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Advantages of visiting your home country: how brief reimmersion in their native country impacts migrants' native language access

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Abstract

The study explores how native language (L1) lexical access is affected by immersion in a second-language (L2) environment, and by short-term reimmersion in the L1 environment. We compared the L1 picture-naming performance of Polish–English bilinguals living in the UK (migrants) against that of bilinguals living in Poland (controls). Each group was tested twice: the migrants while in the UK (L2 immersion) and after visiting Poland (L1 reimmersion); the controls twice in their L1 environment. Contrary to our expectations, there was no main effect of group, thus suggesting that L2 immersion *per se* does not impact L1 lexical access. Nevertheless, migrants benefitted from L1 reimmersion by showing faster naming latencies for high-frequency words after a short visit to their home country, probably due to more opportunities to encounter these words. Overall, the study shows that the cognitive system is sensitive to the language environment by quickly adapting the activation level of lexical items.

1. Introduction

When people leave their home country to live in another country, they are often required to use the second language (L2) intensively on a daily basis because most of the surrounding information, especially outside home, is presented in L2. This surrounding L2 experience is characterized by intensive use of L2 and is referred to as immersion in the L2 environment. This immersion, while being beneficial for speakers' L2, often results in them experiencing difficulty in using their native language (L1).

Previous research found that L2-immersed speakers show greater difficulties than L1-immersed speakers in producing words in L1 (PICTURE NAMING: Ammerlaan, 1996; Hulsen, 2000; VERBAL FLUENCY: Schmid & Jarvis, 2014; Schmid & Keijzer, 2009; Yagmur, Bot, & Korzilius, 1999). It was also shown that the spontaneous speech of L2-immersed speakers during L1 use is characterized by reduced vocabulary diversity (Schmid & Jarvis, 2014; Stolberg & Münch, 2010; Yilmaz & Schmid, 2012), and they frequently experience 'tip of the tongue' states (Ecke & Hall, 2013). Effects of immersion in L2 have also been observed in the processing of interface structures in L1, i.e., utterances whose meaning is determined by the combination of syntax and pragmatics, such as anaphoric pronouns (Chamorro, Sorace, & Sturt, 2016; Gargiulo & van de Weijer, 2020; Tsimpli, Sorace, Heycock, & Filiaci, 2004). The difficulty in using L1 (or, more generally, changes in processing of L1 that are experienced by speakers immersed in L2) results from an overall decrease in L1 accessibility and is known as "first-language attrition" (Köpke & Schmid, 2004). This increased difficulty in accessing or using the native language may have different origins. Some accounts have suggested that this difficulty is due to cognitive changes caused by handling two languages at the same time (Chamorro & Sorace, 2019; Sorace, 2016); others have suggested that it comes from the L1 regulation that is necessary when using L2, and/or from interference from L2 when using L1. This interference is a consequence of both of a bilingual speaker's languages being constantly co-activated (Thierry & Wu, 2007). To avoid interference from the unintended language, a control mechanism is needed to regulate the activation of both languages and allow the selection of the intended language. One possible control mechanism is inhibition of the unintended language (Green, 1998); another is an activation increase for the intended language (Costa, Miozzo, & Caramazza, 1999; Finkbeiner, Almeida, Janssen, & Caramazza, 2006). The constant need to deal with interference from the unintended language

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reduces the efficiency of information integration and updating (Chamorro & Sorace, 2019; Sorace, 2016). Additionally, more passive mechanisms have also been proposed in which language selection is a function of the relative activation level of each language, which in turn depends on a number of factors, such as lexical frequency (Gollan, Montoya, Cera, & Sandoval, 2008), communicative context, the recency of language use, and the conceptual message (Blanco-Elorrieta & Caramazza, 2021).

Here, we will focus on one domain in which L2-immersed speakers may experience difficulties when using L1: accessing single words during picture naming. The aim of the current study is twofold: first, to explore the effect of long-term L2 immersion on L1 access during picture naming; second, to explore whether the consequences of L2 immersion for L1 lexical access can be reversed after short-term re-exposure to the L1 environment. In the following sections, we will review previous literature that has explored both these issues.

1.1. Evidence for reduced L1 access in speakers immersed in the L2 environment

Previous studies took three different approaches to studying L1 lexical access in bilinguals immersed in the L2 environment: 1. between-group comparison (bilinguals immersed in L2 environment vs. monolinguals in L1 environment); 2. between-group comparison (bilinguals immersed in L2 environment vs. bilinguals in L1 environment); 3. within-group comparison (pre-L1 reimmersion vs. post-L1 reimmersion).

Between-group comparison: bilinguals immersed in L2 environment vs. monolinguals in L1 environment.

The phenomenon of reduced native language access in speakers immersed in an L2 environment has typically been explored by comparing groups of bilinguals living in an L2 environment for a relatively long time (typically migrants) against groups of monolingual speakers living in an L1 environment (Chamorro et al., 2016; Schmid & Jarvis, 2014; Sorace & Filiaci, 2006; Yagmur et al., 1999; Yilmaz & Schmid, 2012). In particular, these studies focused on some aspects of sentence processing in L1, such as anaphora resolution, lexical L1 diversity in free speech, and lexical access during L1 verbal fluency tasks. The results revealed that, compared to monolinguals, bilinguals immersed in an L2 environment had a weaker tendency to resolve anaphoric references by following the typical L1 pattern; also, their speech had lower L1 vocabulary diversity, and their semantic fluency was reduced. Still, it seems that access to the native language is not permanently lost and can be regained with L1 re-exposure.

Yilmaz and Schmid (2012) compared language accessibility in Turkish–Dutch bilinguals immersed in an L2 environment (the Netherlands) against that of monolingual Turkish speakers living in the L1 environment (Turkey). Two tasks were used: an experimentally controlled picture-naming task and a free speech task in which participants freely conversed about everyday topics. The results showed similar naming latencies for both groups during the picture-naming task, but worse performance of bilinguals in spontaneous language production (less fluent speech; in particular, reduced use of low-frequency vocabulary). The authors interpreted this finding as indicating that when L2-immersed bilinguals are required to retrieve individual words and are able to focus their attention only on this retrieval, then their performance is indistinguishable from L1-immersed monolinguals. However, in spontaneous speech, differences were observed between the two groups, possibly due to the constrained L1 use (limited to a reduced social sphere, which decreases the use of low-frequency words) and interference from L2.

All in all, it seems that bilinguals immersed in an L2 environment experience reduced availability of low-frequency vocabulary in L1 compared with monolinguals in an L1 environment. However, contrasting these two groups of participants has some disadvantages. For instance, it is hard to distinguish between the role of knowing a second language (bilingual vs. monolingual) and the role of the linguistic environment – namely, the consequences of being immersed in an L2 environment (L1 environment vs. L2 environment). This problem has been addressed by other studies directly comparing bilinguals immersed in an L2 environment against bilinguals in an L1 environment.

