# The use of language technologies in forced migration

## An explorative study of Ukrainian women in Austria

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**Abstract** *This paper examines the interplay between digital connectivity and forced migration from the perspective of applied linguistics and sociolinguistics, exploring forced migrants' use of language technologies to solve everyday communication problems. Forced migrants must navigate life in the host country while lacking, often entirely, competency in the local language(s). They thus face, and must overcome, language barriers in a range of contexts, such as understanding an email from their child's school or explaining their ailment to a medical professional. Language technologies such as machine translation, optical text recognition, and, most recently, generative artificial intelligence can be a vital resource in such situations. Drawing on data collection among six Ukrainian forced migrants in Austria, this paper investigates the use of language technologies in forced migration.*

**Keywords** *Language Technologies; Forced Migrants; Machine Translation; LT-assisted Language Practices; Action Chains; Human-in-the-loop; Russian-Ukrainian war*

## 1. Introduction

This paper examines the interplay between digital connectivity and forced migration[1] from the perspective of applied linguistics and sociolinguistics, exploring forced migrants' use of language technologies to solve everyday

1 The terms 'forced migration' and 'forced migrant' are used here as cover terms that refer to asylum seekers, refugees, and other displaced people, regardless of their current legal status in the host country.

communication problems. Forced migrants must navigate life in the host country while lacking, often entirely, competency in the local language(s). They thus face, and must overcome, language barriers in a range of contexts, such as understanding an email from their child's school or explaining their ailment to a medical professional. Language technologies (LTs) such as machine translation, optical text recognition, and, most recently, generative artificial intelligence can be a vital resource in such situations. Drawing on preliminary data collection among six Ukrainian forced migrants in Austria, this paper investigates the use of (mainly smartphone-based) LTs in forced migration. The research design sets up three interrelated dimensions of analysis: LTs, typically arranged in individual media repertoires; communicative goals that forced migrants attempt to solve with the help of LTs; and individual skills, including language and media competencies, which constrain the ways people use LTs. The analysis first provides an overview of these dimensions and their interplay among Ukrainian forced migrants. In addition, three dimensions that seem worth exploring further are identified: (a) the combination of two or more LTs that are routinely deployed to achieve certain goals; (b) the participants' awareness of flaws and limits of LTs, and their solutions when dealing with such flaws; (c) human-in-the-loop strategies, i.e., combinations of technological and human resources within a sequence of LT-assisted actions.

## 2. Background: Smartphones, language technologies, and forced migration

During the 2015 European 'migrant crisis', smartphones came to serve as a vital resource for forced migrants during their transnational trajectory and upon arrival (Alencar & Godin, 2022; Gillespie et al., 2018; Latonero & Kift, 2018). In addition to being used for communication with old and new contacts, smartphones provided a means to store copies of important documents, find orientation in new locations, and access official and crowdsourced information (Gillespie et al., 2018; Kaufmann, 2016). Forced migrants also rely on commercial and grassroots digital resources for language learning (Artamonova & Androutsopoulos, 2020). The academic interest in (forced and other) migrants' growing reliance on information and communication technologies (ICTs) has led to the coinage of a novel interdisciplinary field, 'digital migration studies' (Leurs & Ponzanesi, 2024; Leurs & Smets, 2018), which explores (forced) mi-

grants' digital practices at different stages of their migration trajectories as well as the increasing use of digital technologies by authorities for the management and surveillance of migrants. However, the smartphone-based use of 'language technologies' during and after forced migration remains underexplored as of yet.

In the early 2010s, as smartphones were still considered a 'luxury item' for Europeans, their prevalence among forced migrants was unexpected to members of the host community and led to heated public debates in host countries (Meyer, 2015). By the Ukrainian refugee crisis of the 2020s, digital connectivity came to be viewed as basic support. For example, the German federal government released an app, *Germany4Ukraine*, to help Ukrainian refugees with orientation in Germany (Bundesamt für Migration und Flüchtlinge, 2024), and authorities in Bavaria described the smartphone as 'essential for many refugees' (Bayerisches Staatsministerium für Umwelt und Verbraucherschutz, 2023). While these differences in attitude may partially reflect Europe's greater solidarity with Ukrainian forced migrants than those from other countries, they also demonstrate a growing acceptance of the crucial role of ICTs for (forced) migrants in a new country.

Forced migrants face some unique challenges when compared to other types of migrant populations, such as students or work migrants. Due to the uncertain nature of their migration, they are less likely to have acquired some competence in the host country's language while still in their home country (Kosyakova et al., 2022; Kristen & Seuring, 2021). In consequence, many must navigate their new environment without any language skills upon arrival. In addition to the resulting communicative challenges, the legal status of forced migrants is complex and the information they need to understand their rights, especially regarding social benefits and labour opportunities, is often not officially translated and can thus be difficult to access (Almohamed et al., 2020; Bergmanis & Pinnis, 2022; O'Mara & Carey, 2019). Regardless of which country takes care of the asylum procedure, its central part is typically an interview where asylum seekers are required to prove their need for refuge. The power imbalance of this speech event and its potential for miscommunication have been a major focus of linguistic research on forced migration (Blommaert, 2009; Eades, 2005; Gibb & Good, 2014; Spotti, 2019). However, this research does not consider the much more recent availability of LTs and artificial intelligence (AI) tools and their potential interplay with established asylum-seeking procedures.

While communication barriers are to some extent overcome with the help of translators and interpreters provided by the host state, the demand often exceeds the supply, especially for situations other than the asylum interview. Community and ad-hoc interpreters can help fill the gap but typically lack formal training, which can lead to further complications: the presence of an interpreter results in an assumption of clear communication, therefore incorrect translations of specialised legal or medical vocabulary may be overlooked (Berbel, 2020; Kletečka-Pulker et al., 2019). Language learning is thus highly important for eventual integration. State-provided language courses can provide an important site for socialisation and psycho-social support (Capstick, 2020). In addition, commercial language-learning apps (e.g., *Duolingo*) and amateur-produced content on social media are particularly useful learning resources, especially to forced migrants who do not (yet) have access to an official course (Artamonova & Androutsopoulos, 2020).

