

Differences in morality judgment in English and Croatian among Croatian students

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Differences in morality judgment in English and Croatian

among Croatian students

Diplomski rad

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Abstract

This thesis delves into the significance of linguistic factors when studying the so-called foreign language effect (FLE), which refers to an increase of utilitarian decision-making in the foreign language compared to the native language. It is widely believed that the foreign language effect is primarily influenced by four linguistic factors: age of acquisition, proficiency, learning context, and immersion. The theoretical framework in the first part of the thesis provides a comprehensive review of previous research conducted on the age of acquisition, proficiency, the context of learning, and immersion, which helps in providing a better understanding of the foreign language effect. The second part of the thesis presents a study carried out on a sample of 107 university students. The research involved the use of 25 moral dilemmas to assess the impact of linguistic factors on the foreign language effect. The results show that immersion was the crucial linguistic factor, followed by the age of acquisition, proficiency, and the informal context of learning.

Keywords: *foreign language effect, age of acquisition, proficiency, learning context, immersion, moral dilemmas*

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1. Introduction

All people make judgments about the world that surrounds them, even when they are not aware that they do. Judgments reflect our feelings and reasoning. We may question our judgments and doubt their validity, but we all like to believe that they are based on our moral compass, which is supposedly not skewed, or so we would like to believe. After all, morals should be stable and unwavering and yet they sometimes aren't. A tiny but humongous element is enough to sway our moral judgments. Language is that determinant proven to influence our decision-making in a foreign language, albeit slightly. The idea that the way individuals think changes from language to language, depending on whether it is a foreign or a native language, is astounding, especially if we consider the implications. The scientific term for this is **foreign language effect** or **FLE**. It was first spotted by Keysar et al. (2012) and over the past decade explored by many researchers who wanted to question its existence and shed light on this phenomenon. How come that our judgements are different when we think in a foreign language? The exact answer is still unclear, however researchers have been able to identify several factors that influence the foreign language effect. This thesis will explore the impact of these factors on the FLE in moral dilemmas.

2. Theoretical background

The foreign language effect can be defined as:

an increase in bilingual's rate of rational decisions to moral dilemmas in their foreign versus their native language, is influenced by emotion and the modality in which the dilemmas are presented. (Brouwer, 2021: 223)

Some have said that the decisions brought on by the foreign language effect are "usually better" (Muda et al., 2020: 1930) and that there is:

a higher proportion of utilitarian choices when moral dilemmas are presented in a foreign language than when they are presented in the mother tongue. (Nadarevic et al., 2021: 67)

Moral dilemmas are:

scenarios where a participant is required to choose between two difficult choices, both of which violate some moral principle. (Stankovic et al., 2022: 2)

A typical moral dilemma in which the foreign language effect is shown is the “footbridge” dilemma (Thomson, 1985), in which an individual has to choose whether to push an obese individual off a bridge onto the tracks to stop an incoming train from killing five individuals located on the tracks in the train’s path. The option of pushing the man and consequently stopping the train is chosen in 12% to 20% of cases (Waldmann et al., 2012: 376; Caldwell-Harris, 2014: 73). Another version of this dilemma is called the “switch” (Foot, 1978), where a person must choose whether to use a lever to redirect the train to a set of tracks with just one person on it. In this version, participants choose to use the lever in 70% of cases (Waldmann et al., 2012: 376; Caldwell-Harris, 2014: 73). This is the **utilitarian** or consequentialist option, i.e., “preferring to maximize overall welfare” (Corey and Costa, 2015: 58). The other possible option is called the **deontological** option, i.e., “choosing to adhere to moral rules” (Corey and Costa, 2015: 58) – in this case, refusing to push the person or to use the lever. Choosing the utilitarian option is characterized as “head thinking” (Geipel et al., 2015b: 2), whereas the deontological one is “emotional, heart thinking” (Geipel et al., 2015b: 2). The responses to these moral dilemmas were proven to change if they are presented in a foreign language because they result in a higher rate of utilitarian responses (Braidia et al., 2023).

The higher rate of utilitarian responses is explained under the **dual process framework**, i.e., the dual model of cognition theory (Kahneman, 2003), in which we can distinguish between System 1 and System 2. The System 1 processes are “fast” (Costa, 2019: 9), “emotion driven” (Del Maschio et al., 2022a: 618), “automatic, intuitive and affective” (Corey and Costa, 2015: 59), “heuristic” (Keysar et al., 2012: 661) and aid deontological decisions. The System 2 processes are “deliberate” (Costa, 2019: 9), “controlled, analytical, rational and require more time” (Corey and Costa, 2015: 59), “rule-governed and systematic” (Keysar et al., 2012: 661), “more effortful” (Del Maschio et al., 2022: 618) and aid utilitarian decisions.

This is because empathy and harm aversion (automatic, emotional processes) are most likely what drive deontological tendencies, whereas deliberate cost-benefit analyses lead to utilitarian tendencies. (Corey and Costa, 2015: 59)

Participants become more utilitarian in their responses due to a decrease in System 1 processing and an increase in System 2 processing (Costa, 2019). When speaking in a language that is not their first, they tend to rely more on logical reasoning and less on intuition. This may be due to a decrease in automatic thinking processes and an increase in deliberate thinking processes, or perhaps both.

2.1 Linguistic factors

The foreign language effect in making moral judgments is believed to be variable. There is not a single individual factor that influences the severity of the foreign language effect but several factors that need to be taken into consideration: the age of acquisition, proficiency, the learning context, and the context of usage (Caldwell-Harris, 2014; Krautz and Čavar, 2019; Tonković et al., 2019; Geipel et al., 2015a; Circi et al., 2021). The number of studies explicitly addressing the connection between the foreign language effect and these factors is limited (Del Maschio et al., 2022a) so the issue may be considered “under-explored” (Stankovic et al., 2022: 3). Those who have addressed the link have found significant results in favor of the existence of a correlation (Circi et al., 2021). Some studies have relied on findings from neuroimaging brain research, which have shown that these factors form “both the functional and structural organization of the bilingual brain” (Del Maschio et al., 2022b: 529). Therefore these four factors cannot be interpreted separately because they are intertwined in their influence.

2.1.1 Age of Acquisition

The age of acquisition (AoA) has been extensively studied in language comprehension research on monolingual and bilingual speakers. The term “age of acquisition” pertains to the age at which a person first learned a native language and for sequential bilinguals it can refer either to the beginning of the learning process (Del Maschio et al., 2022b) or the start of the active use of the foreign language (Stankovic et al., 2022). Language proficiency is generally higher in sequential bilingual speakers if the age of acquisition of the foreign language is lower, mainly if it is below 12 years of age (Akbari, 2014, as cited in Stankovic et al., 2022).