Between-group comparison: bilinguals immersed in an L2 environment vs. bilinguals in an L1 environment.

An alternative approach to exploring the impact of being immersed in an L2 environment involves comparing two groups of bilinguals with similar L2 proficiency but living in L1 or L2 environments. Thanks to this, we are better able to control the impact of confounding variables such as knowledge of another language and linguistic environment. This approach was used by Linck, Kroll, and Sunderman (2009), who compared two groups of English learners of Spanish: *classroom students* living in the USA who participated in a Spanish language course, and *exchange students* living for three months in Spain. The results showed that in a semantic verbal fluency task during their study-abroad experience, the exchange students produced fewer words in L1 than the classroom students. The authors interpreted these results as indicating difficulty with L1 lexical access resulting from immersion in the L2 environment. Another recent study comparing two groups of bilinguals is the one by Botezatu, Kroll, Trachsel, and Guo (2022), who compared two groups of bilinguals: native speakers of English learning Spanish or French in the US (L1 environment), and native speakers of English learning Chinese in China (L2 environment). Among other tasks, both groups of participants completed a picture-naming task in L1. During the task, the lexical frequency of the words referring to the named pictures decreased with each trial. The results showed that bilinguals immersed in the L2 environment were slower and produced more errors than bilinguals living in the L1 environment, especially for pictures corresponding to low-frequency words. Interestingly, most of the incorrect answers produced by the bilinguals immersed in the L2 environment were high-frequency substitutions for the correct low-frequency names (i.e., using the name 'broom' in response to 'rake'). This last finding suggests that bilinguals immersed in an L2 environment had difficulties in accessing the correct lexical items and instead opted to use a more readily available word, albeit an incorrect one. In sum, the results of the comparison between bilinguals immersed in the L1 and L2 environments suggest that immersion in an L2 environment indeed hinders lexical retrieval in L1, and this effect might be stronger for low-frequency words.

Within-group comparison: pre-L2 immersion vs. post-L2 immersion.

Yet another approach to measuring L1 difficulties during L2 immersion is testing participants who are living in their L1 environment after being immersed in an L2 environment (e.g., spending a semester abroad). In this case, the same population is tested more than once, and factors related to individual differences due

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to motivation and socio-economic status or cultural heritage are controlled for. Baus, Costa, and Carreiras (2013) tested bilinguals at two different stages: when they first arrived in an L2 environment, and after a few months of being immersed in this L2 environment. They asked German learners of Spanish to name pictures in their L1 at the beginning and end of a semester in Spain. Participants were slower to name pictures as a result of being immersed in the L2 environment. Interestingly, this slower L1 naming was more prominent for pictures with low-frequency names. The authors argued that the bilinguals reduced their use of L1 and, in particular, they used fewer low-frequency words during immersion in the L2 environment. That is, L2 immersion affects low-frequency words more than high-frequency words due to reduced L1 use during immersion in the L2 environment.

Summary

Overall, studies investigating the impact of L2 immersion on L1 availability are still scarce, but the available evidence seems to suggest that accessing and producing words in L1 becomes more challenging during immersion in an L2 environment (for contradictory results, see Yilmaz & Schmid, 2012, who only found differences between bilinguals immersed long-term in an L2 environment and monolinguals in a free speech task and not in a controlled picture-naming experiment). Importantly, this difficulty in L1 access seems to be more pronounced for words with lower lexical frequency than those with higher lexical frequency. In the following subsection, we will review studies exploring whether the difficulties in accessing L1 could be reversed after reimmersion in the L1 environment.

1.2. Evidence for increased L1 access in speakers immersed in an L2 environment after reimmersion in an L1 environment

Linck et al. (2009) published the first study that explored whether L1 difficulties due to immersion in an L2 environment can be reversed after reimmersion in an L1 environment. Previously, we discussed this study in the context of comparing bilinguals immersed in an L2 environment against bilinguals in an L1 environment (see section 1.1.2. "Between-group comparison: bilinguals immersed in L2 environment vs. bilinguals in L1 environment"). However, these authors also tested a sub-group of bilinguals immersed in an L2 environment again after reimmersion in their L1 environment, which made it possible to test whether the effects of immersion are reversible. In particular, they re-tested some English-Spanish exchange students six months later, after they had come back to the USA – that is, after being fully reimmersed in their native language environment. The results suggested that reimmersion improved their verbal fluency in L1. The authors concluded that the difficulties experienced during immersion in the L2 environment can be overcome by returning to the native language environment. Altogether, the results of this study demonstrate that L1 lexical access becomes more difficult over the course of L2 immersion, and a short reimmersion in the L1 environment is enough to overcome the difficulties.

Chamorro et al. (2016) also studied the effects of reimmersion, but they specifically focused on sentential aspects of L1 processing rather than lexical access. They designed a cross-sectional study with three groups of adult participants: 1) Spanish monolinguals living in their L1 environment; 2) Spanish–English bilinguals living in an L2 environment for five or more years (long-term migrants); and 3) Spanish–English bilinguals who had lived in an L2 environment for five or more years and were then re-exposed for one week or more to L1 before the experiment. All the participants completed a reading task with eye-tracking in which they were asked to read and judge the naturalness of sentences in order to explore their sensitivity to pronoun mismatches. The results showed that while the groups that were recently in contact with the L1 environment had no trouble detecting pragmatically inappropriate sentence structures, the bilinguals immersed in an L2 environment by the time of testing could not successfully identify inconsistencies, measured as gaze fixations. The lack of significant differences between the performance of the monolingual group living in the L1 environment and the bilingual group living in the L2 environment who were recently reimmersed in their L1 environment suggests that recent reimmersion in the L1 environment improved their detection of pragmatically inappropriate sentence structures in comparison with the group of bilinguals living in an L2 environment. The effects of reimmersion in the L1 environment on pronoun resolution have also been addressed in a study by Gargiulo and van de Weijer (2020). They compared groups of bilingual speakers before and after reimmersion in L1, and monolinguals living in the L1 environment. A self-paced comprehension task revealed that, compared to the L1-immersed speakers, L2-immersed bilinguals had changed their preference for interpretation of null pronouns. Interestingly, short-term reimmersion in the L1 environment reversed the changes observed in bilingual speakers. However, this effect might have been task-driven as both groups, bilingual and monolingual, performed faster in the second session compared to the first session. This suggests that the improvement in the bilingual group's performance was likely due, at least in part, to training or task learning, instead of fully due to the changes in the language environment. All in all, the results of both these studies indicate that difficulties in L1 use caused by long-term immersion in an L2 environment can be overcome. As Gargiulo and van de Weijer conclude, immersion effects seem to affect language processing rather than representations, and reimmersion effects prove that the language system is flexible and easily adaptable to the requirements of the environment.