In this context, LT tools can provide a highly useful additional resource for solving communication problems. Since the mid-2010s, there is a high degree of interest from the field of Human-Computer Interaction in developing 'new' technologies for forced migrants (cf. Almohamed et al., 2020; Barale, 2022; Baranoff et al., 2015; Müller et al., 2020). For example, a novel app for machine translation between Ukrainian and the Baltic languages proved highly popular among Ukrainian forced migrants, with 127 million sentences translated between Lithuanian and Ukrainian within two months (Bergmanis & Pinnis, 2022, p. 275). However, as Leurs and Smets (2018) point out, such success is rare compared to the number of novel tools created. They estimate that activists developed approximately 1,500 apps for forced migrants at the height of the 2015 'migrant crisis' in Europe, but most of these were never used. Instead, forced migrants prefer to use existing technologies over niche specialised apps, for example social media which is "reliable, easily accessible, and widely used" (Alencar & Godin, 2022, p. 369).

## 3. Research design: technologies, goals, and individuals

Clearly, then, research on the use of LTs in contexts of forced migration and postmigration is extremely scarce in applied linguistics and sociolinguistics. Contributing towards filling this gap, this paper presents the research design and findings of a case study that involves members of the forced migrant community of Ukrainians in Austria. This section outlines the three parameters

that frame this research: (a) a focus on the 'in-situ' use of LTs in terms of (b) the communicative goals these serve, thereby taking into consideration (c) the users' individual characteristics and language skills.

a) Language technologies: Our approach to LTs distinguishes between 'emic' (i.e., community-based) and 'etic' (researcher-based, encyclopaedic) categorisations. From an etic viewpoint, LTs of particular interest include: machine translation (e.g., *Google Translate*, *DeepL*) and in particular recent services that are built on artificial neural networks (Eisenstein, 2019); optical character recognition (OCR); and large language models/generative AI services (e.g., *ChatGPT*). From an emic perspective, participants understandings of what LTs encompass may vary. Some of our participants include into this category language-learning apps or draw a fuzzy boundary between various LT tools (see Section 5). While language-learning apps are not the focus of this study, participants' explanations of the role they play in their daily communicative routines provide further information of their understanding of using technology to get things done. In either case, we view LTs as (part of) a mediational repertoire (Lexander & Androutsopoulos, 2023) that forced migrants draw from in flexible and situated ways. Importantly, our interest is not in the features or exact app used, but in the technologies' affordances, i.e., the range of communicative actions enabled by technology (Hutchby, 2001), which may be perceived (or misperceived) and taken advantage of differently by various users.
b) Communicative goals: Forced migrants use LTs in their attempt to solve everyday communicative issues, often of an urgent or even existential kind. These goals are in turn linked to different participation formats, genres, and modalities of language. More specifically, participants may rely on LTs in both face-to-face and digitally mediated communication, thereby processing written and/or spoken language and addressing a variety of interlocutors. We assume that the communicative goals LTs may serve potentially include 'understanding texts' in the host language; 'producing text or speech' in the host language; and 'supporting situated, smartphone-mediated interaction' in the host language.
c) Individual characteristics and skills: Individual skills and attitudes are expected to constrain the extent to which LTs are deployed to overcome communication barriers. In our specific case, while Ukrainian women who fled to Austria after 2022 share some sociodemographic characteristics, they also differ in certain respects, which can prove decisive for the communica-

tive problems they need to solve and the ways they use LTs. For example, different competency levels in German can affect both the extent to which they rely on LTs and the ways they use LTs. Individual skills with smartphones and other information and communications technologies can play a role in terms of which apps an individual user is familiar with and how skilful they are exploring their affordances.

These three parameters are not limited to a specific community of forced migrants, but potentially encompass a much larger set of human practices with LTs. Research in digital migration studies (Leurs & Ponzanesi, 2024) suggests that all categories of migrants increasingly rely on digital resources to navigate a novel sociolinguistic environment, involving tasks such as understanding the written language around them or accomplishing short interactions with members of the host community. Anecdotal evidence suggests that some of these challenges also hold true for short-term tourists or other types of translocally mobile people. Plainly speaking, different kinds of people use different kinds of LTs (parameter 1) to deal with different types of communicative issues (parameter 2), thereby crucially depending on their brought-along skills with, and attitutes towards, language and technology (parameter 3). The interplay of these three parameters can be expected to differ across and within user groups, leading to different strategies in the use of LTs for intercultural understanding. The explorative study presented below shows how this interplay works out for a particular group of forced migrants.

## 4. Research context, participants, and data collection

Since the start of Russia's full-scale invasion of Ukraine in February 2022, several million Ukrainians have fled to the EU, with over 80,000 residing in Austria by January 2024 (Statistik Austria, 2024, p. 24). Unique among forced migrants in the EU, Ukrainians are beneficiaries of the EU-wide Temporary Protection Directive, which means that unlike other forced-migrant groups, they did not have to undergo an asylum procedure to receive protection. However, their residency status is temporary and prolonged yearly (Council of the EU, 2024). The living conditions of Ukrainian forced migrants in Austria are generally precarious, as the state has placed them in the category of 'Grundversorgung' (basic care), a complicated social benefits system meant to cover the most basic needs of asylum seekers until their asylum procedure

is complete (Gahleitner-Gertz, 2024). Due to difficulties with language skills, childcare, and bureaucratic red tape, only a small percentage are currently working, typically under their level of qualification, and 75% claim that their current income does not or barely meets their needs (Glantschnigg, 2024). Those not yet working or unable to work risk to remain in the basic care system indefinitely. Therefore, the challenges these community members must overcome are often on the level of basic survival.

Due to Ukraine's restrictions on military-aged men leaving the country, most Ukrainian forced migrants in Austria are women and children (Kohlenberger et al., 2023). Their digital skills are presumed to be quite high, with the Ukrainian state strongly supporting digitalisation efforts (Ionan, 2022). Additionally, social media has emerged as a semi-official source of information during the war. State officials use *Telegram* to disperse information quickly (Beckerman, 2022), while grassroots mutual aid communities on *Telegram* have sprung up across Europe (Meinhart, 2022). In addition to fluency in Ukrainian and Russian (see also footnote 2 below), an early 2024 survey reports that after ca. two years in Austria, 20% describe themselves as knowing German at B1 level or higher; however, 60% claim having only minimum skills (A1/A2 level), and the final 20% no German skills at all (Glantschnigg, 2024). According to Kohlenberger et al.'s earlier survey (2023), two-thirds report speaking English. Thus, the recent arrival of a large number of people with very limited knowledge of the host language provides a suitable backdrop for a study on LT use.