A study conducted by Del Maschio et al. (2022) has shown that individuals who are early sequential bilinguals are less likely to perceive specific actions as forbidden and may be more inclined to consider them appropriate. Individuals who attain proficiency in a foreign language later tend to make more deliberate and analytical choices compared to those who only speak their native language (Keysar et al., 2012; Costa et al., 2017, as cited in Wong and Ng, 2018: 2).

The theoretical impact of the age of acquisition on foreign language effect has been explored through various hypotheses, including the Reduced Emotionality hypothesis, the Increased Deliberation hypothesis, and the Reduced Access to Norms hypothesis, which work under the dual process framework mentioned previously. These hypotheses collectively

suggest that individuals who learn a language later in life are more likely to make utilitarian rather than deontological decisions (Del Maschio et al., 2022b).

According to Del Maschio et al.'s (2022b) research, weaker emotional attachment to a language acquired later in life may reduce access to moral norms. It is believed that the foreign language effect can be reduced if the foreign language is learned at an early age and in a similar environment to the native language (Del Maschio et al., 2022a). A language learned during childhood tends to have a solid emotional attachment due to the emotional experiences associated with early learning (Braidia et al., 2023). Learning a foreign language at a young age can create an emotional bond similar to one's native language (Circi et al., 2021; Brouwer, 2021). Individuals who learn a foreign language after puberty tend to have weaker emotional responses in their non-native language compared to their native language. According to recent research by Kyriacou et al. (2023), this affects their emotional responses to moral dilemmas and therefore impacts their moral decision-making. Learning languages at an early age allows individuals to apply moral standards to their usage; in contrast, "sequential bilinguals who learned their second language in school" have limited access to these standards (Del Maschio et al., 2022a: 618).

Another possibility is that cognitive effort increases when processing a language learned beyond critical periods in development. The reduced language-dependent activation of moral norms, which individuals are usually first exposed to in childhood, could also lead to a sharpened utilitarianism or a blunted deontology. This is predicted by the Reduced Access to Norms hypothesis (Del Maschio et al., 2022b).

There have also been different views about the influence of the age of acquisition on the foreign language effect (Miozzo et al., 2020; Brouwer, 2021). The strength of the foreign language effect might be more influenced by "the age of significant exposure to a foreign language, rather than the age of acquisition itself" (Del Maschio et al., 2022a: 628). There is a debate about whether the age of acquisition is even a reliable factor, as there are cases of individuals who have learned a language at a young age but have low proficiency and others who have learned a language later in life but have high proficiency (Stankovic et al., 2022). The difficulty also lies in distinguishing whether the foreign language effect observed in previous studies stems from a late language acquisition or lower language proficiency and the extent to which these factors contribute to more utilitarian responses (Wong and Ng, 2018).

Therefore, when considering the age of acquisition, it is crucial to consider language immersion, proficiency, and usage as a whole. Although the age of acquisition plays an important part, its effect on making decisions is questioned (Stankovic et al., 2022). According to Del Maschio et al. (2022a), language immersion is crucial.

2.1.2 Proficiency

Bilingual proficiency is a term that refers to an individual's ability to communicate and comprehend two languages effectively. According to Nadarevic et al. (2021), those with proficient foreign language abilities experience a reduced moral foreign language effect. Brouwer (2021) also agrees that highly proficient speakers might not experience the foreign language effect or experience it to a weaker degree “due to a more developed emotionality in their foreign language” (p. 227). Hayakawa et al. (2022) believe that “more balanced AoA and proficiency” (p. 115) lead to a lesser degree of the foreign language effect as “earlier AoA and higher proficiency in L2 facilitate connections between L2 and our memories” (p. 115).

Most of the studies exploring the foreign language effect have found similar results. According to one such study by Costa et al. (2014a), individuals with lower levels of foreign language proficiency exhibited a greater number of utilitarian responses in the “footbridge” dilemma than those with higher levels. Similarly, Corey et al. (2017) discovered a meaningful inverse correlation between language proficiency and utilitarian judgments in the “lost wallet” dilemma. Čavar and Tytus (2018) examined the foreign language effect in highly proficient speakers and found similar moral judgments in native and highly proficient speakers, and concluded that becoming proficient in a foreign language and adapting to the culture of that language can help avoid the foreign language effect.

A study by Miozzo (2020) discovered that the foreign language effect was stable regardless of the reader's proficiency level during a reading task; however, it was noted to surface in an auditory setting with lower proficiency participants. A thorough meta-analysis conducted by Stankovic et al. (2022) showed that individuals with lower foreign language reading proficiency tend to make utilitarian judgments in highly emotional moral dilemmas more frequently, leading the authors to conclude that proficiency plays a significant role in moderating the foreign language effect. In 2022, Wang and Yip conducted research suggesting that proficiency in a foreign language could boost one's cognitive abilities, thereby affecting the foreign language effect.

There has also been opposing research that challenged the influence of proficiency and claimed it did not affect the strength of the foreign language effect. The reason might lie in the fact that the results were viewed as overall for all participants, while there may have been considerable differences across participants with higher and lower proficiency self-ratings which were leveled to mean values (Circi et al., 2021). Self-rated proficiency has particularly been a matter of debate.

Several methods are available to evaluate an individual's proficiency, including objective measures that examine grammar and vocabulary, and self-reported measures where individuals themselves rate their proficiency in reading, writing, listening, and speaking. It is important to note that self-reported measures may not accurately reflect objective proficiency, which can be assessed using methods such as, for instance, the LexTale test (Stankovic et al., 2022). Stankovic et al. (2022) claim:

correlations between self-reported proficiency and objective proficiency (e.g., translation tasks, vocabulary tests) can vary from 0.26 to 0.70. (p. 4)

Self-reported proficiency, which is actually subjective, does not represent one's overall proficiency as individuals cannot properly assess "the size of their vocabulary" (Stankovic et al., 2022: 4), to the same extent as objective tests can. However, self-reported proficiency can be, in part, a reflection of "how confident they feel in expressing emotions to their friends in a FL" (Stankovic et al., 2022: 4). Some research has found connections between "language use and objective proficiency" (Luk and Bialystok, 2013, as cited in Stankovic et al., 2022: 4), i.e., it is claimed that high proficiency is linked to greater language use.