The most recent study testing bilinguals who visited their native country (L1 environment) while living in an L2 environment is a case study by Köpke and Genevska-Hanke (2018), who studied the spontaneous speech of a Bulgarian-German bilingual speaker in four sessions over the course of five years. Similarly to Chamorro and colleagues (2016), they focused on the use of pronouns during language production. The first and third sessions took place while the participant was immersed in the L2 environment. The second and fourth sessions were recorded in the L1 environment, where the participant had spent two weeks prior to testing. The results showed that the participant overused pronouns in L1 during immersion in the L2 environment, thus replicating the pattern of pronoun use that is typical of German, which is the participant's L2. However, a short reimmersion in the L1 environment was sufficient to return to a level of pronoun use similar to native monolingual speakers of Bulgarian. In the same vein as Chamorro et al. (2016), the authors concluded that the differences in processing anaphoric pronouns due to immersion in an L2 environment were temporary. In summary, these studies suggest that L1 re-exposure removes the constraints placed on the L1 language system during L2 immersion.

Overall, the available evidence (Chamorro et al., 2016; Köpke & Genevska-Hanke, 2018; Linck et al., 2009) seems to indicate that the L1 difficulties caused by immersion in an L2 environment can be reversed after reimmersion in the L1 environment. Still,

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only one of these studies (Linck et al., 2009) focused on single-word retrieval. Furthermore, it is important to note that the studies that revealed difficulty in accessing L1 words due to immersion in an L2 environment tested individuals who were L2 learners rather than highly experienced L2 users (Baus et al., 2013; Botezatu et al., 2022; Linck et al., 2009). In contrast, two out of three studies that found that L1 difficulty can be reversed after L1 reimmersion tested individuals that were long-term migrants (Chamorro et al., 2016; Köpke & Genevska-Hanke, 2018). The differences between these participant groups seem crucial because some of the observed effects on L1 could be related to the process of L2 learning (hence adapting their language system to using the two languages optimally) rather than language immersion per se.

In contrast to L2 learners, long-term L2-immersed migrant bilinguals typically use L2 rather intensively and hence have high L2 accessibility, even if they do not achieve a high level of L2 proficiency in terms of sophisticated and rich language skills in various domains. Hence, long-term migrants may experience difficulties in L1 access caused by cross-language interference from L2 to L1 (Hopp & Schmid, 2013) rather than due to changes to their language system that are related to the mere process of learning L2 (see Bice & Kroll, 2015).

Altogether, the results from studies testing long-term migrants immersed in an L2 environment before and after reimmersion in L1 (Chamorro et al., 2016; Köpke & Genevska-Hanke, 2018) seem to align with the results of studies testing L2 learners living in their native environment before and after immersion in an L2 environment (i.e., spending a semester abroad, Baus et al., 2013; Linck et al., 2009). These studies suggest that immersion in an L2 environment interferes with L1 availability (for contradictory results see Yilmaz & Schmid, 2012), but such effects can be reversed once the bilingual comes back to their L1 environment. However, no study has yet tested whether bilinguals immersed in an L2 environment for a longer period of time (i.e., migrants) have difficulties accessing L1 compared to bilinguals in the L1 environment, and, if so, whether these difficulties could be overcome. Studying L1 lexical access in long-term migrants should give us insights into how the L2-immersed language system reacts to changes in the language environment.

1.3. Summary

All in all, from previous literature we know that L2 immersion seems to decrease the ability to access L1. However, it is not fully clear whether long-term migrants experience difficulties in L1 lexical access in comparison with bilinguals with similar L2 proficiency living in the L1 environment. Moreover, previous studies have shown that the negative impact of L2 immersion can be reversed after a short-term reimmersion in the L1 environment. Still, to date there are no studies exploring the effect of L1 reimmersion in the lexical access of long-term migrants. Therefore, the novelty of our study resides in comparing the L1 lexical access of long-term migrants during L2 immersion and after L1 reimmersion with that of a matched group of bilinguals living in the L1 environment.

1.4. Current study

The goal of the current study was twofold: 1) to explore whether long-term migrants (i.e., bilinguals immersed in an L2 environment) experience difficulties in L1 lexical access compared with bilinguals remaining in their L1 environment; 2) to test if L1 access in migrant bilinguals is improved after reimmersion in the L1 environment. For these purposes, two groups of Polish–English adult bilinguals were tested. We recruited a group of Polish migrants who had lived in the UK (L2 environment) for at least two years and a control group consisting of Polish–English bilinguals living in Poland (L1 environment). Each group was tested twice with an approximate between-session interval of 102 days ($SD = 56$). The migrant group was tested once during immersion in the L2 environment, and once after a short reimmersion in the L1 environment. The control group was also tested twice, with a similar interval between the tests, but both times this was in the L1 environment. This approach allowed us to compare the effects of immersion in an L2 environment (Botezatu et al., 2022; Chamorro et al., 2016; Yilmaz & Schmid, 2012) and assess whether short-term reimmersion in the native language environment can reverse the effects of L1 difficulty that – based on previous studies (Chamorro et al., 2016; Köpke & Genevska-Hanke, 2018) – should be observed due to long-term migration or long-term residence in the L2 environment. Thanks to the comparison between two bilingual groups of similar L2 proficiency, we should be able to disentangle the effect of L2 immersion from the effect of bilingualism per se (i.e., knowing two languages).

We counterbalanced the order of sessions between the participants: approximately half of the migrant group were first tested while immersed in the L2 environment and then again after a recent reimmersion in their L1 environment; the other half were first tested after a recent reimmersion in their L1 environment and then again when they were immersed in the L2 environment (i.e., at least 30 days after returning from Poland to the UK). Therefore, we could account for the possible confounds of the order of sessions and task training (Gargiulo & van de Weijer, 2020) by counterbalancing the order of experimental sessions.

Participants performed a battery of language-related and cognitive tasks which tested the consequences of immersion and reimmersion in many domains. In this paper we focus on one aspect of language processing, i.e., lexical access. The ease of lexical access was measured using a blocked picture-naming task. Target words corresponding to the pictures varied in lexical frequency, which allowed us to explore possible interactions between the L1 vs. L2 environments and lexical frequency. Previous research has shown not only that high-frequency words are accessed more easily than low-frequency words (Alario et al., 2004; Bates et al., 2003; Cuetos, Ellis, & Alvarez, 1999), but also that the lexical frequency of words modulates the effects of the environment. More specifically, in the L2 environment, low-frequency L1 words were particularly harder to access (Baus et al., 2013; Botezatu et al., 2022).

1.5. Hypotheses

We hypothesized that migrant bilinguals immersed in an L2 environment would find it more difficult to access names in L1 compared with the control bilinguals (bilinguals remaining in their L1 environment): the migrant bilinguals would be slower to name pictures in L1 than the control bilinguals. Also, we hypothesized that migrant bilinguals would find it easier to access L1 after a recent reimmersion in their native language environment, compared to while immersed in their L2 environment. This benefit should be observed as faster picture-naming latencies in L1 immediately after L1 reimmersion. Importantly, in the

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control bilinguals, we did not expect any changes in the L1 naming latencies between testing sessions.

