

**ASK ME AGAIN AFTER IMMERSION: THE IMPACT OF LANGUAGE IMMERSION  
EXPERIENCES ON THE MORAL FOREIGN LANGUAGE EFFECT**

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### **Abstract**

The moral foreign language effect refers to differences in response patterns to moral dilemmas based on whether they are presented in an individual's native or foreign language. When responding to dilemmas in their native language participants tend to endorse a deontological outcome, however when responding in their foreign language they tend to endorse a utilitarian one. While there is much research exploring the causes of this phenomenon, no studies to this date have examined the impact that language immersion experiences have on the presence of the moral foreign language effect. We asked participants to respond to three different moral dilemmas with a deontological or utilitarian outcome. The dilemmas were presented in either their native or foreign language. We also had participants self-report their language immersion experiences. We found that individuals who had participated in language immersion experiences demonstrated no significant differences in their willingness to endorse a utilitarian response based on the language of the dilemma. However, those without immersion experiences did. Our findings suggest that immersion is an important component of moral language comprehension which should be considered when determining language proficiency.

## **Ask Me Again After Immersion: The Impact of Language Immersion Experiences on the Moral Foreign Language Effect**

There are thousands of different languages spoken around the world every day. While many individuals spend most of their time speaking in their native language (L1), in our globalized world, learning foreign languages (L2) and communicating with them is common. For this reason, psychologists have studied the differences in individuals' decision making when they are posed questions in their L1 compared to their L2. One such difference identified in the literature is the moral foreign language effect (MFLE) which refers to differences in responses to moral dilemmas across L1s and L2s (Purpuri et al., 2024). While seemingly minute, these response differences need to be thoroughly studied due to their practical implications, as meetings between world leaders often require individuals to make grave moral decisions while communicating using a L2. The United Nations, which includes 193 member states (United Nations, 2025), uses just three languages during meetings (The United Nation Office at Geneva, 2025), requiring many to follow and respond to meeting procedures in a language which is not native to them. Therefore, studying differences in decisions made across languages, such as within the MFLE, can help us to better understand circumstances which may lead individuals to stray from their typical decision-making processes. The current study further examined the causes of the MFLE by studying the role of individuals' language immersion experiences in moral decision-making.

### **Conditions of the Moral Foreign Language Effect**

Studies examining the MFLE use dilemmas which force a choice between a utilitarian and deontological outcome; the choice that participants endorse varies based on the language the dilemma is presented in. Utilitarian decisions are those which maximize joy and minimize

suffering for the greatest number of people, while deontological ones uphold moral social norms, regardless of the proportion of suffering (Geipel et al., 2015; Purpuri et al., 2024). Individuals are more likely to respond in a utilitarian manner to a dilemma presented in their L2 but respond in a deontological manner to those presented in their L1 (Geipel et al., 2015; Purpuri et al., 2024). Scenarios such as the footbridge dilemma ask individuals if they would push a large person next to them off a footbridge to stop an oncoming trolley that will otherwise hit five people (Thomson, 1985). Individuals must decide between a utilitarian decision where they save five individuals at the expense of one, or a deontological one, where five people are killed, but they themselves refrain from killing anyone (Geipel et al., 2015; Purpuri et al., 2024). Across studies of the MFLE, individuals presented with the footbridge dilemma in their L2 are much more likely to endorse pushing the individual off the bridge to save the other five on the tracks than refraining from pushing the individual and upholding moral social norms (Geipel et al., 2015; Purpuri et al., 2024).

Much of the research on the MFLE has been conducted in a laboratory setting, causing some to question its generalizability to the real world. However, studies which vary the dilemmas used (Kyriakou & Mavrou, 2023), modality through which the dilemmas are presented (Brouwer, 2020), and the L1 and L2s of the participants (Hayakawa et al., 2017), indicate that this effect persists in a variety of environments. Many researchers argue that outlandish moral dilemmas, such as the footbridge dilemma, are not representative of everyday moral judgements (Kahane, 2015). Yet, the MFLE has been demonstrated in both realistic and unrealistic dilemmas (Kyriakou & Mavrou, 2023). This research indicates the MFLE can be generalized to the real world. Furthermore, the MFLE persists across presentation modalities, with participants being significantly more likely to answer dilemmas in a utilitarian manner using their L2 both when

they hear the dilemmas read aloud and when they read the dilemmas themselves (Brouwer, 2020). Research has shown that the effect is present across cultures with participants using various L1 and L2 combinations, all electing to endorse utilitarian responses in their L2 and deontological ones in their L1 (Chan et al., 2016; Geipel et al., 2015; Hayakawa et al., 2017; Kyriakou & Mavrou, 2023). The MFLE's generalizability across cultures (Hayakawa et al., 2017), different types of scenarios (Kyriakou & Mavrou, 2023), and modalities (Brouwer, 2020), indicates that it is an important psychological phenomenon that needs to be thoroughly investigated.

Yet, there are many different factors that influence the MFLE's presence. Notably, the effect exists only for personal moral dilemmas, defined as moral scenarios that are more emotional and involve the moral violation of another, often through physical harm (Green et al., 2001; Purpuri et al., 2024). When responding to impersonal dilemmas, those which are less emotional and do not involve the moral violation of another (Green et al., 2001; Purpuri et al., 2024), participants respond similarly in their L1 and L2. For example, previous studies found evidence of the MFLE when participants responded to the footbridge dilemma, but not the impersonal trolley dilemma (Geipel et al., 2015). In this latter scenario, participants manipulate the number of individuals killed by pulling a lever to divert the trolley from a track with five people to a track with one person, rather than physically pushing one person to their death. Differences in moral decisions appear across languages, but only when the dilemma asks the individual to break personal moral norms.

The characteristics of the L2 that the dilemmas are presented in also affect the MFLE's presentation. One such characteristic is an individual's understanding of their foreign language; when individuals are fluent in their L2, the effect is no longer present (Kirova et al., 2023). For

example, when Russian native speakers were asked to respond to moral dilemmas in English, those with low proficiency were significantly more likely to respond in a utilitarian manner than those who were fluent (Kirova et al., 2023). Additionally, the societal prevalence of a foreign language matters. Studies examining Cypriots' responses to moral dilemmas presented in Greek or English, both commonly spoken in Cyprus, found no evidence of a MFLE (Kyriakou & Mavrou, 2023). However, the same study also sampled Spanish participants who when asked to respond to moral dilemmas in either Spanish, their L1, or English, their L2, did demonstrate a MFLE. The authors attributed this finding to the prevalence of the English language in Cyprus. An individual's proficiency and familiarity with the L2 they are asked to respond to moral dilemmas in has a great effect on their decisions.