Individuals with lower proficiency in a foreign language are expected to make more utilitarian decisions, while those with higher proficiency are expected to make more deontological decisions (Corey and Costa, 2015). Two hypotheses, the Reduced Emotionality hypothesis (Keysar et al., 2012) and the Increased Deliberation hypothesis (Hennig and Hutter, 2021), explain the influence of foreign language proficiency on the foreign language effect in decision-making. The former hypothesis suggests that limited language proficiency reduces emotional impact, in contrast, the latter hypothesis predicts that processing a foreign language requires more cognitive effort for poorly proficient bilinguals (c.f. Del Maschio et al., 2022; Vives et al., 2018; Hayakawa et al., 2017).

An experiment by Costa et al. (2014b) demonstrated that individuals who rated themselves as highly proficient in a foreign language possess similar moral judgments as native speakers

in the “trolley” and “footbridge” dilemmas, i.e., the foreign language effect was reduced. The study proposed that increased proficiency might lead to emotional grounding, wherein the emotions evoked in a highly proficient foreign-language speaker are comparable to those of a native speaker, which aligns with the Reduced Emotionality hypothesis.

Research conducted by Miller et al. (2021) suggests that individuals who attain greater language proficiency will likely have a more immersive and impactful experience with it. Furthermore, those who are advanced in their language learning are expected to develop a stronger psychological connection to the foreign language than beginners. On the other hand, individuals with lower proficiency in a foreign language experience a more distinct foreign language effect, as their emotional connections are inhibited during decision-making, which is again in line with the Reduced Emotionality hypothesis (Miller et al., 2021). Along the lines of this hypothesis, Shin and Kim (2017) suggest that individuals more skilled in a foreign language may be less likely to make utilitarian decisions when faced with moral dilemmas if these are related to themselves. This is thought to be due to their increased emotional involvement in decision-making, which reduces the psychological distance from the moral dilemma. Proficient bilinguals are believed to have comparable emotional processing in the languages they speak fluently (Miozzo et al., 2020). The findings suggest that the variations in emotion processing vanish when languages are learned early and spoken fluently (Miozzo et al., 2020).

Foreign language processing is thus “more controlled, deliberate, and requires more time” (Corey and Costa, 2015: 59). However, according to Del Maschio et al. (2022a), highly proficient individuals may not experience the same cognitive load associated with lower proficiency, which could lead to similar decision-making processes regardless of emotional factors.

In another study by Del Maschio et al. (2022b), the results indicated that bilingual individuals also tended to exhibit varying levels of prioritization towards moral principles based on their language proficiency level and age of acquisition. This research highlights the facts that early bilinguals are more likely to give less importance to moral values as they become more adept in a foreign language. On the other hand, late bilinguals tend to show a higher commitment toward moral principles as they attain greater proficiency in a foreign language. This phenomenon can be attributed to the Increased Deliberation hypothesis, which proposes that individuals with lower language proficiency tend to weigh potential risks and benefits of a particular situation more carefully. Consequently, they may be more inclined to

accept harm to achieve a favorable outcome. However, those with higher proficiency in a foreign language tend to exhibit a stronger allegiance toward deontological principles. While this theory is supported by the decision-making behavior of late bilinguals, the approach of early bilinguals towards resolving moral dilemmas contradicts this trend.

2.1.3 Language immersion

The idea of immersion involves both language exposure and usage and can take on different forms, durations, and intensity levels (Stankovic et al., 2022). For example, working and residing in a foreign country denotes complete immersion, while classroom learning may not offer the same level of immersion since learners can resort to their native language (Stankovic et al., 2022). The manner in which individuals utilize their foreign language may vary, with some restricting its use to work-related communication, while others may employ it in social interaction or for reading books or listening to music (Stankovic et al., 2022). The utilization of a foreign language exclusively in formal settings may lead to a diminished emotional bond with the lexicon of said language. Tonković et al. (2019) claim that equally proficient individuals using their foreign language in different contexts have a different emotional bond with the lexicon of that foreign language. This lack of emotional attachment may have a notable effect on the processing of emotions during the employment of the foreign language (Stankovic et al., 2022). To amplify the emotionality of the foreign language, Tonković et al. (2019) suggest “using the language in social interactions in a naturalistic environment” (p. 217).

Del Maschio et al. (2022a: 618) think that “the relative frequency of daily use of L1 and L2 may affect FLE”, while Brouwer (2019), as well as Čavar and Tytus (2018), also believe that there is a correlation between the frequency of use and the strength of the foreign language effect. In other words, the more immersed an individual is in the foreign language culture, the less present the foreign language effect is (Brouwer, 2019; Čavar and Tytus, 2018; Wang and Yip, 2022; Del Maschio et al., 2022a). The foreign language effect might be further reduced in individuals accustomed to making decisions in that language (Del Maschio et al., 2022a). A possible reasoning behind this link between the foreign language effect strength and frequency of use may be that individuals make more utilitarian decisions due to the effort they need to invest when processing the foreign language used less or more frequently, which is implied by the Increased Deliberation hypothesis (Del Maschio et al., 2022b). The emotionality of foreign languages is further weakened by their lack of daily use (Romero-Rivas et al., 2022), as suggested by the Reduced Emotionality hypothesis (Del Maschio et al.,

2022b). There might be a correlation between self-reported proficiency and language use because the more confident a person feels in their proficiency, the more likely it is that they will use it more often, “which may, in turn, facilitate emotional expression in that language” (Stankovic et al., 2022: 4).

2.1.4 Context of learning

A native language is usually learned in an “emotionally rich and naturalistic context” (Circi et al., 2021: 1133), i.e., in “a highly emotional setting” (Woumans et al., 2021: 1). Since people are involved in heavy emotional situations from a young age, and they make their first contact with the world in their native language, they link the feelings and the memories they store with the said native language (Tonković et al., 2019). Memory is “context-dependent” (Woumans et al., 2020: 1597); consequently, emotions and moral norms are linked to the language by which they are experienced (Hayakawa et al., 2022). Because native languages are typically acquired in more emotional surroundings and at an early age, they are automatically later linked to emotional processes (Caldwell-Harris, 2014; Shin and Kim, 2017).

On the other hand, foreign languages are linked to cognitive processes (Caldwell-Harris, 2014; Shin and Kim, 2017). A foreign language is learned in an “emotionally neutral context” after associations between emotions and the “morphological, orthographic, and semantic aspects of words” have been formed (Circi et al., 2021: 1133). They are typically acquired in academic and formal contexts (Keysar et al., 2012) or, as Romero-Rivas et al. (2022) say, “emotionally-poor structures and impersonal academic settings” (p. 500).