Furthermore, we expected that the language environment would interact with frequency of words to be retrieved during picture naming. In terms of frequency, following Baus et al. (2013) and Botezatu et al. (2022), we expected that low-frequency L1 words would be harder to access in the L2 environment than in the L1 environment. In other words, the migrant bilinguals should be slower than the control bilinguals to name pictures that correspond to low-frequency words. Moreover, we expected that the migrant bilinguals would benefit from L1 immersion in such a way that low-frequency names would be easier to retrieve after L1 reimmersion.

2. Methods

2.1. Participants

Two groups of participants were recruited: a group of 55 Polish–English bilinguals living in the Edinburgh area, UK (migrant group), and a group of 56 Polish–English bilinguals living in Krakow, Poland (control group). All participants received monetary compensation for their time and effort. In addition, the participants in the UK were offered a Polish book as a gift. The study met the requirements and gained the approval of the Ethics Committee of Jagiellonian University Institute of Psychology concerning experimental studies with human subjects.

All the participants had learned English as a second language and used it on a daily basis (see Table 1). We assessed their English proficiency with the General English Test (by Cambridge Assessment: https://www.cambridgeenglish.org/test-your-english/general-english/) and an online version of the LexTALE task (Lemhöfer & Broersma, 2012) programmed in Inquisit (Inquisit 5 [Computer software] 2016). The selection criteria for participating in the study were self-reported upper-intermediate English proficiency (B2) or above; accuracy of 70% or more in the General English Test; and accuracy of 60% or more in the LexTALE test. See Table 1 for the language abilities of both groups.

For the migrant group, we recruited Polish native speakers who had lived in the UK for a minimum of two years. The migrant group was tested twice: 1) after at least 30 days fully immersed in the L2 environment – that is, without leaving the UK – which we referred to as the "during L2 immersion" session; 2) after reimmersion in the L1 environment – less than 7 days after returning from Poland – which we referred to as the "after L1 reimmersion" session. The order of the first session was counterbalanced (half of the participants performed the "during the L2 immersion session" first; half of the participants performed the "after the L1 reimmersion session" first). See Figure 1. From the initial sample, we excluded nine participants who did not complete the two sessions; another five were excluded because they did not follow the established time limit for each session. Additionally, four more participants were excluded due to technical problems during the recording of the responses. All of the remaining participants reported that they only used Polish when in contact with friends and family in Poland, never English or other languages. The final sample included 37 participants.

For the control group, native speakers of Polish with high English proficiency were recruited. Pre-selection criteria allowed only participants who had spent the last 30 days in Poland before each session. Similarly to the migrant group, the control group was tested in two sessions. In contrast to the migrant group, Context was a dummy variable in the control group, so we referred to these sessions as X Context and Y Context. See Figure 1. From the initial sample of 56 participants, we selected a subset of 37 participants such that they matched the migrant group as closely as possible on a set of critical measures: chronological age, age of L2 acquisition, socio-economic status (SES), language proficiency (the combined score of the LexTALE and Cambridge tasks) and self-assessed language switching behavior. The matching procedure was carried out using a brute force algorithm that we also used for a similar purpose in a previous study (Marecka et al., 2020). The groups had means within 1 SD of each matched variable (see Table 1 for the observed similarities and differences between the groups). To account for any remaining differences between the groups, we statistically adjusted for age and L2 age of acquisition in all analyses comparing the groups.

2.2. Task and procedure

The average time interval between sessions was 102 days ($SD = 56$; range: 30–260). The order of the sessions was counterbalanced for both groups between participants by randomly assigning each participant to their first experimental session (migrant group – 19 participants started with the after L1 reimmersion session; control group – 18 participants started with the X Context session).

Materials

We selected two different sets of pictures that were matched on a number of lexical characteristics in order to have non-repeated pictures for the two picture-naming sessions. The stimuli in the picture-naming task consisted of 216 colored images from the Cross-Linguistic Lexical Tasks database (Haman, Łuniewska, Hansen, Simonsen, Chiat, Bjekić, Blažienė, Chyl, Dabašinskienė, Engel de Abreu, Gagarina, Gavarró, Håkansson, Harel, Holm, Kapalková, Kunnari, Levorato, Lindgren, Mieszkowska, Montes, Laia Potgieter, Ribu, Ringblom, Rinker, Roch, Slančová, Southwood, Tedeschi, Tuncer, Ünal-Logacev, Vuksanović, & Armon-Lotem, 2017). We divided all the pictures into four subsets and created two different versions with different orders of presentation for each subset. The subsets of pictures were balanced with respect to name agreement, lexical frequency (based on Mandera, Keuleers, Wodniecka, & Brysbaert, 2015), and mean length in phonemes. Moreover, each subset contained a comparable number of images from different semantic categories. The order in which the subsets were presented was counterbalanced across participants. To avoid training effects and other confounds related to item repetition, all items were presented only once (Mitchell & Brown, 1988).

Procedure

In the picture-naming task, the pictures were displayed in the center of a computer screen on a black background using DMDX (Forster & Forster, 2003). Each trial was preceded by a black screen presented for 1000 ms, followed by a fixation cross that appeared in the screen's center for 1000 ms. A picture was then shown in the center of the screen until the participant responded or until the timeout was reached (3000 ms). The participants were instructed to name pictures aloud in their native language as quickly and accurately as possible. Vocal responses were recorded as audio files using DMDX. Each session of picture naming had a

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Table 1. Demographic information and language experience of participants

	Migrant group (N = 32)		Control group (N = 32)		t-test	
N	32 (29 female)		32 (21 female)			
Age (years)	36.16 (6.45)		29.91 (7.48)		$t(62) = -3.58$, $p = <0.01^{***}$	
SES	6.64 (1.54)		5.94 (1.63)		$t(62) = -1.79$, $p = 0.08$	
Years of education	18.35 (2.58)		17.16 (2.11)		$t(62) = -2.02$, $p = 0.05^{*}$	
Length of residence in L2 environment (years)	9.66 (4.86)		–			
Length of reimmersion in L1 environment (days)	13.37 (8.18)		–			
Time delay between L1 reimmersion and recording (days)	3.06 (1.86)		–			
Self-assessed language experience	**L1**	**L2**	**L1**	**L2**	**L1**	**L2**
Self-rated proficiency	9.82 (0.47)	7.86 (0.93)	9.69 (0.70)	7.20 (1.18)	t(62) = −0.88, p = 0.38	t(62) = −2.47, p = 0.02*
Speaking	9.64 (0.79)	7.68 (1.25)	9.53 (1.08)	6.63 (1.36)	t(62) = −0.46, p = 0.65	t(62) = −3.22, p = <0.01**
Writing	9.77 (0.75)	7.42 (1.29)	9.59 (0.76)	6.63 (1.74)	t(62) = −0.92, p = 0.36	t(62) = −2.09, p = 0.04*
Listening	9.94 (0.25)	7.91 (0.86)	9.84 (0.51)	7.59 (1.10)	t(62) = −0.91, p = 0.37	t(62) = −1.27, p = 0.21
Reading	9.93 (0.25)	8.42 (0.98)	9.78 (0.79)	7.97 (1.33)	t(62) = −1.04, p = 0.30	t(62) = −1.54, p = 0.13
Percentage of daily use	40.46 (15.94)	59.25 (15.53)	81.86 (16.48)	16.75 (11.44)	t(62) = 10.21, p = <0.01***	t(62) = −12.47, p = <0.01***
Age of acquisition (years)	-	13.05 (3.72)	-	10.03 (4.37)	t(62) = −2.97, p = <0.01**	
Language switching	4.82 (2.55)		4.19 (2.29)		t(62) = −1.04, p = 0.31	
Objective L2 proficiency measures						
LexTALE (mean accuracy in %)	-	77.82 (13.24)	-	73.72 (10.12)	t(62) = −1.39, p = 0.17	
Cambridge test (mean accuracy in %)	-	89.88 (9.48)	-	85.00 (7.47)	t(62) = −2.28, p = 0.03*	