For the pilot study this paper is based on, five women were recruited over the *Telegram* community for Ukrainians in the state of Upper Austria, of which the first author, Yudytska, is the primary administrator. Yudytska posted a message to gauge interest among members to discuss their everyday use of LTs, and the five participants were among those who expressed strong enthusiasm in response. One of the participants, 'Zoya', came to the interview with her husband 'Serhiy' and their baby; while 'Serhiy' primarily took care of their child, he also occasionally contributed to the interview and is therefore considered a study participant, although the data collected from him is incomplete (cf. Tables 1 and 2). Participants were compensated with 25€ vouchers for their time. They all signed a bilingual (German/Russian) consent form, allowing the use of audio and video recordings for research purposes.

*Table 1: Overview of the sociodemographic characteristics of the participants. All RFV-names are pseudonyms.*

| Name | Age | Family in Austria | Profession or Education | Employment in Austria | German competency | English competency |
|---|---|---|---|---|---|---|
| *Dariya* | 30s | Daughter (primary) | Management | Cleaner | A2-B1 | Little |
| *Valentina* | 50s | / | Pedagogy and law | On benefits | A1 | Good |
| *Hanna* | 40s | Husband, daughter (preschool) | Physician | On benefits | B2 | Little |
| *Eva* | 30s | Husband, daughter (primary) | Programmer | Housewife | A2 | Very good |
| *Zoya* | 20s | Husband, son (baby) | Economics | On benefits | A1-A2 | Good |
| *Serhiy* | 20s | Wife, son (baby) | *Not available* | On benefits | A1-A2 | Very good |

As Table 1 shows, all participants have been in Austria for under two years at the time of recording, speak Russian or Ukrainian as their first language,[2]

2 Ukraine is a linguistically diverse country, with most citizens fluent in both Ukrainian and Russian. Language preference differs by region, with the west strongly favouring Ukrainian and the south/east typically using Russian or a mixture, although there has been a shift towards Ukrainian postinvasion (Kulyk, 2024). Yudytska is a Russian-speaking Ukrainian and conducted the interview in Russian. In the recruitment message, participants were offered to use either Ukrainian or Russian, but all chose Russian. All participants come from areas hit hardest by the war, which tend to be Russian speaking. No further information about language proficiency and language attitudes was elicited.

and started learning German upon arrival in Austria. They differ in family status, employment, and proficiency in German and English.[3] These differences will be shown in the analysis to play a role in the contexts of their LT deployment and their strategies to achieve communicative goals beyond LT use. Their proficiency in German affects how much they attempt to communicate in this language as opposed to using other strategies, such as switching to English or employing LTs. However, their certified language proficiency does not necessarily indicate how much German they use. For example, Hanna has the highest proficiency at B2, which is sufficient to understand German documents, but describes struggling to 'speak', which she ascribes to being a perfectionist and not wanting to make mistakes. Proficiency in other languages is also important: Valentina, Eva, Zoya, and Serhiy all describe occasionally preferring English over LTs for communication with Austrians.

Data collection was conducted in person by the first author over the course of a week in February 2024. It took place in Russian and consisted of two parts:

a) Audio-recorded ethnographic interview (45–60 minutes): The interview adopted a semi-structured approach (de Fina, 2019). Participants were encouraged to tell short stories (Georgakopoulou, 2015) about their experiences with using LTs, including times when they encountered difficulties. LTs were approached from an emic perspective, with no steering by the interviewer towards specific technologies. Information was also elicited about the participants' living situation in Austria, current German (and English) language skills, and desire to learn German.
b) Video-recorded re-enactment of LT use (ca. 5 minutes): Following up on the interview, the participants were invited to demonstrate their use of LTs in a short video recording. Drawing on earlier studies (Artamonova & Androutsopoulos, 2020; Palviainen, 2020), we devised to this purpose a re-enactment procedure, which starts by prompting the participants to imagine making a cooking or crafting tutorial on *YouTube*. Some participants then gave advice on how to use LT apps, others presented their skilful use of different apps. The video recording focuses on the smartphone screen and the participants' hands, thus protecting their privacy. This method was chosen

3 All participants other than Zoya are enrolled in German classes; their German proficiency refers to the level of the class. At the time of recording, Zoya was not attending classes due to her childcare responsibilities but was learning along with her husband's textbook. The English levels listed are less precise, based on self-reports.

over filming actual LT use due to ethical considerations: Many of the situations where participants rely on LTs are highly sensitive in nature, and 'in situ' recordings involving a third-party researcher could risk tensions with a landlord, social worker, teacher, etc. The resulting video data provide insight into the participants' embodied proficiency with technological affordances in far more detail than a verbal explanation. Here, too, all names and locations are pseudonymised in transcription and analysis.

## 5. Findings

The preliminary findings reported in the remainder of this chapter are organised in three sections. The first (5.1) sketches out an overview of the relation between LTs, communicative goals, and contexts of use in the reported practices of the participants. Each participant uses a different repertoire of LTs (and language-learning resources), but similarities across participants also emerge. We then delve into chains of LT-assisted action, that is, combinations of two or more LT that are routinely deployed to achieve certain goals (5.2). The third section considers the participants' awareness of flaws and limits of the LTs they deployed (5.3), as well as their remedies when dealing with such flaws (5.4).

### 5.1 Overview

Table 2 below gives an overview of the participants' LT repertoires based on their reports. The first three columns list their reported LTs in a narrow sense: machine translation, OCR, and AI tools. The last two columns list related language resources they reported, notably online dictionaries and language learning apps.

4 *Google Lens* is available both as a standalone app and integrated into *Google Translate*.