Since languages evoke the memories and moral norms through which they were acquired (Geipel et al., 2015a), foreign languages cannot be felt as deeply because we do not connect with them on the emotional level but rather on the rational level, which brings forth more “deliberative processes” (Shin and Kim, 2017: 1349) employed in a work context. A foreign language is usually acquired in a less emotional context and it is, therefore, less emotional and more rational (Shin and Kim, 2017). This rationality with which the learner connects a foreign language from the time of its acquisition is later seen in their emotionally-void understanding of the foreign language (Tonković et al., 2019).

However, a foreign language is not always acquired in an “emotionally-poor” (Romero-Rivas et al., 2022: 500) or “emotionally neutral” (Circi et al., 2021: 1133) context. The foreign language effect is believed not to surface in cases where the foreign language has been

acquired in an “emotion-rich context (e.g., TV, shows, music)” (Dylman and Champoux-Larsson, 2020, as cited in Nadarevic et al., 2021: 8).

Previous research has explored the existence of the FLE and discovered a possible link between it and the linguistic factors reviewed above. However, there has been some contradictory data. The foreign language effect is a relatively new discovery and there is much research to be done to yield more insights into it. Tonković et al. (2019) suggests researching more low-degree and high-degree moral violation dilemmas (p.225). This research will therefore deal with the impact of the age of acquisition, proficiency, the degree of immersion and the context of learning on the strength of the FLE in low degree and high-degree moral violation dilemmas. It is presumed that the results will concur with previous research that early age of acquisition, high proficiency, informal context of learning and a high degree of immersion reduce the FLE.

3. Research

3.1 Aim

The main focus of this thesis is to determine to what degree linguistic background factors influence the strength of the foreign language effect in moral decision making in young adult native speakers of Croatian whose foreign language is English. The following hypotheses are proposed:

- I. early age of acquisition reduces the foreign language effect
- II. high proficiency reduces the foreign language effect
- III. informal context of learning reduces the foreign language effect
- IV. high degree of immersion reduces the foreign language effect

In June 2023, 204 participants from the University of Zagreb took part in this study. They were invited via the university mailing list to complete a questionnaire about making judgment calls in Croatian or in English on the condition that they were university students in Croatia with Croatian as their native language and English as their foreign language. They were not offered any monetary compensation. The study was conducted online via the Google Forms survey platform. A consent form explaining that the survey is anonymous and voluntary was administered. The participants were informed that their answers would only be analyzed for the purposes of the present thesis. They were instructed to read the instructions

carefully and answer the questions honestly. Each participant could have chosen to complete the survey in English or in Croatian and was provided links to both via e-mail. Apart from the consent form presented in Croatian, the survey was conducted in the chosen language. The Ethics Committee of the Department of the English Language and Literature approved the research.

3.2 Participants

The initial number of participants who partook in the survey was 204. Several exclusion criteria were used to obtain a representative sample. The participants were excluded if they failed to complete the attention check question successfully ($N = 16$) or had a great standard deviation from the mean ($N = 81$), which could have negatively affected the results. The final sample was comprised of 107 participants.

The mean age of the participants was 22,64 ($D = 24$; $SD = 2,28$). All participants were university students and native speakers of Croatian with English as their foreign language. The mean age of the participants who completed the survey in Croatian was 22,2 ($D = 21$; $SD = 2,15$) and 23,02 ($D = 24$; $SD = 2,18$) for those who completed it in English. There were 46 female and 8 male participants who completed the Croatian version of the survey, and 42 female, 9 male, and 1 non-binary participant who completed the English version. The Croatian version was filled in by 19 students with a high school degree and 35 students with a bachelor's degree, whereas the English version was filled in by 20 students with a high school degree and 32 students with a bachelor's degree. The demographical data about the participants is provided in Table 1.

Table 1:

Demographic information

Survey version	Age	Gender			Education	
		Male	Female	Non-binary	High school degree	Bachelor's degree
Croatian	22,2	8	46	0	19	35
English	23,02	9	42	1	20	32

3.3 Materials and procedure

Two survey versions were administered, one in Croatian and the other in English. The Croatian version was comprised of two tasks and a set of demographic background questions. A detailed set of linguistic background questions and a proficiency test were added to the English version to collect data about foreign language proficiency, age of acquisition, context of learning, and degree of immersion. The Croatian version of the survey was predicted to take approximately 7 minutes, whereas the English version was tested at 13 minutes, mainly due to additional questions about the participants' linguistic background and the proficiency test. The English and the Croatian version of the survey are included in the Appendix. The moral dilemmas in the first task were taken from the *Moral Behavior Inventory* (Khemiri et al., 2012: 3), originally from the Moral Behaviour Scale (Bechara and Damasio, 2002 as cited in Khemiri et al., 2012: 3). The translated version from Tonković et al. (2019) was used for the Croatian version of the survey. The second task was comprised of a set of moral dilemmas taken from various research studies: the “dog”, “bonus”, “incest”, “exam” and “flag” moral dilemmas were taken from Geipel et al. (2015a: 10). The “drug” and “jacket” dilemmas were taken from Shin and Kim (2017: 1349), while the “time machine” and “car accident” were taken from Conway and Gawronski (2013: 231). The attention check question “Adoption” was taken from Vives et al. (2018: 873). A wide range of moral dilemmas from different studies was picked for the purpose of exploring the foreign language effect in dilemmas with varying degrees of moral violations. The moral dilemmas employed in research usually contain various levels of moral violations: high-degree, medium-degree and low-degree moral violations. Tonković et al. (2019) had previously proved the existence of the FLE in medium-degree moral violation dilemmas but had not found the FLE in high-degree and low-degree moral violation dilemmas and suggested more research. Therefore, the moral violations used in the survey were low-degree and high degree.

In the first task, the participants were asked to make moral judgments about the morality of actions described in a series of fifteen short sentences. The items included actions such as “to fail to keep a minor promise”, “to take the last seat on a crowded bus”, and “to sell a defective car”. In the second task, the participants were also asked to judge the morality of the actions provided, but they were now presented with a context for each in a paragraph-long scenario. A Likert scale from “1” to “7”, with “1” meaning “completely morally wrong” and “7” meaning “completely morally correct” was used for both tasks. No time limits were set for either task.