### **Potential MFLE Mechanisms**

In addition to understanding the conditions of the MFLE, many research studies have also examined its cause. There are two main theories as to why this phenomenon exists, both of which stem from the dual process model of moral reasoning (Geipel et al., 2015; Greene et al., 2001). Under this model, moral decisions are made using one of two pathways. The first pathway is controlled and cognitive while the second is emotional and automatic. Individuals use the first when making utilitarian decisions and the second when making deontological ones (Geipel et al., 2015). Both moral decision-making pathways have led to theories behind the MFLE: the increased cognition theory, and the attenuated emotions theory (Hayakawa et al., 2017).

The increased cognition theory posits that the MFLE is a result of increased cognitive analysis when reading moral dilemmas in a L2. This increased analysis means that the cognitive process of moral reasoning is used, leading to more utilitarian outcomes (Hayakawa et al., 2017). Overall, the theory suggests that we see differences in responses to moral dilemmas across

language types because L2s promote an increase in utilitarian thinking due to intensified cognitive reasoning.

While many would agree that reading and responding to prompts in a L2 require more cognitive effort, recent research has called this explanation of the MFLE into question. In an experiment where participants were asked to rate whether syllogisms, two statements followed by a conclusion based on them, were true or false in either their L1 or L2, accuracy was found to be significantly higher in the L1 condition (Bialek et al., 2020). When an individual spends more time analyzing a problem, they are more likely to answer it correctly. Therefore, this decreased accuracy in the L2 condition does not support the theory that reading a moral dilemma in a L2 promotes increased analysis of it. Furthermore, if participants spend more time analyzing the outcomes of moral decisions in their L2, they will likely care more about an actor's intentions and the outcomes of their actions when responding to a situation. Research by Costa et al. (2019) found that there is no difference in the weight individuals assign to an actor's intentions or the outcome of their actions when they evaluate scenarios in their L1 compared to their L2. Overall, the existing body of research on the MFLE does not provide strong support for the increased cognition theory.

However, the attenuated emotions theory, which suggests that decreased emotions in a L2 prevent individuals from engaging their emotional decision-making system, leading to a utilitarian response instead of a deontological one, has been supported by many studies. This includes research demonstrating how emotional memory encoding is language specific. That is, you are more likely to recall memories made in a specific language when the language used around you matches that of the memory (Marian & Neisser, 2000). As a result, when you read a moral dilemma in a L2, you recall emotional memories or memories of social norms made using

that language and are less likely to recall those made using your L1. Individuals who have made fewer memories in their L2 will not have as much information, particularly emotional information, to draw on when forming their decision.

Because individuals tend to spend more time speaking in their L1 than their L2, it is no surprise that studies indicate that words presented in a L1 are perceived more emotionally than those presented in a L2 (Caldwell-Harris & Ayçiçeği-Dinn, 2009). When presented with a variety of words varying in emotional valence, in both their L1 and L2, participants demonstrated a higher skin conductance response and longer reaction time to words in their L1, indicating that these words elicited a greater emotional response (Caldwell-Harris & Ayçiçeği-Dinn, 2009). Overall, individuals tend to have fewer emotional memories to draw on in their foreign language, leading to diluted emotional reactions. When individuals are fluent in their L2 however, there are no differences in emotional reactions to L1 and L2 words of similar valence (Eilola et al., 2007). These findings generalize even to individuals who learned their L2 later in life (Eilola et al., 2007), demonstrating that regardless of the age of acquisition, the more time an individual engages with a L2, the more emotional individuals are when using that language. Increased engagement with a language leads to an increase in memories encoded in it, providing individuals with more emotional reference points when they respond to dilemmas in that language.

While attenuated emotions for non-fluent individuals are present in all language tasks in a L2, the effects are most visible in responses to personal dilemmas. Functional MRI studies show that personal dilemmas engage areas of the brain associated with emotion significantly more than impersonal ones do (Greene et al., 2001). Because responding to an emotional situation often requires previous emotional experience, we see differences in participants' responses to personal



moral dilemmas in their L2 because they have fewer emotional memories to draw on. Research on memory encoding, the emotionality of languages, and brain areas activated when responding to personal dilemmas all support the idea that the MFLE is a result of decreased emotions when communicating in a L2.

Not only is the attenuated emotions theory rooted in research, it is also supported by new studies that examine individuals' emotionality and norm understanding when responding to moral dilemmas in their L1 and L2 through psychological distancing. Because individuals often lack emotional memories and responses when communicating using their L2, researchers theorized that participants would feel more emotionally distant from the dilemmas when responding in their L2 instead of their L1. For this reason, they expected that when the psychological distance of a dilemma is manipulated, increased distance would be positively correlated with utilitarian responses (Aguiar et al., 2013). To test their theory, Aguiar et al. (2013) manipulated psychological distance in different ways. In the first experiment, psychological distance was manipulated using time. Participants were asked whether they would perform a surgery to harvest organs from a patient, saving the lives of five people at the expense of one. However, the dilemmas were manipulated such that some participants were told the surgery would take place in two days and others were told it would take place in two years. In the second and third experiments, participants in the control group were led through a concrete priming task while the experimental group was led through an abstract priming task, which would increase psychological distance, before responding to moral dilemmas. Across all three experiments, participants were significantly more likely to endorse utilitarian outcomes in the psychological distance group than in the control group (Aguiar et al., 2013). Attenuated emotions hinder an individual's ability to connect with a moral dilemma, increasing their

psychological distance from it. This research acts as a link that connects evidence of lessened emotions in L2s with the increased utilitarian responses we see as part of the MFLE.