*Table 2: Language technologies and other smartphone-based language resources reported by the participants.*

| Name | Machine translation | OCR | Generative AI | Online dictionaries | Language learning tools and platforms |
|---|---|---|---|---|---|
| *Dariya* | - Google Translate<br>- Gboard | - Integrated Google Lens[4] | / | / | - Duolingo |
| *Valentina* | - Google Translate<br>- Telegram Translate<br>- Yandex Translate | - Integrated Google Lens<br>- Standalone Google Lens | - ChatGPT | - Google Dictionary | - Babbel<br>- Verbformen |
| *Hanna* | - Google Translate | / | / | - Abbyy Lingvo | - Duolingo<br>- ReWord<br>- YouTube<br>- Facebook<br>- Ebooks |
| *Eva* | - Google Translate<br>- DeepL | - Integrated Google Lens | / | / | - TikTok<br>- Youtube<br>- Podcasts<br>- Textbook app |
| *Zoya* | - Google Translate | - Integrated Google Lens | / | / | - Busuu<br>- Deutsch Grammatik A1 A2 B1 B2<br>- A1-Deutsch<br>- Verben<br>- Tobo German<br>- Немецкий разговорник [German phrase book] |
| *Serhiy* | - Google Translate<br>- DeepL | *Not available* | *Not available* | - Reverso | *Not available* |

The participants' concept of language technologies (Russian: 'языковые технологии') is relatively fuzzy, as they do not strictly differentiate between technologies used to solve communicative problems and those used for long-term language learning, nor between digital resources such as online dictionaries and more complex technologies involving artificial neural networks. Machine translation is the most popular LT they use, and *Google Translate* stands out as the only service used by all six participants. They refer to their machine translation app(s) as 'переводчик' (translator); in Russian, the same word applies to both human and machine translators and interpreters, and the apps brand themselves as such (*Google переводчик*, *Yandex переводчик*, etc.). Unless asked directly, they rarely add the brand name to it. As discussed in Section 5.2, the generative AI app *ChatGPT* may also be used for translation.

Participants' understanding of which LT they are using does not necessarily match the actual LT used. For example, Dariya explains that the messenger app *WhatsApp*, has a built-in translator, which she occasionally makes use of while interacting with her German-speaking colleagues; she explains a fellow Ukrainian taught her about it. In reality, this translation is offered not by *WhatsApp* but by *Google*'s virtual keyboard (*Gboard*), which has a built-in *Google Translate* function (Weir, 2020). However, because Dariya understands this instance of machine translation as an affordance of *WhatsApp* (rather than her keyboard), her use of the translator is constrained to this particular app. This highlights how forced migrants develop a practice-based understanding of technological affordances (rather than one based on formal digital literacy), with which they then tackle their communicative goals.

The ways LTs are deployed to reach immediate communicative goals are shaped by the broader situational contexts in forced migrants' lives, especially situations that are often urgent and existential in nature. For example, multiple participants describe using LTs to resolve their housing situation (such as contacting potential landlords), solving bureaucratic issues related to their 'basic care' benefits, communicating with medical professionals, and understanding food product labels in the supermarket. On a less immediate level, LTs are used for communication with the child's teacher, their neighbours or even passersby. Put differently, LTs may be used when and wherever some type of communication with the Austrian host society is necessary.

Against this background, we now examine how the participants report using LTs to achieve the three communicative goals outlined in Section 3, i.e., understanding, producing, and interacting, and also consider individual variation in the extent of their reliance on LTs.

Common among all participants is using LTs to 'understand' German text across a variety of situational contexts. Valentina and Zoya describe using a combination of OCR and machine translation to understand supermarket labels. Dariya uses LTs to understand everything from documents and websites to her child's math homework and the presentation slides at a parent-teacher conference. Four participants also reported or demonstrated using OCR technology to quickly decipher printed text around them, thus allowing them to navigate the semiotic landscape. Valentina in particular uses *Google Lens* both as a standalone app and integrated into *Google Translate*, the former primarily to quickly research products in the supermarket and the latter to immediately translate her surroundings.

Using LTs to 'produce' text in German is least often mentioned. Valentina (more about her in the next section) attempts to solve her bureaucratic issues by using LTs: She produces letters of several pages explaining her complicated situation, which involves a disability preventing her from finding work easily, to Austrian authorities. Potentially, this discrepancy is due to the contexts of LT use described above: The participants are not currently finding themselves in situations which require the production of text outside of interactions with speakers of German.

LT-assisted 'interaction' is more diverse. Most participants describe how LTs help them with digitally mediated communication. Dariya uses *WhatsApp* with her colleagues and Eva with her daughter's schoolteacher, and both occasionally draw on machine translation to understand their interlocutors' replies or construct their own message. Using LTs in this context is easily possible due to the written language modality and the asynchronicity of communication, which affords the two women some time to copy the interlocutor's message into a machine translation app to make sense of it. In contrast, the use of LTs in face-to-face situations is particularly complex, as it involves real-time production, translation, and reception of speech. For speech production, some participants type into their preferred machine translation app, while others use speech-to-text technology. Some prefer to read out the written, translated results themselves, others show the smartphone screen to the interlocutor. In addition, the forced migrants must also somehow understand the interlocutor's reply. This can be accomplished, for example, when the Austrian interlocutor uses an LT app on their own smartphone, or when they speak or type into the LT app on the forced migrant's device. Due to this complexity, face-to-face LT-assisted interaction is strongly dispreferred by most participants. For example, Zoya rejects the usefulness of LTs in face-to-face interaction because

even though she can use LTs to produce speech in the target language, she still cannot understand the interlocutor's reply.

One strategy the participants adopt instead is to prepare for the interaction beforehand with the help of LTs. Dariya prepares for medical appointments by producing the full text beforehand in German on her notes app with the help of *Google Translate*, and then gives it to the doctor to read. Hanna and Eva use LTs to look up the vocabulary and/or create sentence constructions beforehand, which they then memorise for the appointment. Such preparation can be viewed as a mixture between LT-assisted language learning and LT-assisted interaction, as well as between LT-assisted asynchronous text production and subsequent real-time interaction.

## 5.2 Chains of LT-assisted action

When faced with more complex communicative tasks, forced migrants may resort to linking together several LT-mediated actions, thereby drawing on one or several LTs, to achieve a specific goal. We term such linkages 'chains of (LT-assisted) action'. The following interview extract exemplifies the potential complexity of such a chain of action. Shortly before the interview, Valentina's social benefits, by which she paid for her apartment, were abruptly halted for unclear reasons. Valentina thought it might be due to the type of rental contract she has, as the Austrian authorities differentiate between 'Mietvertrag' (a standard rental contract) and 'Bittleihvertrag' (translating roughly as 'cession of right to use', a special type of rental contract) and only provide the full payment of 165€ to Ukrainians with the former. However, Valentina is uncertain what contract she has. She thus uses LTs in an attempt to understand her contract, in order to eventually reinstate her benefits to pay her landlord. In Extract 1, Valentina reports the LT-assisted actions she undertook to solve this issue, briefly showing the interviewer the relevant LTs on her phone as she talks.