Data about age, gender, and the highest level of academic achievement was collected. A detailed set of linguistic background questions was taken and adapted from the LEAP-Q (Marian et al., 2007). The questions were selected to collect information about the age of acquisition, proficiency, context of use, and learning context. Speaking, reading, writing, and listening proficiency was rated separately on a scale from 0 to 10, with “0” meaning “none” and “10” meaning “perfect”. Data was also gathered about the amount of time they spent in a country, family, school, or working environment where English was spoken. Participants were asked to indicate to what degree a particular factor contributed to them learning English, also on a scale from 0 to 10, with “0” meaning “not a contributor” and “10” meaning “most important contributor.” The factors rated were: “school”, “work”, “interacting with friends”, “interacting with family”, “watching TV or using streaming services”, “social media”, “listening to radio/music”, “reading” and “self-instruction”. The potential contributor “Language tapes/self-instruction” from the original questionnaire was modified to just “self-instruction”. “Watching TV” was modified to “watching TV or using streaming services” due to their widespread use. “Social media” was added as it was presumed to be one of the prevalent means by which some were exposed to English. To collect data about their degree of immersion in the English language, participants had to mark their current degree of exposure to English in general and in the above-mentioned contexts, as well as their willingness to speak English in a conversation with an equally fluent speaker. In the end, they were given the possibility of providing any relevant comments about their language background.

Besides collecting proficiency self-assessment data, the LexTALE test (Lemhöfer and Broersma, 2012) was administered to gather objective proficiency data, as recommended by Stankovic et al. (2022). The test consists of 60 trials during which a person is shown a string of letters for which they must decide whether that particular string is a word in English. The participants are shown 63 strings in total, the first three of which are dummies and not meant to be analyzed when calculating the final score. The ratio between the number of words and the number of nonwords is 40:20.

3.4 Results

The foreign language effect was proven in 13 moral dilemmas ($p < 0.05$). The effect was the strongest in the “keep excess-change at a store” moral dilemma and the weakest in the “ignore a hungry stranger” moral dilemma. The influence of the age of acquisition, proficiency, learning context, and immersion was analyzed next for correlation with FLE in

three conditions – in low-degree moral violation dilemmas, high-degree moral violation dilemmas, and in all moral dilemmas used in the survey.

3.4.1 Age of acquisition

The mean age of acquisition was 5,88 ($D = 7$; $SD = 2,18$). There was no correlation between the strength of the foreign language effect and the age of acquisition when considering low-degree moral violation dilemmas ($r = 0.18$) and high-degree moral violation dilemmas ($r = 0.19$), but on the whole, it did positively correlate with the age of acquisition ($r = 0.25$). The correlation between the age of acquisition and foreign language effect was the highest in the “say a white lie to get a reduced fare” ($r = 0.24$), “ignore a hungry stranger” ($r = 0.25$), “bonus” ($r = 0.33$) and “exam” ($r = 0.27$) dilemmas.

The participants listed “school” ($N = 28$), “kindergarten” ($N = 12$), “watching TV” ($N = 11$), and “at home with family” ($N = 8$) as the environments in which they had begun acquiring English, listed in order from most to least frequent. In low-degree moral violation dilemmas, FLE positively correlated with “school” ($r = 0.21$) and negatively correlated with “watching TV” ($r = -0.21$) and “at home with family” ($r = -0.27$). In high-degree moral violation dilemmas, FLE positively correlated with “watching TV” ($r = 0.28$). On the whole, FLE positively correlated with “school” ($r = 0.22$).

3.4.2 Subjective proficiency

The mean total self-rating was 34,6/40 or 86,58% ($SD = 4,8$). FLE negatively correlated with the total subjective proficiency rating in low-degree moral violation dilemmas ($r = -0.24$) and on the whole ($r = -0.25$). There was no correlation with FLE in high-degree moral violation dilemmas. The mean reading self-rating was 9,01, ranging from 6 to 10, with a standard deviation of 1,1. Reading self-rating correlated with FLE in low-degree moral violation dilemmas ($r = -0.3$) and on the whole ($r = -0.27$) but not in high-degree moral violation dilemmas ($r = -0.01$). The mean listening self-rating was 9, ranging from 5 to 10, with a standard deviation of 1,12. There was neither correlation between FLE in low-degree moral violation dilemmas ($r = -0.19$) nor was there correlation on the whole ($r = -0.19$). The mean writing self-rating was 8,2 ranging from 3 to 10 with a standard deviation of 1,65. Also, similar to listening, there was no correlation in either group, nor on the whole ($r = -0.19296$). The mean speaking self-rating was 8,4 ranging from 5 to 10 with a standard deviation of 1,3. The data was not in correlation, but it was close for FLE on the whole ($r = -0.19$).

3.4.3 Objective proficiency

On the LexTALE test, the participants scored 82% on average (SD = 13,33). The scores correlated with the proficiency self-ratings ($r = 0.43$). The objective proficiency score negatively correlated with FLE in low-degree moral violation dilemmas ($r = -0.24$) and on the whole ($r = -0.22$). There was no correlation for high-degree moral violation dilemmas ($r = -0.04$).

3.4.4 Context of learning

The most common learning context was “watching TV or using streaming services” (9,17), followed by “listening to radio/music” (8,35), “social media” (8,11), “reading” (8,08), “school” (7,27), “self-instruction” (6,27), “interacting with friends” (5,96), and “work” (4,44). The least common context was “interacting with family” (3,19).

In low-degree moral violation dilemmas, FLE negatively correlated with “interacting with friends” ($r = -0.24$), “interacting with family” ($r = -0.21$), “watching TV or using streaming services” ($r = -0.22$), “listening to radio/music” ($r = -0.21$), “reading” ($r = -0.24$) and “self-instruction” ($r = -0.28$). “School” and “work contexts” did not correlate with FLE in low-degree moral violation dilemmas. In high-degree moral violation dilemmas, FLE correlated with “school” ($r = -0.29$). It did not correlate with any other learning contexts. Surprisingly the data for “social media” was not in correlation ($r = 0.18$). On the whole, FLE correlated negatively with “interacting with family” ($r = -0.28$), “watching TV or using streaming services” ($r = -0.25$), and “self-instruction” ($r = -0.29$). It did not correlate with any other contexts of learning. Based on these data, the hypothesis “informal context of learning reduces the foreign language effect” was partially proven correct.

3.4.5 Degree of immersion

On average, participants spent 2,5 months in “a country”, 1,7 months in “a family”, 4 years and 2 months in “school”, and 5,5 months in “a working environment where English was spoken”. In low-degree moral violation dilemmas, FLE positively correlated with “school” ($r = 0.25$) and negatively correlated with “work” ($r = -0.2$). In high-degree moral violation dilemmas, FLE positively correlated with “family” ($r = 0.2$) but did not correlate with other contexts. On the whole, FLE positively correlated with “family” ($r = 0.2$) and “school” ($r = 0.28$), but it did not correlate with other contexts.