Note. The first part of the table describes the demographic information of the final migrant group and the final control group. The rows display (1) number of participants and number of women in brackets, (2) age (in years), (3) socio-economic status on a 1 to 8 scale based on Adler, Epel, Castellazzo, and Ickovics (2000), (4) years of education (in years), (5) length of residence in an L2 environment (in years), (6) length of immersion the L1 environment, and (7) time delay between the return from the L1 environment and the experimental recording. The second part of the table summarizes the self-assessed language experience based on a questionnaire. The self-rated proficiency is presented on a scale from 1 to 10, where 1 = "no knowledge of a given language" and 10 = "native-like proficiency". The daily use of each language is presented in percentages and the age of acquisition in years. Bilingual switching is presented on a scale from 1 to 10, where 1= "I never switch languages within sentences" and 10 = "I always switch languages within sentences". The objective L2 proficiency measured in English is presented in percentages.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

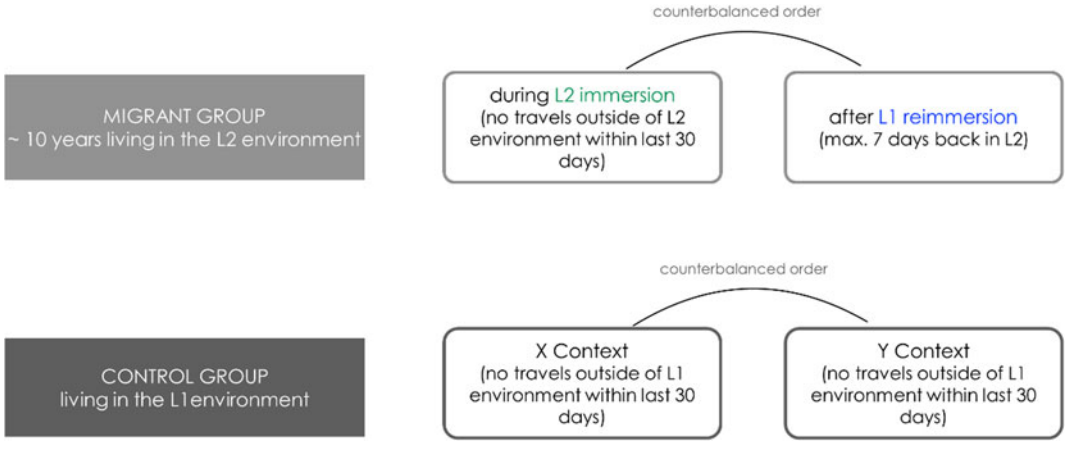

Figure 1.
Note: Representation of the testing sessions for the migrant and control group.

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total of 58 trials (4 practice trials and 54 regular trials). Overall, the picture-naming task lasted approximately 5 min.

2.3. Analysis

Naming latencies

The naming latencies were determined from the audio files using the Chronset online tool (Roux, Armstrong, & Carreiras, 2017). Practice trials were not included in the analysis. Responses with naming latencies below 300 ms and trials with inaccurate naming or timeout (3000 ms) were removed from the data. In total, 8.68% of the data was excluded. Due to the right-skewed distribution of naming latencies, they were transformed using reciprocal transformation (-1000/naming latency).

Statistical analysis

We used the lme4 package (Bates, Mächler, Bolker, & Walker, 2015, Version 1.1-23) in R (R Core Team, 2020, Version 4.0.2) to calculate the linear mixed-effects models.

We first fitted a general model that included both groups of participants. It also included participants and pictures as crossed random effects. As fixed effects, the model included Group (Migrant, Control) and Context (L1/X Context, L2/Y Context). As item-related fixed effects, the model included Word-lexical frequency (i.e., target name's lexical frequency based on Mandera et al., 2015) and the Trial number. We also included two participant-related fixed effects in the model: Age, and Age of L2 acquisition. Finally, the model included the interactions between Group and Context, and the interactions between Group, Context, and Word-lexical frequency. Before running the analyses, all categorical predictors were deviation coded using the sum contrast (Group: Control group = -0.5, Migrant group = 0.5; Context: L1/X-Context = -0.5, L2/Y-Context = 0.5). Trial number was log transformed. The continuous predictors were centered and standardized (Age and Age of L2 acquisition). We used the so-called maximum random-effects structure (Barr, Levy, Scheepers, & Tily, 2013): by-Picture random intercept and random slopes for Group, Context, Age, Age of L2 acquisition, Trial number, and the interaction between Group and Context; by-Participant random intercept with random slopes for Context, Word-lexical frequency, and Trial number; and interactions between all slopes and intercepts.

We fitted the maximal model first. If it did not converge, we first removed correlations between random effects; in the next step, the random effects with the smallest unique variance were removed, following the recommendation of Bates, Kliegl, Vasishth, and Baayen (2018). Absolute t-values greater than two were considered significant. The final model was: lmer (inverted_RT ~ Group + Context + Word_Lexical_Freq + Group : Context + Group: Context : Word_Lexical_Freq + Group : Word_Lexical_Freq + Age + AoA_L2 + Trial.number + (1 + Context| Participant) + (1 + Context| Item), data).

3. Results

3.1. General Model

The results revealed a significant interaction between Group, Context and Word-lexical frequency (see Table 3): there were faster naming latencies after the L1 reimmersion compared to the during L2 immersion, but only for words with higher frequencies (See Figure 2).