Extract 1 (Original Russian)

**Valentina:** А потом, когда у меня возникли с жильем вопросы, мне нужно было законодательство, я зашла [в ChatGPT] и просто его спрашивала, как друга. Привет, так. И вот чем отличаются по смыслу договора Bittleihvertrag и Mietvertrag в Австрии. Он мне объясняет. Очень грамотно объяснял, кстати, потому что я понимаю, что я должна как-то это доказать сама, а я не могу обычный перевод слов сделать, и мне мой хозяин не может перевести. Вот, он мне перевел. […]

Жалко, у меня, конечно, у меня нет платной версии, там можно картинку, там можно текст любой, а здесь – это минус, что я не могу. Вот… [Scrolls through her conversation with ChatGPT] Вот, я спросила, что-то я… А! Я, все-таки, я взяла договор, скопировала текст, скажем так. А как я сделала: я просто навела, скопировала, э, сфоткала лист ваш, и потом пальцем нажимаем. Это, кстати, насчет пользования.
**Interviewer:** На Гугл, этого – э – [Lens], да?
**Valentina:** Да. Копируешь столько, сколько тебе нужно, либо весь лист. Но в основном, если это картинка, то можно просто текст. Копируешь и просто сюда вставила. Пишу. [Opens ChatGPT, shows existent conversation with ChatGPT again.] «У арендатора есть такой вот текст.» На немецком пишу. «Можешь мне его перевести?» Потому что мои переводчики [Гугл Переводчик и Яндекс Переводчик], кстати, переводили неправильно. Не всё. Он мне говорит: «Пункт, который вы мне предоставили, он говорит о том-то и том-то. Это параграф такой-то.» И дальше он мне все подробности, видите, я была очень довольна. Он мне как раз очень сильно помог, когда я не знала.

Extract 1 (Translated from Russian)
**Valentina:** And then when I had a housing issue, I needed legislation, I went in [to ChatGPT] and just asked him[5] as a friend. Hi, so. And what is the difference, in terms of meaning, between Bittleihvertrag and Mietvertrag contracts in Austria. He explains it to me. He explained it very competently, by the way, because I realise that I have to prove it myself somehow, and I can't translate the words, and my landlord can't translate them for me. So, he translated it for me. […]
It's a pity I of course don't have – I don't have a paid version, there you can have a picture, there you can have any text, and here it's a disadvantage that I can't. Here… [Scrolls through her conversation with ChatGPT] Here, I asked what I – something I… Ah! I took the contract, I copied the text, let's say. How I did it: I just pointed, copied – ah, I took a picture, here is your sheet, and then we press with our finger. [Demonstrates Google Lens with the information sheet provided to participants.] That's about usage, by the way.
**Interviewer:** On the Google, um, uh, [Lens], right?
**Valentina:** Yes. You copy as much as you need, or the whole sheet. But, basically, if it's a picture, you can just copy the text. You copy and just paste

5 As Russian has grammatical gender, it remains ambiguous to what extent the use of the masculine third-person pronoun for *ChatGPT* should be linked with perceived animacy.

> it here. [Opens ChatGPT, shows existent conversation with ChatGPT again.] I write: "The tenant has a text like this." I write it in German. "Can you translate it for me?" Because my translators [Google Translate and Yandex Translate], by the way, translated it wrong. Not everything. And he says to me, he says, "The paragraph you gave me, it says this and that. It's paragraph so-and-so…" And then he gave me all the details, you see, I was very satisfied. He just helped me a lot when I didn't know.

Valentina describes using a combination of four different LTs to understand her rental contract: *Google Lens*, "[her] translators", *Google Translate*, *Yandex Translate*, and *ChatGPT*. First, she attempted to use her machine translation apps to translate the contract into Russian. As she has a physical (not digital) copy of the contract, she had to use OCR technology to convert the printed-out contract into machine-readable text. Valentina did not specify if she used to this purpose the standalone *Google Lens* app or the OCR technology integrated into *Google* and *Yandex Translate*. Regardless, she was not satisfied with the result and turned to *ChatGPT* instead. Next, therefore, she used OCR technology to machine-encode the original German text. During the interview, she used the info sheet to simulate this process. She then copied the contract text into *ChatGPT* and requested for a translation into Russian by commanding *ChatGPT* in German: "Can you translate for me?"[6] Finally, Valentina asked *ChatGPT* to explain the two rental contract types mentioned above.

This example demonstrates the two major reasons for chaining together multiple LT-assisted actions: The first reason is to take advantage of the combined affordances of several LTs, when a single LT is not capable of fulfilling all the tasks required. This is seen in the combination of the OCR tool, *Google Lens*, and the generative AI tool, *ChatGPT*. The latter can only translate machine-encoded text, and thus the former must first be used to convert printed text from a photo into machine-encoded text. Notably, Valentina remarks that in the "paid version" of *ChatGPT*, a photo with text can be uploaded directly.[7] Thus, all actions could be done within a single LT, which would likely result in a simplified chain of action: taking a photo of the contract, uploading it into the 'paid version' of *ChatGPT*, and requesting a translation. This means that chains of LT-assisted action may be a bottom-up, practice-based solution to economic

6 Since Valentina's rental contract probably consists of multiple pages, the sequence of taking a photo of the contract, copying the machine-encoded text, and then translating it via *ChatGPT* was probably repeated multiple times.

7 Since the interview was conducted, this has become possible in the free version as well.

limitations (in this case, not being able to pay for a premium version of *ChatGPT*), which many forced migrants no doubt face. In addition, Valentina's use of *ChatGPT* to understand the legal terminology of the contract types can also be viewed as an additional necessary action in the chain: The mere machine translation of the terminology is not always sufficient for an understanding of the legal situation. In short, Valentina shows a deep level of awareness of the affordances of the various LTs at her disposal, and how these affordances may be combined to achieve her goal.

A second reason for creating a chain of LT-assisted actions is when the first attempt at the action at hand fails to yield satisfactory results. This is seen in Valentina's translation of the contract, where she carries out three versions of machine translation—via *Google Translate*, *Yandex Translate*, and *ChatGPT*. While using these three LTs differs in the details (for example, *ChatGPT* requires the human user explicitly asking for a translation, whereas the machine translation apps translate entered text automatically), these are nonetheless repetitions of the same 'type' of action, namely machine translation. In her second turn in Extract 1, Valentina claims that both machine translation apps "translated it wrong", but then adds, "[n]ot everything", which might mean that some parts of the contract text were translated adequately and some inadequately. Be that as it may, repeating the machine-translation action is necessary for her to understand her contract to her satisfaction. This type of action-chaining, which presupposes an 'awareness' of the first attempt being unsuccessful and may be solved either via another LT or by involving a human instead, is explored further in the following sections.