Additional research has found that participants feel less distressed and are less worried about violating social norms when responding to dilemmas in their L2. In studies using the CNI model of moral reasoning, which examines participants' responses to dilemmas based on their sensitivity to norms and consequences as well as their willingness to react, researchers found that participants are significantly less sensitive to consequences when responding in their L2 instead of their L1 (Białek et al., 2019; Hennig & Hütter, 2021). Similar results were found in a study by Geipel et al. (2015), where participants responded to moral dilemmas in their L1 or L2, rated the action's moral permissibility, and rated their level of distress in considering the action. Like previous research, the authors found that individuals responding to personal dilemmas in their L2 were significantly more likely to endorse utilitarian outcomes than those responding in their L1. They also found that those in the L2 group rated the actions as significantly less distressing, and significantly more permissible (Geipel et al., 2015). Overall, empirical evidence demonstrates that using a L2 to read and respond to moral dilemmas makes individuals less emotional and therefore less sensitive to the consequences of their actions. They also are less inhibited by social norms, leading them to rate actions as more permissible, because they have fewer memories of social norms and emotional experiences to draw on when making their decision.

While the theories above are the main explanations for the MFLE discussed in the literature, Chan et al. (2016) explored, and ultimately ruled out, a third theory positing that language serves as a cultural prime, leading to differences in dilemma responses across conditions. In their research, the authors explained that language might cause individuals to consider the cultural values of communities that speak the language, such as individualism or

collectivism, leading them to respond differently to a dilemma presented in their L2 than one presented in their L1. For this reason, dilemmas presented in the language of an individualistic culture should elicit a deontological response, while those in the language of a collectivist culture should elicit a utilitarian one. To gain support for their theory, Chan et al. (2016) presented participants with moral dilemmas in either Chinese, their L1, or English, their L2. Because China is a collectivist culture and countries that speak English tend to have individualistic cultures, the authors expected that dilemmas presented in English would lead to more deontological responses while those presented in Chinese would lead to more utilitarian ones. However, their results did not support the culture prime theory and instead replicated previous research. Participants were more likely to provide deontological responses to personal dilemmas presented in their L1, and utilitarian ones to those presented in their L2. This lack of support for the culture prime theory of the MFLE is particularly salient when considering that many studies have shown that the moral foreign language effect persists across cultures (Geipel et al., 2015; Hayakawa et al., 2017).

To understand the causes of the MFLE, we need to understand whether reading dilemmas in a L2 leads to responses that are more utilitarian or less deontological. The bulk of research on the MFLE explores individuals' willingness to respond to moral dilemmas with deontological or utilitarian outcomes in a binary manner, and therefore does not answer this question. To remedy this, Hayakawa et al. (2017) examined individuals' responses to moral dilemmas where the options were incongruent, responses were *either* utilitarian or deontological, or congruent, responses were *both* utilitarian and deontological. Using participants' responses to these different types of dilemmas in either their L1 or L2, the authors calculated utilitarian and deontological scores and compared them across conditions. They found that compared to responses in their L1, participants had lower utilitarian and deontology scores when responding in their L2. Replicated

across six separate studies (Hayakawa et al., 2017), these results demonstrate that increased utilitarian responses in a L2 are a result of lessened deontological responding, providing strong support for the attenuated emotions explanation of the MFLE.

### **The Role of Language Immersion**

Because research shows that an individual's understanding of moral norms and emotional memories made in a L2 are key variables determining the expression of the MFLE (Aguliar et al., 2013; Bialek et al., 2019; Caldwell-Harris & Ayçiçeği-Dinn, 2009; Greene et al., 2001; Hayakawa et al., 2017), research should examine the impact of language immersion experiences, which boost both cultural understanding and L2 experience (Johns & Thompson, 2010; Watson & Wolfel, 2015) on the MFLE. These experiences, such as college study abroad programs, help individuals to understand cultural differences and integrate them into their lives after the program (Johns & Thompson, 2010). They also improve individuals' intercultural competence, or ability to adapt their behaviors and perceptions according to cultural context (Watson & Wolfel, 2015). In a world where cultures vary in their approach to social norms (Gelfand, 2012), these experiences give students tools to take cultural context into account while making serious decisions. This increased context could help individuals to consider moral norms when responding to dilemmas, rather than disregarding them and seeking a decision that brings the greatest benefit to the greatest number of people.

Additionally, the emotional memories made in a L2 during these experiences will provide individuals with more information to draw upon when responding to moral dilemmas presented in a L2. Together, these increases in emotionality and cultural understanding could help individuals to respond in a deontological manner as opposed to a utilitarian one. Understanding the impact that language immersion experiences have on the MFLE is an untapped area of

research which needs to be further explored.

### **The Current Study**

Despite evidence indicating that the MFLE is present only when individuals are proficient but not fluent in their L2 (Kirova et al., 2023; Kyriakou & Mavrou, 2023), little research has examined why this differentiation occurs. The aim of the current study was to determine if language immersion experiences, which benefit both language proficiency and cultural norm understanding, influence the prevalence of the MFLE in individuals who are at least proficient in their L2. To answer this question, we presented participants with three realistic moral dilemmas in either their L1 or L2 and collected information about their level of language proficiency, as well as the extent of their language immersion experience. Based on previous research, we expected that language immersion experiences would lead to differences in the MFLE's appearance. More specifically, we predicted that those who did not participate in an immersion experience would demonstrate the standard MFLE, responding to the personal dilemmas presented in their L2 in a more utilitarian manner. We also expected that those who had an immersion experience would demonstrate less variation between languages in their responses according to the extent of their experience.

### **Method**

#### **Participants**

Four-hundred and twenty-seven participants were recruited from the Hamilton College community through word of mouth and email advertisements, as well as from CloudResearch. We analyzed data from 263 of them (121 Male, 104 Female, 5 Nonbinary, 34 prefer not to say). Of those 263, their ages ranged from 18 to 75 ( $M = 32.88$ ,  $SD = 11.33$ ), and they identified as White (49.0%), Hispanic or Latino (16.3%), Black or African American (12.2%), prefer not to

say (12.2%), Asian or Pacific Islander (9.9%) or other (0.4%). Hamilton College students were compensated with extra credit points through the SONA system, or entry into a raffle for a \$50 Fojo Beans gift card. Those recruited using CloudResearch were compensated \$2 for their participation.

