedish!'). Despite this fairly pragmatic suggestion by Stina, Lukas continued to write in Swedish for most of the time. In tracing Lukas's spelling development, it became clear that to a great extent he relied on his oral skills in Swedish ('spell like it sounds') as well as applying Finnish orthographic rules. In Example 3, when Lukas was nine years old, he misspelled some words in the same way as Swedish children at the same age would do (e.g., 'jillar' instead of 'gillar') but he also applied Finnish spelling conventions for some of the vowels (e.g., 'gudis' instead of 'godis'). The word for 'buy' in Swedish is 'köpa' [çø:pa] and was spelled by Lukas as 'khopa.' The initial segment [ç] does not exist in Finnish phonology and Lukas's analytical approach to this was to spell it with 'kh' (which is impossible in both Swedish and Finnish orthography).

Example 3: Message exchange in Swedish in WhatsApp between Stina (mother) and Lukas (son, aged nine). Spelling errors in bold.

- | | | |
|---|-------|---|
| 1 | Lukas | Kan du khopa kudis till mej
<i>Can you buy some sweets for me</i> |
| 2 | Stina | Ja det ska jag!
Vad gillar du bäst?

<i>Yes I will!</i>
<i>What do you like best?</i> |
| 3 | Lukas | Jag jillar omar gudis okc marabu mix den röda puosen
Sej vad de fins do
Klockan ett kan du gu khopa gudis
kan du 2 puosar
Khopa 2

<i>I like omar sweets and marabou mix the red bag</i>
<i>Tell me what there is then</i>
<i>At one o'clock you can go and buy some sweets</i>
<i>can you 2 bags</i>
<i>Buy 2</i> |

Despite the spelling errors, and thanks to her Finnish skills, Stina did not seem to have any problems understanding the message. One year later, at the age of ten (Example 4), Lukas had acquired the correct spelling of 'köpa.' Also, the word for 'and,' which was incorrectly spelled as 'okc' at age 9 (Example 3, line 3), was now correctly spelled as 'och' (Example 4, line 3):

Example 4: Message exchange in Swedish in WhatsApp between Stina (mother) and Lukas (son, aged ten). Spelling errors in bold>.

- 1 Lukas **För** jag köpa 8€ i **et** spel
Can I spend 8€ on a game
- 2 Stina Ja. Men inte mer. Är du hos mummo och pappa?
Yes. But not more. Are you at grandma and grandpa's?
- 3 Lukas Ja Inget och göra
Yes Nothing to do

The WhatsApp messages sent between Lukas and his mother served many different functions, similar to some of those found by Christensen (2009) for intrafamilial mobile voice calling. The functions included the coordination of daily activities, greetings, ‘how is it going,’ telling of exciting news, and Lukas asking his mother for permission to do something (Example 4). Stina also travelled as part of her work, which meant that she used WhatsApp to re-create a sense of home when she was away and to keep up family rituals. She also involved Lukas in her travel experience by sending photos (Clayton et al., 2018). The exchange in Example 3 took place when Stina was returning home from a trip abroad and wanted to take something home for him.

5. Discussion

The cases of the Nowak-Dantons and Aho-Strands add empirical findings to the emerging body of family language research focusing on how digitally mediated practices create meaning among the members of a family, promote language development, and give children agency. More specifically, the examples show how the instant messaging application WhatsApp functioned as a virtual transconnective space where family members got together and created a sense of family belonging (Hänninen, Taipale, and Korhonen, 2018). Research on transnational families has shown that video-calling routines increase the family’s sense of virtual and emotional togetherness when they are geographically remote, and bridge the time between physical meetings (Ames et al., 2010; King-O’Riain, 2014, 2015; Palviainen, 2020b). The data from the Nowak-Danton family show that the daughters kept in contact with their grandparents in Poland through Skype, as did the father with his parents in France. In addition, the family used WhatsApp to keep contact with relatives in Poland and France between physical

visits to these countries. The activities in the WhatsApp groups then served to sustain linguistic and emotional connections when the families were apart.

In the Nowak-Danton family, the daughter Julia played the role of founder and administrator of two different groups—one Polish, one French—and was the person in power, who decided who was eligible for group membership. Julia and her younger sister were granted membership in both groups. One of the groups included the girls' father and extended family members in France, the other group included their mother and extended family members in Poland. Although a joint language (French or Polish) was a criterion for membership, it was not enough: the mother was a fluent speaker of French but was excluded from the French group. It thus seems that Julia constructed the groups with identity and nationhood as a defining characteristic. In the Aho-Strand example, the one-to-one conversations had included only Lukas and his mother, whereas the father (who was also proficient in Swedish) was excluded. This means that in this case the WhatsApp space was a mother-and-son space.

One important finding is that WhatsApp created opportunities for language development and informal literacy learning (Lanza and Lexander, 2019). The data from the families and their WhatsApp practices show that Julia wrote in Polish (Example 1) and French (Example 2), her sister Lidia wrote in French (Example 2), and Lukas wrote in Swedish (Examples 3 and 4). In Julia's case, Olga explicitly said that she regarded WhatsApp as a means for her daughter to write (correct) Polish (Example 1, line 3). It seems the language choices and writing practices of all three children were natural consequences of the shared oral language practices with the individuals in question as, for example, in the case of Lukas and Stina. It is well established that the type and amount of linguistic input plays a decisive role in a child's development of one or more languages (De Houwer, 2007). The WhatsApp data from the Aho-Strand family show, in mere numbers, that during these four years, Lukas read more than 3,300 words in Swedish and himself produced over 1,300 words. This means that the instant messaging application provided the child not only with a substantial amount of written language input but also a space where he could practise and develop language in an informal and meaningful way.

6. Conclusion

As Kaufmann and Peil (2020:230) point out, '[m]edia communication has become ... so profoundly embedded in people's everyday life that it permeates a plethora of daily routines, practices, and social interactions.' It is therefore of the utmost importance that research on contemporary multilingual families takes this point seriously, theoretically as well as methodologically. In order to do this successfully, we argue the need to draw from different research

disciplines, such as migration research, research on digitally mediated family communication, digital parenting, and multilingualism online, and research on family language policy and practice. Admittedly, there are other relevant fields of research as well which we have had to exclude for reasons of space, such as family systems theory (e.g., Lanigan, 2009) and mediatisation (Couldry and Hepp, 2017). With an eclectic and multidisciplinary approach, we might be able to answer Lim's (2016b:27) call for 'innovative research protocols that can make sense of the mobile multi-screen, multi-app, multi-media, and multi-modal environment that surrounds families today,' and add multilingualism to this protocol. Then we could address critical questions such as how language choice and multilingual practices are shaped and multilingual discourses constructed through multiple devices, and how these affect family members' everyday linguistic activities (Lee, 2017:136). It would also help us to understand not only how the technologies offer the possibility of sustaining the multilingual family configuration in a particular way, but also how they shape the practices of communication (cf., Couldry and Hepp, 2017).

Notes

1. Academy of Finland (2018–2022), Grant No. 315478. For project details, see <http://www.jyu.fi/whatsinapp>.
2. All names are pseudonymised.
3. Transcription conventions: (()) = non-verbal or other contextual information, [] = overlapping turns, (.) = brief pause.
4. The data were transferred from Stina's iPhone using the 'Export chat' function available in WhatsApp.

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