While not all chains are this complex, all participants are comfortable with the necessity to complete a complex action that involves one or more LTs in a particular sequence, in order to achieve their goals. The need to chain LT actions to overcome technological constraints is common especially with faulty translation (see Extracts 1 and 2) and speech-to-text conversion. An example is Dariya's demonstration of using *Google Translate*: Dariya first speaks into her phone, but then must correct several small mistakes in the machine-transcribed Russian text, such as inserting punctuation marks between sentences, to improve the subsequent translation into German. What is particularly notable about these LT action chains is not only how routinised they have become to the forced migrants, but also that they all are accomplished on a smartphone.

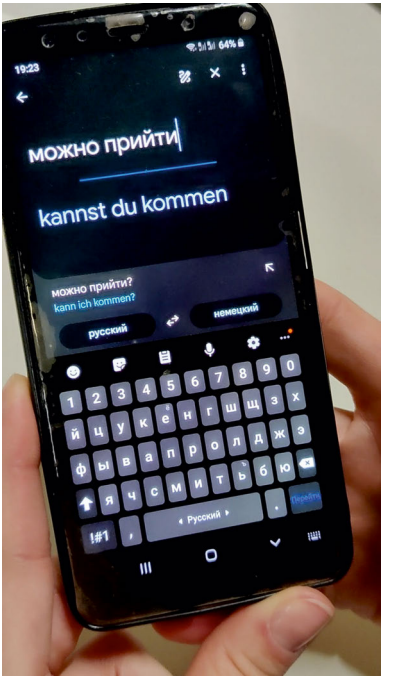
## 5.3 Awareness of LT failures

The previous section demonstrates that the output of an LT-assisted action is not always considered satisfactory by the participants. All participants criticise the machine translation apps they use. Some criticism concerns the difficulties involved in handling the app (e.g., the default font size), but most complaints focus on the translation affordance itself. This is particularly notable because these complaints are expressed by participants at various levels of German competency, from A1 to B2. In other words, the awareness of translation failures, particularly from Russian/Ukrainian into German, is not directly correlated to higher competency in the target language.

In the following interview extract (Figures 1 and 2 and Extract 2), Zoya and Serhiy explain their difficulties with messaging potential landlords while searching for an apartment on an Austrian website with classified advertisements. This happened shortly after the family came to Austria, when they were searching for a permanent place to live. The figures show stills of Zoya re-enacting her use of *Google Translate* to communicate with potential landlords online, and Extract 2 shows the couple's reflections on LT failures in this situation.

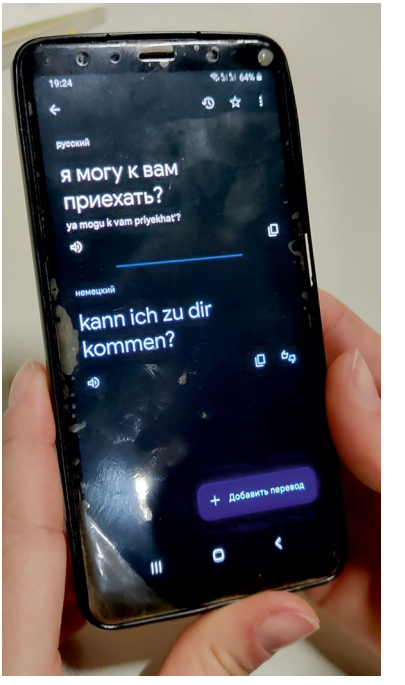
In Figure 1, Zoya re-enacts her request for an apartment viewing: she used the Russian phrase "Можно прийти?" (Is it possible to come over?), which is a standard polite formulation of this interrogative act. Due to the ellipsis of agent and locative in Russian, the LT mistranslates her request to visit as an invitation for the addressee to come to Zoya and Serhiy. Zoya then explains that for *Google Translate* to translate accurately, it is necessary to input the Russian expression correctly. She demonstrates a 'correct' input ("Я могу к вам приехать?", Can I come to you?), which explicitly includes agent and locative. However, as Figure 2 shows, the translation is still not fully accurate, and pragmatic nuances are lost. Russian and German both have the T/V politeness distinction in their second person pronouns (informal 'ты/du' vs. formal 'вы/Sie'), but the formal Russian 'вы' is translated here into German informal 'du'.

*Figure 1: Stills of Zoya re-enacting her use of Google Translate to communicate with potential landlords online. Polite Russian phrasing.*




RUS, lit.: Possible to come
GER: Can you [informal] come
Is it possible to come over?

*Figure 2: Stills of Zoya re-enacting her use of Google Translate to communicate with potential landlords online. A more literal re-phrasing.*




RUS, lit.: I can come to you [formal]?
GER: Can I come to you [informal]?
Can I come to you?

In the interview (Extract 2), the couple describes their experience with contacting landlords in more detail. They show awareness of both issues with LT translations, i.e., mistakes on the literal level (what is the request?) and mistakes with pragmatic nuance (how polite is the request?). Zoya and Serhiy consider the resulting lack of politeness a major issue, describing it as showing "[n]o respect" and lacking "norms of decency". That is, even if the literal meaning were translated accurately by the LT, the output would still be considered imperfect, and the desired communication not fully achieved.

Extract 2 (Original Russian)

**Zoya:** Ну, правда, с квартирой я очень переживала, потому что на тот момент я ещё была беременна. И я начала писать на Willhaben-е. Мне подсказали сайт, я начала писать всем подряд на Willhaben-е с помощью переводчиков. И как оказалось, что когда ты пишешь с русской логикой – ну, с русской, украинской логикой – в переводчике «Можно прийти посмотреть квартиру?», оно переводит «Kannst du kommen?» ['Ты можешь прийти?']

**Zoya and Int.:** [Laugh.]

**Zoya:** То есть, «Вот, можешь ты ко мне прийти?» На тот момент мы этого еще не знали. Потом, когда я читаю, что я писала людям, это был просто какой-то кошмар. Ну, то есть, человеку пишешь с просьбой прийти посмотреть квартиру, оно переводит «Можешь ли ты ко мне прийти? Будешь ли ты дома?» там. [Laughs.] Первая наша –

**Serhiy:** Причем это вы – ты, там [unintelligible] –

**Zoya:** Вы – ты, там, вообще –

**Serhiy:** Никакого уважения. [Laughs.]

**Zoya:** [Laughing] Не говоря уже о каких-то, да, нормах приличия…

**Serhiy:** Потом стратегию поменяла, начала писать мы из Украины. И люди начали отзываться.

Extract 2 (Translated from Russian)

**Zoya:** Well, I was very worried about [finding an] apartment, because at that time I was still pregnant, and I started writing on Willhaben.[8] They suggested the website to me, and I started writing to everyone on Willhaben with the help of a translator. And as it turned out, when you write with Russian logic – well, with Russian, Ukrainian logic – in a translator, "Is it possible to come view the apartment?", it translates it as "Kannst du kommen? ['Can you come?']"