4. Discussion

The present study tested how L1 lexical access is affected by being immersed in an L2 environment for a relatively long time, as well as the consequences of short-term reimmersion in the L1 environment. To this aim, we compared the picture-naming performance in the L1 (Polish) of Polish–English bilinguals who had lived in the UK for at least two years (migrants) against the picture-naming performance in the L1 of Polish–English bilinguals living in Poland (control). Each group was tested twice. Participants from the migrant group were tested while in the UK (L2 immersion) and after a short visit to their native language environment

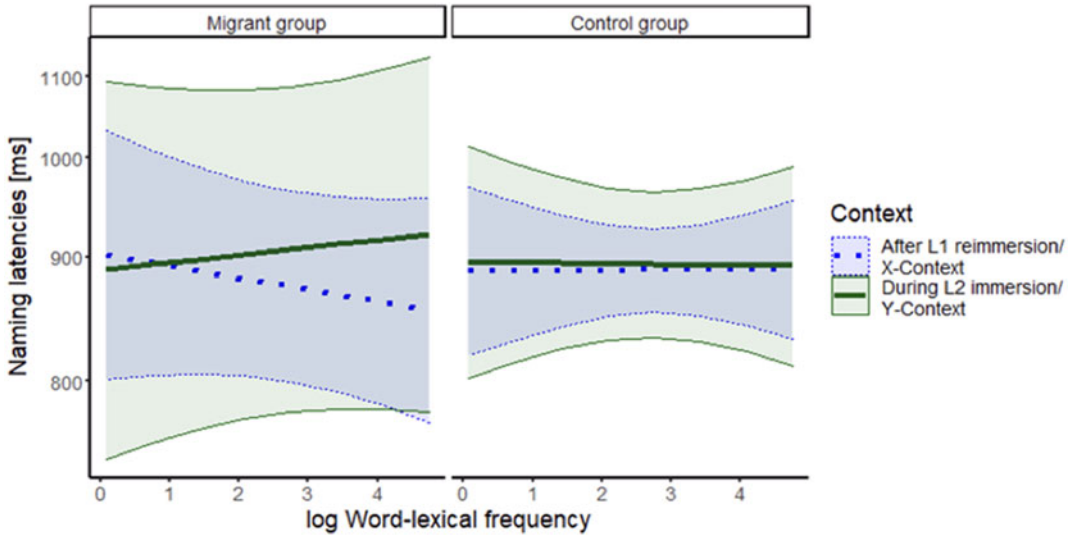

Figure 2. Interaction of Group, Context and Word-lexical frequency in General Model
Note. Marginal effects of the final LME model for the interaction between Group, Context and Word-lexical frequency. The straight line corresponds to the L2 immersion or Y-Context; the dotted line corresponds to after L1 reimmersion or the X-Context. The error ribbon represents 95% confidence intervals.

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(L1 reimmersion in Poland). Participants from the control group were tested both times in their native language environment.

We formulated two main hypotheses: 1) long-term immersion in an L2 environment results in reduced lexical access in L1. Consequently, compared to the control group, which is immersed in the L1 environment, we should observe slower naming latencies in the migrant group while immersed in the L2 environment. Moreover, 2) we hypothesized that difficulties resulting from being immersed in an L2 environment should diminish after a short reimmersion in the L1 environment. That is, we should observe that the migrant group's naming latencies during their immersion in an L2 environment should be slower compared with after reimmersion in the L1 environment. Additionally, we expected interactions between the language environment and the lexical frequency of the words corresponding to the pictures to be named, because previous literature reported impact of word frequency on the ease of lexical access. In brief, we expected that lower word frequency would add to retrieval difficulty under more difficult circumstances, i.e., in the L2 environment. Below, we discuss the findings in relation to each of the formulated hypotheses.

4.1. Group comparison

In contrast to our main hypothesis but in line with Yilmaz and Schmid (2012), there was no main effect of group in the main analysis, nor in the t-test comparison of the raw naming latencies (see Table 2); this most likely indicates that, overall, there were no differences in naming latencies between the control and migrant groups. This suggests that, despite being immersed in the L2 environment for an extended period of time, the migrant bilinguals did not have difficulties accessing their L1 – at least in this highly controlled picture-naming task. The lack of group differences in our study contrasts with previous studies that found reduced L1 lexical access for bilinguals immersed in an L2 environment (Baus et al., 2013; Botezatu et al., 2022; Linck et al., 2009). A possible explanation for the absence of a similar effect in our study could be related to the different lengths and natures of the tested groups' time spent abroad. That is, the participants in our study were migrants who had already spent several years immersed in an L2 environment (range = 2 to 24 years; mean = 9.61; sd = 4.43). In contrast, previous research (Baus et al., 2013; Botezatu et al., 2022; Linck et al., 2009) tested bilinguals that were actively learning L2 at the time of testing and had spent only a few months abroad. Because L2 knowledge increases during L2 immersion, it is possible that changes in L1 performance may occur in L2 learners who are immersed in the L2 environment. Bice and Kroll (2015) showed that when bilinguals are acquiring an L2, they adapt their language system to accommodate the new language. This adaptation of the language system may rely on L1 inhibition, and this L1 inhibition may trigger difficulties in L1 access for some time. This difficulty is, however, desirable as it reduces language competition (Bogulski, Bice, & Kroll, 2019). In other words, during L2 immersion, L2 learners constantly inhibit their L1 to facilitate L2 learning. It is possible that the differences between L2 learners in the L1 environment and L2 learners in the L2 environment (Botezatu et al., 2022; Linck et al., 2009) boil down to the fact that these environments offer a different number of opportunities to learn L2. In contrast, long-term migrant bilinguals do not actively inhibit their L1 but keep it available to use when appropriate. Alternatively, it may be the case that long-term immersed bilinguals develop a very efficient inhibitory mechanism, which allows them to control cross-language competition in such a way that the consequences of L1 inhibition are not observable because of its efficient recovery (Jacobs, Fricke, & Kroll, 2015).

Support for the hypothesis that immersion only affects L1 lexical access in L2 learners but not in long-term migrant bilinguals can be provided by the study by Yilmaz and Schmid (2012). Similarly to the current study, Yilmaz and Schmid tested long-term migrants immersed in an L2 environment for at least ten years. They compared the migrant group with monolinguals living in an L1 environment and found no differences in L1 lexical access in a simple picture-naming task. Accordingly, these authors argued that L1 lexical representations can remain intact despite extended immersion in an L2 environment. In line with Yilmaz and Schmid's (2012) interpretation, it seems reasonable to assume that the lexical representations of our migrant population also remain intact, even though they are immersed in their L2 environment, and that is why they access L1 effortlessly. However, while the absence of group differences in L1 access in Yilmaz and Schmid's study (which compared monolinguals and bilinguals) could have been confounded by the bilingualism factor, this was

Table 2. Summary of the raw behavioral data of L1 picture naming

Behavioral measures	Group	During L2 immersion / X-Context	After L1 reimmersion / Y-Context	t-test (Context comparison)
Naming latencies (ms)	Migrant group	973 (311)	934.76 (300)	$t(72) = -1.27$; $p = 0.21$
	Control group	1001 (313)	1019.81 (317)	$t(72) = -0.02$; $p = 0.99$
	t-test (Group comparison)	$t(72) = 0.39$; $p = 0.69$	$t(72) = 1.29$; $p = 0.20$	
Accuracy	Migrant group	0.97 (0.17)	0.97 (0.17)	$t(72) = -0.28$; $p = 0.78$
	Control group	0.96 (0.21)	0.94 (0.25)	$t(72) = -1.14$; $p = 0.26$
	t-test (Group comparison)	$t(72) = -1.63$; $p = 0.11$	$t(72) = -1.88$; $p = 0.06$	

Note. The table gives the raw behavioral measures of the two groups in the L1 picture-naming task. T-tests compared the migrant and the control group within each measure and language or context. Standard deviations are given in parenthesis.