## **Materials**

### ***Moral Dilemma Task***

During the moral dilemma task, participants were asked to respond to three different moral dilemmas which were presented in either English, Spanish or French. All of the dilemmas ended in a binary “yes” or “no” response, presented in the same language. The scenarios were designed to be realistic to better indicate how individuals’ moral reasoning would differ based on language in everyday life (Kahane, 2015). All dilemmas pit a deontological decision, one that upholds moral norms, against a utilitarian decision, one where multiple people benefit. For example, the first dilemma, taken from Kyriakou and Mavrou (2023), asks participants whether they would go to the police and alert them that their friend committed a crime, a moral norm, or stay silent, preserving both their relationship with their friend and their friend’s freedom. Another dilemma written specifically for this study asks participants to decide whether to reveal that a close friend was cheated on at the risk of breaking up their entire friend group. These two scenarios were the personal dilemmas used in the study. We also included an impersonal dilemma where we did not expect participants’ responses to vary by language condition. The scenario was taken from Geipel et al. (2015) and asks participants about whether they should return a lost wallet without the money found inside of it. The full moral dilemma task can be found in Appendix A.

***Language Proficiency Assessment***

To ensure that participants were proficient in the foreign language they indicated, they each completed a 10-question language assessment for that language. Each assessment was designed to include questions that anyone proficient in the given language would be able to answer correctly. Results were used to verify participants' understanding of the given language. The Spanish language assessment was adapted from questions on SpanishOnline.org and the French language assessment was adapted from questions on ThoughtCo (2017). See Appendix B for both the French and Spanish language proficiency assessments in full.

***Language Immersion Questions***

Participants self-reported both their level of language proficiency and language immersion experiences. They first indicated whether their grasp of a foreign language was rudimentary, intermediate, proficient or fluent. Then, they indicated all foreign language experiences they had taken part in. The language immersion options ranged from spending one to three months in a country where the main language spoken was your foreign language to immigrating to a country where the main language spoken was your foreign language. Participants were also asked if they speak their foreign language consistently at home. See Appendix C for the full set of language immersion questions.

**Procedure**

Data for this study was collected online over a period of 24 days. At the beginning of the study, participants provided informed consent before answering questions about their language proficiency. Individuals who indicated that they were not native English speakers or did not speak either French or Spanish at least proficiently were thanked for their time and did not continue with the study. See Appendix D for these screening questions in full. Participants who

passed the initial screening were randomly assigned to either the L2 experimental group or L1 control group for the language they indicated proficiency in. They were then asked to complete the moral dilemma task outlined above in the language indicated by the condition they were randomly assigned to. Of the 263 participants we analyzed data from, 150 completed the dilemmas in English, 74 in Spanish and 39 in French. Following their response to each dilemma, participants were asked a brief comprehension question in English, ensuring they understood the dilemma they read. They then self-reported their understanding of the dilemma using a Likert scale from 1 (*no understanding*) to 5 (*full understanding*). Following the dilemmas, they completed the language proficiency assessment for the language they indicated proficiency in and answered the language immersion questions. Finally, they filled out demographic information before being thanked for their time and debriefed.

### **Results**

Participants were removed from data analysis if they did not answer the comprehension check correctly or indicated a level of understanding lower than 4 for any of the three scenarios. This left us with data from 263 participants. Checks of random assignment were shown to be successful; conditions did not differ significantly from each other by the presence of gender, race, or age. To assess participants' willingness to endorse a utilitarian response, their responses to the two personal dilemmas were combined into one score. Higher values indicated a greater degree of utilitarian decision-making: a score of two indicated they selected utilitarian outcomes for both personal dilemmas, a score of one indicated they selected a utilitarian outcome for one personal dilemma, and a score of zero indicated they selected no utilitarian outcomes.

### **Statistical Analysis for the MFLE**

First we tested to see if there would be an overall effect of language (L1 vs. L2). An



independent samples t-test revealed no significant difference between likelihood of responding to a dilemma in a utilitarian manner between the L1 and L2 conditions,  $t(261) = 1.28, p = .202, d = 0.72, \eta^2 = .006$ , indicating that participants in the L2 condition ( $M = 0.67, SD = 0.70$ ) were not significantly more likely to endorse a utilitarian outcome than those in the L1 condition ( $M = 0.79, SD = 0.73$ ). A subsequent independent samples t-test revealed no significant difference between individuals' utilitarian responses to impersonal dilemmas in the L1 and L2 conditions  $t(261) = 0.61, p = .542, d = 0.76, \eta^2 = .001$ . As in previous research, when responding to an impersonal dilemma, participants in the L2 condition ( $M = 0.64, SD = 0.48$ ) were not significantly more likely to endorse a utilitarian outcome than those in the L1 condition ( $M = 0.67, SD = 0.47$ ).

### **Analyzing the Impact of Immersion on the MFLE**

We first examined language immersion experiences on a binary level. Based on their responses, individuals were coded as having some immersion or no immersion. We then conducted a 2(language: native, foreign) by 2(immersion: none, some) between-subjects analysis of variance (ANOVA) to examine how participants' willingness to endorse a utilitarian response differed based on language and immersion. The ANOVA indicated a statistically significant interaction between language and immersion level,  $F(1, 262) = 4.33, p = .038, \eta^2 = .02$ , such that individuals with no immersion experience were significantly less likely to endorse a utilitarian response when responding to dilemmas in their L2 ( $M = 0.38, SD = 0.57$ ) than in their L1 ( $M = .83, SD = 0.74$ ), but individuals with immersion experience showed no difference in their willingness to endorse a utilitarian response in their L2 ( $M = 0.76, SD = 0.71$ ) compared to their L1 ( $M = 0.77, SD = 0.73$ ). See Figure 1 for a bar graph of these results that support our

hypothesis that language immersion experiences will lessen the prevalence of the MFLE.

We then examined language immersion experiences on a continuum, assigning each participant a score based on the length of time they were immersed in their L2. Those who reported spending longer amounts of time abroad received higher scores. We found that in the L2 condition, participants' immersion scores were significantly positively correlated with their willingness to endorse utilitarian responses  $r(102) = .23, p = .018$ , while in the L1 condition there was no significant correlation between the two,  $r(148) = -.10, p = .284$ .

To determine the effect of language immersion at home (i.e. whether individuals regularly use their foreign language at home) on the MFLE we created an immersion at home score. Participants received a 1 if they self-reported speaking their L2 at home and a 0 if they did not. An independent samples t-test revealed a marginal significant difference between participants' endorsement of a utilitarian response based on the language of the dilemma if they had no language immersion experience at home,  $t(129) = -1.75, p = .082, d = 0.70, \eta^2 = .02$ . These individuals were less likely to endorse a utilitarian response when the dilemma was presented in their L1, ( $M = 1.24, SD = 0.77$ ), than when it was presented in their L2, ( $M = 1.46, SD = 0.66$ ). There was no significant difference in responses for those who experienced language immersion at home. See Figure 2 for a bar graph of these results.