**Zoya and Int.:** [Laugh.]

**Zoya:** That is, "So, can you come to me?" We didn't know that yet. Later, when I read what I wrote to people, it was just some kind of nightmare. That is, you write to a person asking to come take a look at the apartment, it translates, "Can you come to me? Will you be at home?" [Laughs.] Our first –

**Serhiy:** What's more, stuff like вы ['formal-you'] – ты ['informal-you'] [unintelligible] –

**Zoya:** Stuff like вы – ты, there –

**Serhiy:** No respect. [Laughs.]

**Zoya:** [Laughing] Yes, putting aside any norms of decency…

8 *Willhaben* is an Austrian classified ads website, like *Craigslist* in the US.

> **Serhiy:** Then she changed the strategy, started saying we're from Ukraine. Then people started to respond.

At first, it appears that Zoya and Serhiy's awareness of this issue came simply with increased German competency. Zoya describes a temporal component: first not knowing that a less literal Russian wording was translated badly ("We didn't know that yet"), and only "later" realising how pragmatically awkward the output was ("some kind of nightmare"). However, Zoya in fact became aware of the failure earlier. She originally received no or few responses and realised the problem was a linguistic one (rather than due to the family's residency status or current lack of employment). In response she "changed the strategy" of communication, explicitly writing in her messages that the family are Ukrainian forced migrants. Implicitly justifying the grammatical errors and/or pragmatic awkwardness caused by machine translation, this strategy proved effective, as Zoya started receiving replies. Zoya's awareness of LT failures of LT output thus came from realising that her goal of connecting with potential landlords was not being achieved.

While increased German competency and a lack of achieving communication goals are indirect ways of becoming aware of output failures, several of the participants also describe directly testing the LT output. An important strategy that emerges here is attempting to machine-translate into a language that the forced migrant is competent in. Eva and Serhiy, who have a higher competency in English, described translating from Russian/Ukrainian into English with various machine translation apps and evaluating the outcome. However, there is no uniform evaluation of the outcome. Eva eventually selected *DeepL* as her app of choice, while Serhiy decided no LT was good at translating, but nonetheless chose *Google Translate* for its higher ease of use. Translation into a language forced migrants are competent in serves as a useful proxy for evaluating how well a LT app works for a language whose output they cannot yet evaluate directly.

Another strategy which emerges from the interviews is testing the output via back translation, that is, translating Russian/Ukrainian into German and then translating the output back into Russian/Ukrainian. This action sequence is described by both Valentina and Dariya, who use it to double-check the quality of the translation. If the result is not satisfactory, they edit the Russian/Ukrainian message, for example by simplifying a longer sentence, and repeat the action. This chain of action thus not only serves to evaluate the machine

translation output despite a lack of sufficient language competency, but is also used to fix any communication problems that might arise due to LT failure.

## 5.4 Human-in-the-loop strategies

As the previous sections illustrate, LT output is not always perfect, and forced migrants must develop various strategies to deal with its imperfections. In addition to combining different LTs (Section 5.2), another strategy emerges out of combining technological and human resources within a sequence of actions. In the field of Human-Computer Interaction, practices that include a human actor into a longer workflow which primarily relies on LTs are called 'human-in-the-loop' (Brown & Grinter, 2016; Groves, 2008), a term we also adopt here. While previous research in applied linguistics has documented how forced migrants occasionally rely on professional or community interpreters (Berbel, 2020; Kletečka-Pulker et al., 2019), our interest here is more specifically how humans are integrated into chains of LT-assisted action. A typical human-in-the-loop example is presented in Extract 3: Hanna recounts her experience soon after her child entered preschool.[9] While her German at the time of the interview was at B2 level, at the time of the story she knew hardly any German and thus attempted to use *Google Translate* to communicate with the child's teacher. As she explains, at times a boy in her daughter's class also acted as an ad-hoc interpreter.

Extract 3 (Original Russian)
**Hanna:** А самый первый, наверное, мой опыт с переводчиком, это был, когда мой ребенок пошёл в садик. Это был май месяц. Ей было три года. И это, конечно, был огромный шок для неё, для ребёнка, который оказался в немецкоязычной среде, не зная ни одного слова, и вокруг некому помочь.
Вот. И первые две недели я должна была присутствовать там, в утренние часы, то есть мы приходили на два часа, и первые две недели я присутствовала там. Ну вот, я не понимаю ничего, никого, никто не понимает меня. И там, да, там был исключительно переводчик. Переводчик, мы общались с воспитательницей исключительно с переводчиком. Да, а потом [laughing slightly] Господь услышал мои молитвы. И в группе моего ребенка оказался ребенок русскоязычный.
**Interviewer:** Аа!

9 In Austria, children go to preschool until approximately the age of 6.

**Hanna:** Ну, он родился здесь. То есть, он свободно… У него больше немецкий родной, чем русский. Вот, ну он из семьи, которая тоже выехала в 90-е годы из бывшего Советского Союза.
Вот, и, конечно, этот мальчик очень сильно поддержал и помог моему ребёнку в садике. И когда мы заходили с воспитательницей совсем в тупик, когда мы не могли объясниться даже с переводчиком, мы уже просто звали этого мальчика и просили… Я спрашивала: «Скажи мне, что она говорит, я не понимаю.» Вот, и, хотя она пишет, а переводчик переводит что-то такое… Я не очень люблю Google Translate.