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Table 3. Fixed effects of the LME model for the naming latencies of the general model

Effect	Estimate	SE	t	by-Picture SD	by-Participant SD
Intercept	−1.14	0.03	−38.00***	0.15	0.18
Group	0.00	0.05	−0.02		
Context	0.02	0.04	0.65	−0.05	−0.11
Word-lexical frequency	0.00	0.01	−0.08	–	
Age	−0.03	0.02	−1.30		–
Age of L2 acquisition	0.03	0.02	1.15		–
log (Trial number)	0.00	0.01	0.78		
Group:Context	0.03	0.07	0.48		–
Group:Word-lexical frequency	0.00	0.00	−0.28	–	–
Control Group:Context:Word-lexical frequency	0.00	0.01	−0.11	–	–
Mig. Group:Context:Word-lexical frequency	0.01	0.01	1.94′	–	–

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

controlled for in the current study because we compared two groups of bilinguals rather than bilinguals with monolinguals. Moreover, the only difference between the groups was that, at some point, some of them migrated to the UK, where the primary language is English. All participants included in our study were raised in a similar environment (i.e., native country – Poland) and were matched on L2 proficiency. Therefore, we were able to disentangle the effect of the language environment from the effect of bilingualism (i.e., knowing more than one language). The absence of any difference in lexical access in the compared groups suggests that in long-term migrants the effects of the environment are indistinguishable from the mere fact of knowing more than one language; it also suggests that, in the migrant population, immersion in an L2 environment does not necessarily lead to a detriment in accessing L1 (assessed via picture-naming latencies). As such, we argue that the reduced L1 access found in previous studies that tested bilinguals immersed in an L2 environment might have been related to the relatively early stages of the L2 learning process and the intensity of L2 learning in the L2 environment (Baus et al., 2013; Botezatu et al., 2022; Linck et al., 2009).

Another possibility that could explain the similarity in the naming latencies between the long-term migrants and the control group is that our immersed participants maintained close contact with their native country. In particular, they were connected to the Polish community living in the UK and were mostly recruited via Polish social media. In a previous study, Hulsen (2000) found that active contact with the native country influences the L1 performance of long-term migrants. These researchers tested Dutch–English bilinguals living in New Zealand for about 36 years and compared their performance in a picture-naming task with that of a Dutch monolingual group living in the Netherlands. The results showed similar naming latencies between groups. Moreover, in the migrant group, there was a partial correlation between naming latencies and how often these migrants maintained contact in Dutch (L1) with people living in the Netherlands. In particular, the migrants who had more extensive contact with their home country exhibited faster naming latencies compared with the migrants with less contact. Notably, we are not able to make a correlation because the current study lacks quantitative information about the migrant group members' contact with their home country. However, the participants were recruited using a snowball strategy and through various Polish communities and media in the UK. We therefore targeted people who maintained contact with the Polish diaspora in the UK but had obtained relatively high levels of proficiency in the majority language – namely, English. Moreover, given the fact that we required the immersed participants to travel to Poland, we presumed that they maintained frequent contact with their home country. This frequent contact might have contributed to the increased L1 performance of the long-term migrants and consequently to similar naming latencies as the control group.

Altogether, it seems that our results provide initial evidence that bilinguals who are also migrants can have comparable lexical access in their native language to bilinguals who live in their L1 environment; however, at this point we cannot exclude other alternative explanations (i.e., that the lack of significant group differences is related to limited power due to the sample size of ∼40 participants per group).

4.2. Effects of reimmersion

Our second hypothesis is related to the impact of short reimmersion in the L1 environment. Based on the previous findings of Linck et al. (2009), we expected that a short reimmersion in the native language context (a short visit to the native country) would improve the L1 lexical access of speakers usually immersed in an L2 environment (migrant bilinguals). The results showed that lexical access in L1 indeed benefitted from L1 reimmersion, but only for high-frequency words. In other words, bilingual migrants were faster to retrieve higher-frequency L1 words after a visit to their home country than while residing in the L2 environment.

Although the results are opposite to what we initially expected, they actually seem to complement previous studies which showed that L2 learners immersed in an L2 environment were slower to access words with lower lexical word frequencies (Baus et al., 2013; Botezatu et al., 2022). Our design is the reverse of the design used by Baus et al. (2013), who first assessed the participants in their L1 environment and then re-tested them after six months immersed in the L2 environment. We, on the other hand, assessed the participants after at least 2 years of immersion in the L2 environment, and also when they returned from their L1 environment

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(as a reminder, the order of the L2 environment session and the L1 environment session was counterbalanced). At first sight, our results seem to contradict Baus et al. (2013), who found slower naming latencies for words with lower lexical frequency when the bilinguals were tested in their L2 environment (at the end of the semester) compared to when tested in their L1 environment (at the beginning of the semester). In contrast, we found that bilinguals reimmersed in their L1 environment were faster in naming words with higher lexical frequencies compared to bilinguals immersed in an L2 environment, which is exactly the opposite pattern. A possible explanation for the differences in results between Baus et al. and the current experiment could be related to how often L1 words are likely to be used in the language environment of a bilingual speaker. Baus et al. argued that the lexical frequency effect observed in their study was caused by the relatively infrequent use of low-frequency words in their mental lexicon, compared with high-frequency words (Gollan et al., 2008). Because of the relatively infrequent use of L1 words for an extended period (i.e., while immersed in an L2 environment), the activation of L1 words is reduced. Therefore, low-frequency words (having lower activation) are the first to show noticeably reduced lexical access during L1 word production. Following the hypothesis of Baus et al., we should observe that, compared with high-frequency words, low-frequency words benefit more from L1 reimmersion due to their weaker lexical representation. Contrary to these expectations, we observed that, after reimmersion in L1, lexical access was facilitated for words of higher frequency. This seemingly contradictory finding seems, however, to make sense if we assume that the difference in the difficulty of lexical access between low- and high-frequency words is not necessarily a function of their baseline activation strength; instead, it depends on how often these words are encountered and used in each environment. That is, in the L2 environment the activation threshold of L1 words will be similarly low for high- and low-frequency words due to their reduced use in the L2 environment in general. However, L1 use usually increases during brief reimmersion in the L1 environment: therefore, it is very likely that high-frequency words are encountered more often than low-frequency words. That being the case, high-frequency words benefit more than low-frequency words during L1 reimmersion because they are encountered and used more often. Therefore, the ease of lexical access observed during reimmersion in the L1 environment could be at least partially determined by the actual encountering and use of L1 words in the native language environment. This explanation could also account for the results of Baus et al.: after immersion in the L2 environment, low-frequency words trigger a higher lexical access cost because they are less likely to be used. In comparison, high-frequency L1 words might still be occasionally encountered: therefore, they may be active in the language system for longer. Altogether, our findings, as well as those of Baus et al., appear to highlight the close relationship between changes in the language environment and the role of lexical frequency. By moving into a different language environment, bilinguals change their day-to-day use and exposure to L1 and L2, which leads to changes in lexical access of L1. In other words, a change in language environment increases sensitivity to word frequency. It follows that if the control bilinguals were tested in the L2 environment, we should observe frequency effects similar to what Baus et al. found, but this hypothesis requires further testing.