## Discussion

Though our initial analysis did not indicate a MFLE for participants, analyzing our results based on their language immersion experiences indicated that this effect was dependent on an individual's level of immersion. However, we did find that participants' responses to the impersonal moral dilemma correspond to those found in previous studies (Geipel et al., 2015). Our statistical analysis revealed that their responses to the lost wallet dilemma did not vary

significantly based on the language the dilemma was presented in.

Additionally, our results support our hypothesis that language immersion experiences lessen the MFLE. Individuals who had participated in language immersion experiences demonstrated less variation in responses to moral dilemmas presented in their L1 and L2. The dedicated time these participants spent communicating in an L2 likely helped to boost their L2 experience and cultural understanding (Johns & Thompson, 2010; Watson & Wolfel, 2015), leading them to respond to moral dilemmas in their L2 as they would if the dilemma was presented in their L1. This aligns with previous research which found that for both individuals who were fluent in their L2 (Kirova et al., 2023), and those who had a high level of exposure to their L2 (Kyriakou & Mavrou, 2023), the presence of the MFLE decreased.

While one of our hypotheses was supported, we did not find support for our prediction that individuals without language immersion experience would be more likely to endorse a utilitarian response when responding to personal moral dilemmas in their L2 rather than their L1. Instead, we found the *opposite* pattern of results; participants were significantly more likely to endorse a utilitarian response when the dilemma was presented in their L1 than when it was presented in their L2. There was no significant difference between responses for those with immersion experience because length of time immersed in a L2 was positively correlated with willingness to endorse a utilitarian response. Therefore, individuals with L2 language immersion experiences were just as likely to endorse a utilitarian response when responding to a dilemma in their L2 as those responding in their L1 were.

These results do not align with previous research on the MFLE. Studies using unrealistic moral dilemmas such as the footbridge dilemma found that participants were significantly more likely to endorse utilitarian responses when the dilemmas were presented in their L2 as opposed

to their L1 (Geipel et al., 2015; Purpuri et al., 2024). One reason behind these inverse results might be the realistic nature of the moral dilemmas. Because each dilemma was designed such that it might occur in an individual's life, neither outcome is purely deontological or utilitarian. For example, in the "cheater in a friend group" dilemma, individuals may opt not to tell their friend they were cheated on to spare the friend's feelings of embarrassment, hurt, and betrayal. While selecting this outcome can be considered a utilitarian response because it allows the seven-person friend group to remain intact, it is also highly emotional, a characteristic of deontological responses. Realistic moral dilemmas, which are less clear-cut than unrealistic ones, should be further studied to determine if they consistently present an inverse of the traditional MFLE.

Participants might also have been more likely to endorse a utilitarian response in their native language due to the wording of the moral dilemmas. Both personal moral dilemmas were written such that responding with a "yes" indicated a deontological response. Because of this structure, participants were asked to either continue with the course of action outlined for them by answering "yes," or deviate from it by selecting "no." Research on the role of inertia, or the tendency to do nothing, in the MFLE found that when individuals respond to dilemmas in their L2, they have more inertia than when responding in their L1 (Hennig & Hütter, 2021). Increased inertia can inhibit individuals from acting in a manner which refutes a prescribed action. Therefore, participants responding to dilemmas in their L1 may have felt more comfortable refuting the action outlined in the dilemma and responding with an answer of "no" than those responding in their L2. This means those responding in their L1 would be more likely to select a utilitarian outcome. Had the dilemmas been worded so that responding with "no" would constitute a deontological response, or so "yes" responses were counterbalanced across the two

personal dilemmas, our results might have been different.

One limitation of our study was its reliance on self-report measures of language proficiency and immersion. While participants were asked before the study began to confirm that they were at least proficient in either French or Spanish, this is an abstract term which could have led to a wide range of L2 skill levels across participants. The self-report nature of this screening question was compensated for with the comprehension question following each moral dilemma. However, select participants without a strong grasp of the L2 who made lucky guesses in response to these questions could have been included in the analysis.

Additionally, the gendered nature of the French and Spanish language made it difficult to translate some of the English dilemmas in a consistently gender-neutral manner. All our dilemmas were developed in English, translated into French or Spanish and then translated back into English by a fluent speaker in each language who was blind to the study's premise. Following back translation, the French and Spanish dilemmas were edited for clarity. The French dilemmas specifically required significant editing so that all characters could be portrayed in a gender-neutral manner. These edits could have led to subtle differences in the dilemmas across languages, causing participants to interpret and respond to them somewhat differently.

Our study analyzed the presence of the MFLE in individuals who spoke either Spanish or French proficiently based on their language immersion experience. While we manipulated the language in which participants were presented with the three moral dilemmas, we simply measured their language immersion experiences through self-report. Future studies should use matched groups to explore the response patterns of participants who learned their L2 strictly in a classroom setting and others who learned through immersion experiences. These matched groups will enable researchers to find results that can be better generalized to the population at large.

Additionally, studies should utilize language examinations to create equal groups of individuals who are either proficient or fluent in a selected L2. Doing so will allow researchers to directly examine the impact that language immersion experiences have on responses to moral dilemmas for both individuals who are proficient and fluent in their L2. This extended analysis would help to determine if language fluency mediates the negative relationship between immersion experiences and the MFLE, or if the two demonstrated negative relationships are standalone. Overall, this research will give us a better picture of the impact that language immersion experiences have on the MFLE.

While our results were unexpected, they contribute significantly to the literature. We found that when responding to realistic moral dilemmas, individuals do display a MFLE, however, this effect is significantly lessened by participation in language immersion experiences. These findings have important implications, demonstrating that the MFLE can be generalized beyond theoretical life-and-death situations into real-world scenarios. For this reason, it is incredibly important that we consider the language an individual is using when they make moral decisions. Because individuals might make a different moral decision when using their L2 than they would using their L1, translating information into an individual's L1 before they decide is necessary. Meetings that involve moral decision making, like those of the United Nations, should strive to select representatives who have been immersed in the language they will be communicating in, or provide translations of meeting proceedings into each participant's L1. These steps will ensure that members' responses do not differ because they are responding to the dilemma in their L2 rather than their L1.