Extract 3 (Translated from Russian)
**Hanna:** And my very first, probably, experience with the translator was when my child went to preschool, it was the month of May. She was three years old. And it was, of course, a huge shock for her, for a child who found herself in a German-speaking environment, not knowing a single word, and no one around to help.
So. The first two weeks I had to be present there in the morning hours, that is, we came for two hours, and the first two weeks I was present. Well, I don't understand anything, nobody understands me, and there, yes, there was exclusively the translator. The translator – we communicated with the teacher exclusively with the translator. Yes, and then [laughing slightly] God heard my prayers. And a Russian-speaking child turned up in my child's group.
**Interviewer:** Ohh!
**Hanna:** Well, he was born here. That is, he freely… German is more his mother tongue than Russian. He's from a family that also left the former Soviet Union, in the '90s.
So, of course, this boy really supported and helped my child in the preschool. And when we came to an impasse with the teacher, when we couldn't explain ourselves even with the translator, we just called this boy and asked him… I would ask him: "Tell me what she's saying, I don't understand". Although she writes it, but the translator translates something so… I don't really like Google Translate.

This story illustrates the primacy of LTs as a solution, with the human-in-the-loop strategy only used sparingly. Although Hanna claims she "[doesn't] really like Google Translate", she still overwhelmingly relied on it as her main resource for communication at that time. Only when she and the teacher "couldn't explain [themselves] even with the translator", that is, when she failed to accomplish LT-assisted interaction, did she turn as a last resort to

the ad-hoc interpreter available. The dispreference for a human-in-the-loop solution cannot be due to a belief that the LT is more accurate at translation or better at achieving the communicative goal, as the boy was tasked with helping specifically in more difficult situations when the LT failed. Rather, the dispreference likely arises due to the identity of the interpreter, namely a young child who is not a family member. In contrast to the LT, a constantly available resource, asking a young child places an additional burden on them and is therefore avoided.

An additional aspect is the ambiguity as to what extent involving a human interpreter can be considered a proper solution to the task at hand when compared with the use of LTs. Hanna jokingly describes the appearance of the boy in her daughter's class as "God hear[ing] [her] prayers", that is, a very positive but unexpected coincidence. She did not deliberately seek out another human to accompany her to the preschool. This contrasts with the use of LTs as a resource, which requires the deliberate downloading of apps and other digital literacy activities. Nevertheless, once a human resource is coincidentally available, they can become incorporated into a routinised chain of actions for achieving understanding in interaction.

While the very young age of the ad-hoc interpreter makes this specific case striking, the patterns found here are mirrored across other participants. More specifically, a human-in-the-loop strategy appears to be used only after an initial LT attempt, often a failed one. For example, Eva's chain of LT-assisted action to interact with her child's school is to first use *DeepL* to understand the teacher's *WhatsApp* messages. If she does not understand the outcome, she forwards the messages to her husband, and he in turn asks his work colleagues for a translation. Of course, those forced migrants who can rely on a family member or friend to act as a community interpreter may strongly prefer this solution at the expense of LTs. For those who don't have such a connection, however, the human-in-the-loop does not seem to be a preferred solution to issues with LTs. In Zoya's report, this dispreference is not due to a lack of trust in human output compared to LT output. Rather, human resources are used sparingly for tasks considered too complex to entrust to LT. In addition to the examples above, Zoya describes first machine-translating medical documents regarding her pregnancy, then asking a bilingual friend to check the correctness of the machine translation output. Similarly, Dariya describes using LT assistance in messaging with a potential landlord, then asking a friend to talk with him at the apartment viewing. She explains adopting this strategy not because of a

higher difficulty of using LTs in face-to-face communication, but to ensure the accuracy of the information relayed.

In short, due to the participants' acute awareness of potential LT failures (Section 5.3), even untrained ad-hoc interpreters are considered more trustworthy on occasions where the communicative goal is particularly important and/or complex. On the other hand, a disadvantage of this reliance on human resources appears to be the burden placed on another individual, especially as their engagement typically comes without any compensation due to the precarious living situation of the forced migrants. Thus, the human-in-the-loop strategy within an LT-assisted chain of action centres on balancing the constant availability of LTs with the reliability of human translations.

## 6. Conclusions

This chapter draws on data from preliminary fieldwork to tap into a largely unexplored, but highly timely area of digital literacy practice: How forced migrants with limited knowledge of a host society language draw on language technologies for a variety of tasks that aim at overcoming communicative barriers in the precarious situation of (early) forced migration. The lack of applied linguistics and sociolinguistics research on this process might be explained by the novelty of the technological solutions involved, on the one hand, and the recent intensity of forced migration into Europe, on the other. The collated impact of both processes only made itself felt in the late 2010s and early 2020s. The degree of routinisation in the use of LTs documented in this research is yet another evidence for the statement that migrants are at the forefront of adopting digital technologies for interpersonal communication (Lexander & Androutsopoulos, 2023; Madianou, 2014).

We expect that future research will bring to the fore similarities between our findings and the strategies adopted by other communities of forced and voluntary migrants. That said, two aspects make the situation of forced migrants particularly striking. Firstly, forced migrants face an especially high pressure to achieve communication goals due to the precariousness of their situation, especially immediately upon arrival. They may also face additional mental pressure, as an inability to communicate with others can add a further layer of trauma to existing ones (Bušić et al., 2022). Secondly, in situations of forced migration like the Ukrainian one, a large group of people find themselves encountering a new language near-simultaneously. Tips and tricks are

spread among the community as they learn to use (often entirely unfamiliar) smartphone-based technologies: as our examples suggest, community members help each other acquire new skills and strategies, albeit imperfectly. Due to the combination of pressures and mutual aid, forced migrants' understanding of how to deal with LTs is often especially intricate, whilst also being obtained very rapidly.

Even though data from six participants only allow for highly preliminary findings, we suggest this study offers some points of departure for follow-up work. More specifically, the research approach proposed in this paper aims to document the LT-assisted actions forced migrants undertake to achieve communication with host society authorities and citizens. Our focus is on relations between LTs, goals, and communicative contexts (including participation formats and modalities of language), thereby also taking into consideration how individual life trajectories and language-learning practices may influence people's predisposition to use LTs. The tripartite distinction between understanding, production, and interaction shows that our informants place different importance on these goals. Understanding text in the host society language is most crucial and common, then interacting with members of the host community, and finally producing text. While other populations may have different priorities, we nonetheless expect the systematics developed in this chapter to prove useful for further research. In addition, the interviews and re-enactments of the six participants brought to the fore three further dimensions of LT use that seem worth exploring in more detail in future work: chains of LT-assisted action, awareness of limitation and failures of LTs, and occasional reliance on human support alongside smartphone-based tools. Forced migrants thus develop complex strategies and a practice-based awareness of how LTs work and how they can be appropriated to ease communicative barriers at early stages for forced migration.

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