The mean rating for the willingness to speak English in a conversation with an equally fluent speaker was 6,5 (SD = 3,1). It negatively correlated with FLE in high-degree moral

violation dilemmas ($r = -0.24$). The mean rating for exposure to English was 8,5 (SD = 1,7). It negatively correlated with FLE in low-degree moral violation dilemmas ($r = -0.31$) and on the whole ($r = -0.27$).

The most common exposure context was “watching TV or using streaming services” (9,3), followed by “social media” (9,2), “listening to radio/music” (8,73), “reading” (7,78), “self-instruction” (5,08), and “interacting with friends” (5,06). The least common context was “interacting with family” (3,19).

In low-degree moral violation dilemmas, FLE negatively correlated with “interacting with friends” ($r = -0.24$), “listening to radio/music” ($r = -0.36$), “reading” ($r = -0.36$), and “self-instruction” ($r = -0.22$). There was no correlation for other contexts. In high-degree moral violation dilemmas, there was no correlation between contexts and FLE. On the whole, FLE negatively correlated with “listening to music/radio” ($r = -0.3$), “reading” ($r = -0.32$), and “self-instruction” ($r = -0.21$).

The data about the exact influence of the linguistic factors analyzed are provided in Table 2.

Table 2:

The correlation between types of moral dilemmas and linguistic factors

Linguistic factor	Type of dilemma		
	Low-degree moral violation dilemmas	High-degree moral violation dilemmas	All moral dilemmas
Age of acquisition	0.18	0.19	0.25
Subjective proficiency	-0.24	-0.09	-0.25
Objective proficiency	-0.23	-0.04	-0.22
Informal learning context	-0.21	0.04	-0.2
Immersion	-0.31	-0.01	-0.27

3.5 Discussion

The participants' mean age of acquisition was 5,8, which is slightly below the compulsory school starting age in Croatia (the age of 6). The most common environment in which the participants first started acquiring English was "school", which is in line with the data on their average age of acquisition. Acquisition in other environments ("kindergarten", "watching TV", and "at home with family") generally happens earlier than the one in school, which is the reason why their age of acquisition is below the age of 6. The age of acquisition correlated with the strength of the foreign language effect in making moral judgments, which means that those participants who acquired English at an early age were not prone to the foreign language effect as those who acquired English later and hence showed a stronger foreign language effect. This is in line with previous research (Kyriakou et al., 2023; Del Maschio et al., 2022; Keysar et al., 2012). Based on these data, the hypothesis that an early age of acquisition reduces the foreign language effect was proven correct.

The participants in the study were highly proficient. They rated themselves at an impressive 86,58%, which means that they perceived themselves as highly proficient, which turned out to be correct based on their test scores in the objective assessment ($r = 0.43$). Surprisingly, their self-assessment was extremely accurate. When judging low-degree moral violation dilemmas, their total self-assessed proficiency influenced the degree of the foreign language effect. Those with very high self-ratings made judgments more similar to those of native speakers, whereas this was slightly reduced in those with lower self-ratings. This is also in line with previous research by Costa et al. (2014b), Čavar and Tytus (2018), Miller et al. (2021), Nadarevic et al. (2021) and Hayakawa et al. (2022). Proficiency self-ratings in total did not influence the strength of the foreign language effect in high-degree moral violation dilemmas.

The reading, listening, writing, and speaking self-ratings are in line with the participants' overall self-proficiency assessment. Reading and listening were rated slightly higher than writing and speaking. The participants were most confident in their reading skills and least confident in their writing skills. In the low-degree moral violation dilemmas, the strength of the foreign language effect was reduced in those with high self-ratings in reading, yet the data for the other skills were not in correlation with the strength of the foreign language effect. Therefore, the high self-rating in reading was linked to the reduced foreign language effect in highly proficient participants. The objective proficiency was important for the foreign

language effect as well, since those who scored higher on the test experienced a reduced foreign language effect, i.e., their judgments were more similar to the judgments of native speakers than the judgments of those with lower scores on the test. Based on these data, the hypothesis that high proficiency reduces the foreign language effect was proven correct.

This highly proficient sample could be explained by the fact that the participants were instructed to choose either the survey in Croatian or the one in English. Those who chose to complete the survey in English probably decided to do it because they felt very comfortable using English due to their high proficiency, whereas those who questioned their proficiency did not consider taking the survey in English, and opted for the version of the survey in Croatian.

As predicted by the third hypothesis, the influence of the informal contexts of learning, i.e., interacting with friends, interacting with family, watching TV or using streaming services, listening to radio/music, reading, and self-instruction, was linked to the strength of the foreign language effect, specifically in moral dilemmas. Those participants who had learned English in an informal context were not under the influence of the foreign language effect as much as those who had not learned English in an informal context. These results are in line with previous research by Čavar and Tytus (2018), Brouwer (2019) and Del Maschio et al. (2022a). Learning English in formal contexts of “school” and “work” did not appear to influence the strength of the effect. When considering all moral dilemmas used in the survey, the foreign language effect was reduced if the participant acquired English while “interacting with family”, “watching TV or using streaming services” and via “self-instruction”. The hypothesis that the informal context of learning reduces the foreign language effect was proven correct for low-degree moral violation dilemmas and moral dilemmas in general. However, the informal context of learning which is believed to make foreign language learning more emotional and therefore decision-making in the foreign language also emotional did not influence the moral judgements in high-degree moral violation dilemmas. The reason might lie in the fact that dilemmas with a high-degree of moral violations are not encountered everyday, i.e. they may not seem realistic and don't resonate with participants. and therefore when a person is introduced to a high-degree moral violation dilemma they don't rely on past emotional experience from the informal context of learning as they have not had any with similar high-degree violations.

The last linguistic factor analyzed was the degree of immersion. The participants overall claimed to have spent the majority of time in an English-speaking school, but it is possible that some of them actually indicated the time they had spent studying English as a subject in school, as there were a few participants who reported a period of 18 years. However, it is possible that there was simply a higher number of participants who were educated at an English-speaking school. One participant commented that they had grown up at an international military base. The data indicates that those who spent more time at an English-speaking school experienced a stronger foreign language effect, which is not in line with previous research and probably results from some of participants' mistaken response that involved who mistakenly responded with the time they had spent in a regular school.

The participants who were willing to speak English with an equally fluent person experienced a reduced foreign language effect, i.e., their judgments were more similar to those made by native speakers than to the participants who were not as willing to speak English. It is interesting that this was noticed only when they made judgments about high-degree moral violation dilemmas, which is surprising since other data points to a reduced foreign language effect when making moral judgments in low-degree moral violation dilemmas.