Additionally, we might consider expanding language proficiency requirements to include language immersion experiences. Doing so would ensure that individuals are not only able to

communicate in their L2 but also respond to moral scenarios in their L2 as they would in their L1. While this would make the process of becoming certified as proficient in a language more difficult, it would ensure that no information is lost in translation when moral dilemmas are presented in an individual's L2. Overall, our research demonstrates that if you want to ensure someone's response to a moral dilemma is not tainted by the fact they are communicating in their L2, you will want to make sure they have spent time immersed in that language.

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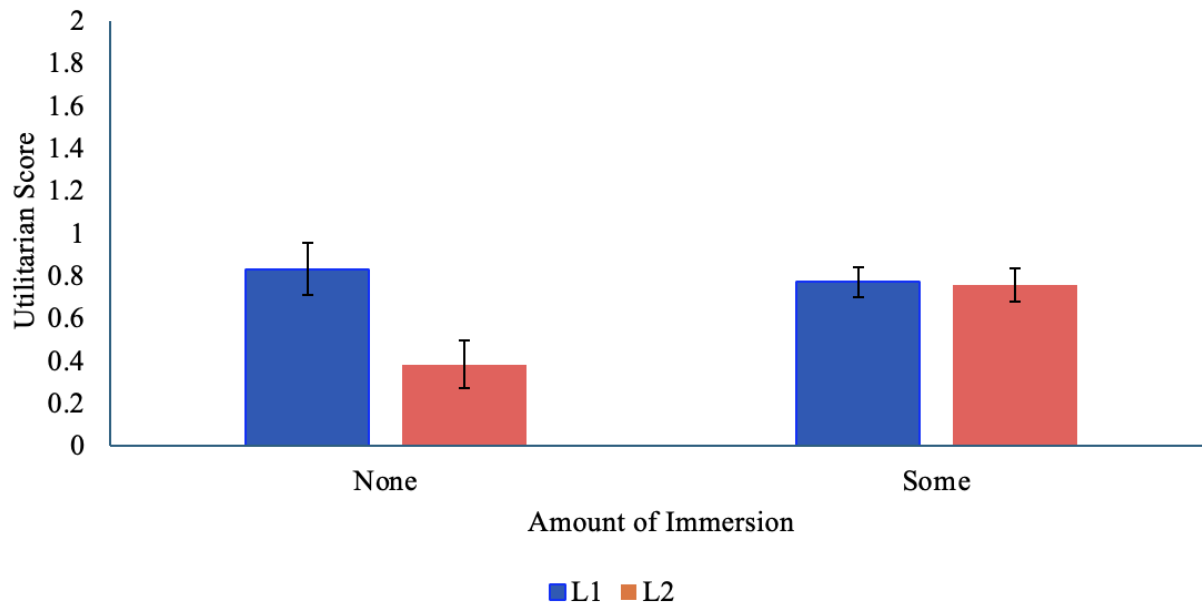
[FAQ%20categories&text=Arabic%2C%20Chinese%2C%20English%2C%20French,%2Dto%2Dday%20professional%20exchanges.](https://www.ungeneva.org/en/faqs/what-difference-between-official-language-and-working-language#:~:text=What%20is%20the%20difference%20between%20the%20official%20language%20and%20the%20working%20language%3F,-FAQ%20categories&text=Arabic%2C%20Chinese%2C%20English%2C%20French,%2Dto%2Dday%20professional%20exchanges.)

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**Figure 1**

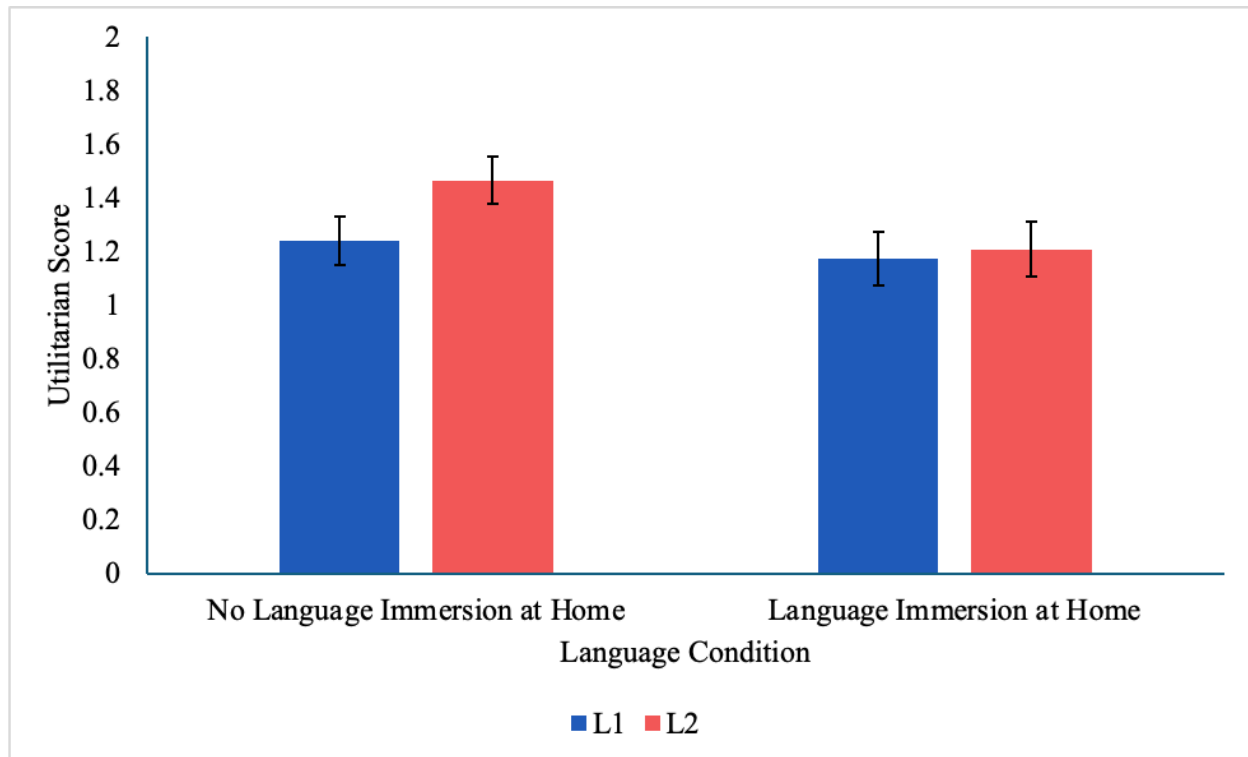
*Endorsement of Utilitarian Responses Across Language Conditions by Immersion Experience*



*Note.* This figure demonstrates the mean utilitarian response score by language groups and language immersion experience. There is a significant difference between the mean scores of the L1 and L2 groups for those who have not had a language immersion experience, but there is no significant difference between the mean scores of the L1 and L2 groups for those who have had a language immersion experience. Error bars indicate the standard error.