Following this perspective, Beatty-Martínez et al. (2020) tested how the language environment interacts with participants' patterns of cognitive control; they also explored the role of the environment in relation to the lexical frequency of words. Given the focus of our current study, we focus only on describing the interaction between the language environment and the lexical frequency effects observed by Beatty-Martínez et al., who tested Spanish–English bilinguals from three different environments: Granada (Spain) as an L1-dominant environment; Pennsylvania (United States) as an L2-dominant environment; and Puerto Rico (United States) as a language switching environment. All participants completed picture-naming tasks in L1 and L2, including items with varied lexical frequency. Similarly to the current study, no significant differences between the naming latencies of participants from the three different language environments were found. However, the results revealed that bilinguals from the L1-dominant environment showed a greater frequency effect (i.e., faster naming latencies for high-frequency words vs. low-frequency words) in L1 than in L2. In contrast, bilinguals from the L2-dominant environment demonstrated more similar frequency effects between L1 and L2. Moreover, Beatty-Martínez et al. found a correspondence between language environment and patterns of language control that could explain the different patterns of lexical frequency. Bilinguals in the L1-dominant environment tended to apply more reactive control: therefore, they reacted more quickly to more-salient stimuli, i.e., high-frequency words. In contrast, bilinguals in the L2-dominant environment tended to apply more proactive control, which favored the suppression of competing items from both L1 and L2. This greater control of competing items allowed them to retrieve low-frequency items in L1 more quickly, thus reducing the frequency effects. Altogether, Beatty-Martínez et al.'s (2020) results align with those of the current study in the sense that when bilinguals are immersed in an L1-dominant environment, they experience a higher lexical frequency effect in L1 compared to when they are immersed in a L2-dominant environment. Overall, the results seem to suggest that the language system adapts to the linguistic environment, although the clear nature of this adaptation remains to be explained in future studies.

Another way to explain the interaction between lexical frequency and migrants' language environment would be that immersion in the L2 environment reduces or blocks the lexical frequency effect (i.e., high-frequency L1 words are more available than low-frequency words). As can be observed in Figure 2, during L2 immersion the lexical frequency does not predict the migrants' naming latencies, relative to after L1 reimmersion. It may be the case that L2 immersion blocks the frequency effect as it may become counterproductive to maintain more available high-frequency L1 words in the L2 environment because this may create interference when using the L2. However, as soon as the migrants are reimmersed in their L1 environment, the frequency effect emerges. This apparent pattern could tentatively be explained by a decrease in the frequency of using L1 during L2 immersion. That is, the decrease in L1 use would reduce the unique lexical frequency of L1 items, including high-frequency L1 items (in line with the frequency-lag hypothesis of Gollan et al., 2011). In the same line, this could also be explained as global inhibition applied to L1 during L2 immersion, thus reducing the availability of all L1 items, including high-frequency words (Van Assche, Duyck, & Gollan, 2013). A slightly different explanation for the increase in naming latencies for high-frequency words during L2 immersion could be that local inhibition was applied to high-frequency L1 items, which would interfere with the use of translation equivalents in L2 in the L2 environment

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(in line with the local inhibition proposal by Sandoval et al., 2010).

In order to explore these possibilities, we performed a further analysis for the migrant group in which we included as covariates the years spent living in the L2 environment, and the days of reimmersion in the L1 environment (analysis presented in Appendix 9.2). The results showed that the length of immersion/reimmersion did not affect the main effect of context, thus indicating that this effect was most likely due to global L1 inhibition in the L2 environment (Linck et al., 2009), which is decreased after reimmersion in the L1 environment. However, further research is needed to confirm this explanation.

All in all, the language system is sensitive to the language environment and can benefit from language exposure by quickly adapting the activation level of lexical items. That is, the language system seems to be able to readily adapt to changes in the language context, thus demonstrating that long-term immersion in an L2 environment does not have a negative impact on L1 lexical access and that L1 access can improve after reimmersion in an L1 environment. The increased speed of L1 naming after reimmersion in an L1 environment extends the existing literature on the reversibility of pragmatic processing of meaning (Chamorro et al., 2016) or spontaneous speech (Köpke & Genevska-Hanke, 2018). As far as we know, these are the first results that show that even brief reimmersion in the L1 environment improves bilinguals' lexical access to their native language for those who otherwise remain immersed in an L2 environment.

4.3. Summary

All things considered, our data demonstrate that long-term migrants, despite being immersed in the L2 environment, maintain an ability to access L1 that is comparable to that of bilinguals living in the L1 environment. Moreover, long-term migrants can still benefit from short-term reimmersion in the L1 environment, as shown by improved access to high-frequency L1 words.

5. Limitations and future directions

The main limitation of the present study is that the effect of L1 reimmersion was not tested during the period of L1 reimmersion but up to 7 days after migrants' return to the L2 environment. This time gap, in which the participants were already exposed to the L2 environment, might have obscured some of the reimmersion effects. Additionally, despite our great efforts to match the groups, some characteristics of the migrants and controls still differed, such as L2 proficiency level, age of L2 acquisition, and chronological age. One possibility for future research would be to compare our migrant population with long-term migrants who do not maintain close contact with their L1 environment and therefore may experience different changes in their L1 accessibility.

6. Conclusion

To conclude, the presented study demonstrates that L2 immersion does not necessarily have detrimental effects on native lexical access, as observed in a simple picture-naming task. Instead, migrants living in an L2 environment can demonstrate a similar ease of lexical access as bilinguals living in an L1 environment. Additionally, we found that the language system is capable of quickly adapting to changes in the language environment. This was corroborated by the observed beneficial effects of a short-term visit to a home country for easiness of access to words of higher lexical frequency. This change seems to be driven predominantly by opportunities to use particular words, with more prevalent words having more impact than those encountered less often. Future research will be essential to determine the specific mechanisms underlying these adaptation processes and whether these are similar in bilinguals detached from their L1 environment. Additionally, it is relevant to explore how the language environment modulates lexical access in the second language.

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Competing interests. The authors declare none

Authors' note. data available on https://osf.io/tdxsr/?view_only=a146a3de536d4b92a70a46b3a7240f80

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