Similar to the results for the context of learning, the most common context of current exposure to English was "watching TV or using streaming services", "social media", "listening to radio/music", and "reading". The least common exposure contexts were "interacting with family" and "self-instruction". The participants were all university students, and they did not use English with their family and friends or in self-instruction anymore as often as they had when they were younger, probably because they felt there was no need since they had reached their desired high level of fluency.

A higher degree of "interaction with friends", "listening to radio/music", "reading", and "self-instruction" meant that the foreign language effect was reduced in making judgments about low-degree moral violation dilemmas. When considering all moral dilemmas, such a link was found only for "listening to radio/music", "reading", and "self-instruction".

Exposure to English was rated as very high, and it affected the moral judgments of low-degree moral violation dilemmas. Those who felt more exposed to English, in general, did not experience a strong foreign language effect, whereas those who did not feel as exposed

experienced a weaker foreign language effect. This means that the fourth hypothesis was proven correct: high degree of immersion does reduce the foreign language effect. This is in line with previous research by Dylman and Champoux-Larrson (2020), as cited in Nadarevic et al. (2021), and Circi et al. (2021).

In low-degree moral violation dilemmas, exposure was the most important linguistic factor influencing the strength of the foreign language effect. None of the linguistic factors were proven to correlate with the strength of the foreign language effect in high-degree moral violation dilemmas, although the age of acquisition came very close. Immersion turned out to be the most important linguistic factor across all moral dilemmas included in the research, followed by the age of acquisition, proficiency, and informal context of learning.

4. Conclusion

The objective of this research was to analyze how linguistic background factors impact the intensity of the foreign language effect. The study revealed that immersion, the age of acquisition, proficiency, and the informal context of learning have varying degrees of influence on the foreign language effect, with immersion displaying the most significant impact, followed by the age of acquisition, proficiency, and the informal context of learning.

Native languages are learned in an emotional context, and later when used, the emotional factor is present. Due to the more emotional context of learning in early native language acquisition, the native language is understood more emotionally. Foreign languages are generally acquired in a formal context, inside a classroom, and sometimes in a working environment at a later age, which makes it less filled with emotions than the native language.

The sample of this research consisted of university students, but in future research it would be more advantageous to include participants from various age groups and with diverse proficiency levels. Further research is necessary to explore the effects of linguistic factors on moral decision-making while also providing valuable insights in this area of study. As more individuals become proficient in foreign languages, the findings of research on the foreign language effect can be applied across various fields.

5. References

- Akbari, M. (2014). A multidimensional review of bilingual aphasia as a language disorder. *Advances in Language and Literary Studies*, 5(2), 73–86. <https://doi.org/10.7575/aiac.all.v.5n.2p.73>
- Braida, B., Rodriguez-Ferreiro, J., and Hernandez, M. (2023). The foreign language effect on motivational quotes. *Bilingualism: Language and Cognition*, 26, 416-424. <https://doi.org/10.1017/S1366728922000505>
- Brouwer, S. (2019). The auditory foreign-language effect of moral decision making in highly proficient bilinguals. *Journal of Multilingual and Multicultural Development*, 40(10), 865-878. <https://doi.org/10.1080/01434632.2019.1585863>
- Brouwer, S. (2021). The interplay between emotion and modality in the foreign-language effect on moral decision making. *Bilingualism: Language and Cognition* 24, 223–230. <https://doi.org/10.1017/S136672892000022X>
- Caldwell-Harris, C. L. (2014). Kill one to save five? Mais oui! *Scientific American Mind*, 25(5), 70-73. <https://www.jstor.org/stable/24946280>
- Circi, R., Gatti, D., Russo, V., and Vecchi, T. (2021). The foreign language effect on decision-making: A meta-analysis. *Psychonomic Bulletin and Review*, 28, 1131-1141. <https://doi.org/10.3758/s13423-020-01871-z>
- Corey, J. D., and Costa, A. (2015). The foreign language effect on moral decisions. *Ciencia Cognitiva*, 9(3), 57-60. <http://hdl.handle.net/10230/34929>
- Corey, J. D., Hayakawa, S., Foucart, A., Aparici, M., Botella, J., Costa, A., and Keysar, B. (2017). Our moral choices are foreign to us. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 43(7), 1109–1128. <https://doi.org/10.1037/xlm0000356>
- Costa, A., Foucart, A., Arnon, I., Aparicci, M., and Apesteguia, J. (2014a). “Piensa” twice: On the foreign language effect in decision making. *Cognition*, 130(2), 236-254. <https://doi.org/10.1016/j.cognition.2013.11.010>
- Costa, A., Foucart, A., Hayakawa, S., Aparici, M., Apesteguia, J., Heafner, J., and Keysar, B. (2014b). Your morals depend on language. *PLoS ONE*, 9(4), 1-7, Article e94842. <https://doi.org/10.1371/journal.pone.0094842>

- Costa, A., Vives, M. L. and Corey, J. D. (2017). On language processing shaping decision making. *Current Directions in Psychological Science*, 26(2), 146-151. <https://www.jstor.org/stable/48552992>
- Čavar, F., and Tytus, A. E. (2018). Moral judgment and FLE: When the foreign language becomes the second language. *Journal of Multilingual and Multicultural Development*, 39(1), 17–28. <https://doi.org/10.1080/01434632.2017.1304397>
- Del Maschio, N., Crespi, F., Peressotti, F., Abutalebi, J., and Sulpizio, S. (2022a). Decision-making depends on language: A meta-analysis of the Foreign Language Effect. *Bilingualism: Language and Cognition*, 25(4), 617-630. <https://doi.org/10.1017/S1366728921001012>
- Del Maschio, N., Del Mauro, G., Bellini, C., Abutalebi, J., and Sulpizio, S. (2022b). Foreign to whom? Constraining the moral foreign language effect on bilinguals' language experience. *Language and Cognition*, 14(4), 511-533. <https://doi.org/10.1017/langcog.2022.14>
- Dylman, A. S., and Champoux-Larsson, M. F. (2020). It's (not) all Greek to me: Boundaries of the foreign language effect. *Cognition*, 196, Article 104148. 1-8. <https://doi.org/10.1016/j.cognition.2019.104148>
- Geipel, J., Hadjichristidis, C., and Surian, L. (2015a). How foreign language shapes moral judgement. *Journal of Experimental Social Psychology*, 59, 8-17. <https://doi.org/10.1016/j.jesp.2015.02.001>
- Geipel, J., Hadjichristidis, C., and Surian L. (2015b). The foreign language effect on moral judgement: The role of emotions and norms. *PLoS ONE*, 10(7), 1-17, Article e0131529. <https://doi.org/10.1371/journal.pone.0131529>
- Geipel, J., Hadjichristidis, C., and Surian, L. (2016). Foreign language affects the contribution of intentions and outcomes to moral judgement. *Cognition*, 154, 34-39. <https://doi.org/10.1016/j.cognition.2016.05.010>
- Hayakawa, S., Pan, Y., and Marian, V. (2022). Language changes medical judgements and beliefs. *International Journal of Bilingualism*, 26(1), 104-121. <https://doi.org/10.1177/13670069211022851>