**Figure 2**

*Endorsement of Utilitarian Responses Across Language Conditions by Immersion at Home*



*Note.* This figure demonstrates the mean utilitarian response score by language groups and at-home language immersion experience. There is no significant difference between participants' willingness to endorse a utilitarian response in the language immersion at home condition. However, in the no language immersion at home condition, participants responding in their L2 were marginally more likely to endorse a utilitarian response than those responding in their L1 were. Error bars indicate the standard error.

## Appendix A

Participants were asked to answer either yes or no to the three following dilemmas. They were presented in one of the three languages below. The yes and no options corresponded to the language the dilemmas were presented in. For example, when presented in French the participant had the option to answer either “oui” or “non” and when presented in Spanish the answer options were “sí” or “no.” Each dilemma was followed by a brief comprehension question about the dilemma. The participants were also asked to rate their understanding of the dilemma on a Likert scale from 1 to 5. Both follow-up questions were presented in English, regardless of the language of the dilemmas.

### English Dilemmas:

Your best friend tells you that they have committed a crime. They explain that they are having trouble sleeping at night, they are afraid and feel you are the only one they can trust with their confession. A few days later you read in the paper that someone else has been arrested for your friend’s crime. Discovering that an innocent person has been accused of the crime you plead with your friend to give themselves up, they refuse. Would you go to the police and tell them what you know?

Who was accused of the crime? (Select a phrase below).

Your friend              A criminal              An innocent person

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

You are walking down the street when you come across a wallet lying on the ground. You open the wallet and find that it contains several hundred dollars in cash as well as the owner's drivers license. From the credit cards and the other items in the wallet, it's very clear that the wallet's owner is wealthy. You, on the other hand, have been hit by hard times recently and could really use some extra money. You consider sending the wallet back to the owner without the cash, keeping the cash for yourself. Is it appropriate for you to keep the money you found in the wallet in order to have more money for yourself?

Where were you walking? (Select a phrase below).

Down the street      In the park      On the beach

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

Your friend group is made up of five individuals other than yourself, two of whom are dating.

You all spend a significant amount of time together and enjoy each other's company. Recently, you discovered that one member of the couple cheated on the other. When you confronted the cheater, they expressed remorse for the cheating and pleaded with you not to tell their partner whom they believe will leave them if they discover they were cheated on. You know that if the couple breaks up, your other friends will take sides, and the friend group will fall apart. Would you tell your friend that their partner cheated on them?

How many people (other than yourself) are in the friend group? (Select a number below).

Seven      Five      Three

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

Spanish Dilemmas:

Tu mejor amigo te cuenta que ha cometido un delito. Te explica que tiene problemas para dormir por las noches, que tiene miedo y que cree que eres el único en quien puede confiar su confesión. Unos días después lees en el periódico que han detenido a otra persona por el delito de tu amigo. Al descubrir que una persona inocente ha sido acusada del delito, le ruegas a tu amigo que se entregue, pero él se niega. ¿Irías a la policía y les contarías lo que sabes?



Who was accused of the crime? (Select a phrase below).

Your friend    A criminal    An innocent person

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1       2       3       4       5

Estás caminando por la calle cuando encuentras una billetera tirada en el suelo. La abres y descubres que contiene varios cientos de dólares en efectivo, así como el carnet de conducir del propietario. Por las tarjetas de crédito y los demás objetos que hay en la billetera, está muy claro que el propietario de la billetera es rico. Tú, por otro lado, has pasado por momentos difíciles recientemente y el dinero será útil. Consideras devolver la billetera al propietario sin el efectivo, quedándote con el dinero. ¿Es apropiado que te quedes con el dinero que encontraste en la billetera para tener más dinero para ti?

Where were you walking? (Select a phrase below).

Down the street       In the park    On the beach

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

Tu grupo de amigos está formado por cinco personas además de ti, dos de las cuales están saliendo. Todos pasáis mucho tiempo juntos y disfrutáis de la compañía mutua. Hace poco, descubriste que un miembro de la pareja le había engañado al otro. Cuando te enfrentaste al infiel, expresó su remordimiento por el engaño y te suplicó que no se lo dijeras a su pareja, ya que cree que le dejará si descubre que le han engañado. Sabes que si la pareja se separa, tus otros amigos tomarán partido y el grupo de amigos se desintegrará. ¿Le dirías a tu amigo que su pareja le ha engañado?

How many people (other than yourself) are in the friend group? (Select a number below).

Seven      Five      Three

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

French Dilemmas:

Votre meilleur ami vous annonce qu'il a commis un crime. Il vous explique qu'il a du mal à dormir la nuit, qu'il a peur et qu'il pense que vous êtes la seule personne à qui il peut faire confiance pour ses aveux. Quelques jours plus tard, vous lisez dans le journal qu'une autre

personne a été arrêtée pour le crime de votre ami. En découvrant qu'une personne innocente a été accusée du crime, vous suppliez votre ami de se rendre, mais il refuse. Iriez-vous voir la police et lui dire ce que vous savez?

Who was accused of the crime? (Select a phrase below).

Your friend    A criminal    An innocent person

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1       2       3       4       5

Vous marchez dans la rue lorsque vous tombez sur un portefeuille qui traîne par terre. Vous ouvrez le portefeuille et constatez qu'il contient plusieurs centaines de dollars en liquide ainsi que le permis de conduire du propriétaire. D'après les cartes de crédit et les autres objets contenus dans le portefeuille, il est évident que le propriétaire du portefeuille est riche. De votre côté, vous avez traversé une période difficile récemment et vous auriez vraiment besoin d'un peu d'argent supplémentaire. Vous envisagez de renvoyer le portefeuille à son propriétaire sans l'argent liquide, en le gardant pour vous. Est-il approprié pour vous de garder l'argent que vous avez trouvé dans le portefeuille afin d'en avoir plus pour vous-même ?

Where were you walking? (Select a phrase below).

Down the street      In the park      On the beach

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

Votre groupe d'amis est composé de cinq personnes autres que vous, dont deux sortent ensemble. Vous passez tous beaucoup de temps ensemble et appréciez la compagnie de chacun. Récemment, vous avez découvert qu'un membre du couple avait trompé l'autre. Lorsque vous avez confronté l'infidèle, il a exprimé des remords pour l'infidélité. Il vous a supplié de ne rien dire à son partenaire, pensant que ce dernier le quitterait si la tromperie était découverte. Vous savez que si le couple se sépare, vos autres amis prendront parti et le groupe d'amis s'effondrera. Diriez-vous à votre ami que son partenaire l'a trompé?

How many people (other than yourself) are in the friend group? (Select a number below).

Seven   Five   Three

Please indicate your understanding of this scenario on a scale from 1 to 5 where 1 indicates no understanding and 5 indicates full understanding. (Select a number below).

1      2      3      4      5

**Appendix B**

Answers highlighted in green are correct and were used to evaluate each participant's language proficiency.

**Spanish Language Assessment:**

1. No encuentro mi billetera, se me ... en casa
  - a. olvidará
  - b. olvida
  - c. habría olvidado
  - d. **habrá olvidado**
2. Esperaré ... la diez, después volveré a casa.
  - a. por
  - b. para
  - c. **hasta**
  - d. hacia
3. He comprado un vestido rojo que me ... genial.
  - a. **sienta**
  - b. siente
  - c. siento
  - d. sentía
4. Te mostraré el acta para que lo ...
  - a. revisarás
  - b. **revises**

- c. revisas
  - d. revisarés
5. Mi abuela de 82 años todavía hace ballet. Está como ...
- a. Una cabra
  - b. Una rosa
  - c. Una vaca
  - d. **Un roble**
6. Hoy tengo ... gigantes porque dormí mal.
- a. Orejas
  - b. **Ojeras**
  - c. Orejeras
  - d. Ojereras
7. Me gustó mucho que ... a mi lado durante la entrevista.
- a. Esté
  - b. Estaba
  - c. **Estuviera**
  - d. Estuve
8. ¿Te gustaría ahorrar un poco más?, ... vive con sus padres.
- a. entonces
  - b. de ahí que
  - c. **así que**
  - d. tan
9. El estudiante no ha llegado a clase y ya es un poco tarde. ... había mucho tráfico y,

por lo tanto, se retrasó.

- a. **A lo mejor**
- b. Cuando
- c. Puede que
- d. Es posible que

10. Es imposible que ... a una zona de guerra. Es demasiado peligroso.

- a. viajarías
- b. viajarás
- c. viajas
- d. **viajes**

#### French Language Assessment:

1. Translate “It’s a good opportunity” into French.

- a. C’est une bonne chance.
- b. C’est une bonne occasion.
- c. C’est une bone opportunité.
- d. A or C
- e. **B or C**

2. J’écoute \_\_\_\_ la radio.

- a. à
- b. de
- c. en
- d. pour

- e. **(none)**
3. Nous allons partir \_\_\_\_\_ dix minutes.
- a. à
- b. **dans**
- c. en
- d. (none)
4. \_\_\_\_\_ livre vas-tu acheter?
- a. Quelle
- b. **Quel**
- c. Le
- d. Cette
5. Il \_\_\_\_\_ déjà mangé quand tu es arrivé.
- a. a
- b. **avait**
- c. est
- d. était
6. Quand j'étais en France l'année dernière, je (j') \_\_\_\_\_ au musée chaque semaine.
- a. ai allé
- b. suis allé
- c. **allais**
7. Il est bon que Marc \_\_\_\_\_.
- a. vient
- b. **vienne**



c. viendra

8. He gave it to me.

a. Il a donné le à moi.

b. Il l'a donné moi.

c. Il le m'a donné.

d. Il me l'a donné.

e. Il a me le donné.

9. J'ai décidé \_\_\_\_\_ acheter une voiture.

a. à

b. d'

c. en

d. pour

e. (none)

10. Il \_\_\_\_\_ allé à la banque.

a. a

b. est

c. s'est

### Appendix C

Please answer the following question in relation to the foreign language (Spanish or French) that you indicated you are proficient in at the beginning of the study.

1. Please rate your foreign language proficiency.

- a. Rudimentary – you have just begun learning the foreign language and can speak, read and understand simple sentences.
- b. Intermediate – you have a foundational understanding of the foreign language and can conduct basic conversations. You are able to read and comprehend simple texts.
- c. Proficient – you have a strong grasp of the foreign language but are not yet fluent. You can read and understand more complex texts and can hold in-depth conversations in the foreign language, though doing so might take some effort.
- d. Fluent – you can communicate seamlessly in your foreign language without difficulty or effort. You are able to read and understand complex texts as well as communicate with others in various subject matter.

2. Which of the following language immersion experiences, if any, have you participated in?

Select all that apply.

- a. Consistently speaking a foreign language at home
- b. Spending 1 – 3 months in a country where the main language spoken was your foreign language
- c. Spending between 3 and 6 months in a country where the main language spoken was your foreign language
- d. Spending between 6 months and a year in a country where the main language spoken was your foreign language

- e. Spending multiple years in a country where the main language spoken was your foreign language
- f. Immigrating to a country where the main language spoken was your foreign language
- g. None of the above.

**Appendix D**

1. Are you a native English speaker? To be a native speaker you must have spoken the language from early childhood, acquiring it before or at the same time as you acquired other languages.
  - a. Yes
  - b. No
2. In which of the following languages are you at least proficient? Being proficient in a foreign language is defined as having a strong grasp of the foreign language without being fluent. Individuals who are proficient can read and understand more complex texts and can hold in-depth conversations in their foreign language, though doing so might take some effort.
  - a. I am at least proficient in French.
  - b. I am at least proficient in Spanish.
  - c. I am not proficient in French or Spanish.