- Hayakawa, S., Tannenbaum, D., Costa, A., Corey, J.D., and Keysar, B. (2017). Thinking more or feeling less? Explaining the foreign- language effect on moral judgement. *Psychological Science*, 28(10), 1387-1397. <https://doi.org/10.1177/0956797617720944>
- Hennig, M., and Hütter, M. (2021). Consequences, norms, or willingness to interfere: A proCNI model analysis of the foreign language effect in moral dilemma judgment. *Journal of Experimental Social Psychology*, 95, Article 104148, <https://doi.org/10.1016/j.jesp.2021.104148>.
- Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist* 58(9), 697–720. <https://doi.org/10.1037/0003-066X.58.9.697>
- Keysar, B., Hayakawa, S.L., and An, S.G. (2012). The foreign-language effect: Thinking in a foreign tongue reduces decision biases. *Psychological Science*, 23(6), 661-668. <https://doi.org/10.1177/0956797611432178>
- Khemiri, L., Guterstam, J., Franck, J. and Jayaram-Lindström, N. (2012). Alcohol Dependence Associated with Increased Utilitarian Moral Judgment: A Case Control Study. *PLoS ONE* 7(6): e39882. <https://doi.org/10.1371/journal.pone.0039882>
- Krautz, A., and Čavar, F. (2019). Moral foreign language effect – claims we have never made’ (response to commentary by Białek and Fugelsang, in press). *Journal of Multilingual and Multicultural Development*, 40, 687–690. <https://doi.org/10.1080/01434632.2018.1547074>
- Kyriakou, A., Foucart, A., and Mavrou, I. (2023). Moral judgements in a foreign language: Expressing emotions and justifying decisions. *International Journal of Bilingualism* 27(2), 1-18. <https://doi.org/10.1177/13670069221134193>
- Luk, G., and Bialystok, E. (2013). Bilingualism is not a categorical variable: Interaction between language proficiency and usage. *Journal of Cognitive Psychology*, 25(5), 605–621. <https://doi.org/10.1080/20445911.2013.795574>
- Miller, D., Solis-Barroso, C., and Delgado, R. (2021). The foreign language effect in bilingualism: Examining prosocial sentiment after offense taking. *Applied Psycholinguistics*, 42(2), 395-416. <https://doi.org/10.1017/S0142716420000806>

- Miozzo, M., Navarrete, E., Ongis, M., Mello, E., Giroto, V., and Peressotti, F. (2020). Foreign language effect in decision-making: How foreign is it? *Cognition*, 199, Article 104245. <https://doi.org/10.1016/j.cognition.2020.104245>
- Muda, R., Pieńkosz, D., Francis, K. B., and Białek, M. (2020). The moral foreign language effect is stable across presentation modalities. *Quarterly Journal of Experimental Psychology*, 73(11), 1930-1938. <https://doi.org/10.1177/1747021820935072>
- Nadarevic, L., Klein, L., and Dierolf, J. (2021). Does foreign language alter moral judgments? Inconsistent results from two pre-registered studies with the CNI model. *Open Psychology*, 3(1), 66-86. <https://doi.org/10.1515/psych-2020-0112>
- Romero-Rivas, C., López-Benítez, R., and Rodríguez-Cuadrado, S. (2022). Would you sacrifice yourself to save five lives? Processing a foreign language increases the odds of self-sacrifice in moral dilemmas. *Psychological Reports*, 125(1), 498–516. <https://doi.org/10.1177/0033294120967285>
- Shin, H. I., and Kim, J. (2017). Foreign language effect and psychological distance. *Journal of Psycholinguistic Research*, 46, 1339-1352. <https://doi.org/10.1007/s10936-017-9498-7>
- Stankovic, M., Biedermann, B., and Hamamura, T. (2022). Not all bilinguals are the same: A meta-analysis of the moral foreign language effect. *Brain and Language*, 227, 1-13, Article 105082. <https://doi.org/10.1016/j.bandl.2022.105082>
- Thomson, J.J. (1985). The trolley problem. *The Yale Law Journal*, 94(6), 1395-1415. <https://doi.org/10.2307/796133>
- Tonković, M., Dumančić, F., and Anđel, M. (2019). Efekt stranog jezika i odlučivanje o moralu. *Suvremena lingvistika*, 45(88), 213-230. <https://doi.org/10.22210/suvlin.2019.088.06>
- Vives, M. L., Aparici, M., and Costa, A. (2018). The limits of the foreign language effect on decision-making: The case of the outcome bias and the representativeness heuristic. *PLoS ONE*, 13(9), Article e0203528. <https://doi.org/10.1371/journal.pone.0203528>
- Waldmann, M. R., Nagel, J., and Wiegmann, A. (2012). Moral Judgment. In K. J. Holyoak and R. G. Morrison (Eds.), *The Oxford Handbook of Thinking and Reasoning*. Oxford Academic, pp. 364-389. <https://doi.org/10.1093/oxfordhb/9780199734689.013.0019>

- Wang, Z., and Yip, M. C. W. (2022). The foreign language effects on strategic behavior games. *PLoS ONE*, 17(11), Article e0277556. <https://doi.org/10.1371/journal.pone.0277556>
- Wong, G., and Ng, B.C. (2018). Moral judgement in early bilinguals: Language dominance influences responses to moral dilemmas. *Frontiers in Psychology*, 9. 1-10, <https://doi.org/10.3389/fpsyg.2018.01070>
- Woumans, E., Van der Cruyssen, I., and Duyck, W. (2020). Crime and punishment: Morality judgment in a foreign language. *Journal of Experimental Psychology: General*, 149(8), 1597–1602. <https://doi.org/10.1037/xge0000736>

Appendices

Croatian version

Prema Vašem mišljenju koliko je moralno pogrešno...

1. ne ispuniti malo obećanje.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

2. zauzeti posljednje sjedalo u punom autobusu.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

3. prodati nekome neispravan automobil.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

4. voziti nakon što ste popili jedno alkoholno piće.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

5. progurati se u redu kada nam se žuri.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

6. ne darivati krv.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

7. biti neugodan prema nekome tko nam se ne sviđa.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

8. reći malu laž da se dobije popust na kartu.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

9. istjerati beskućnike iz svog susjedstva.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

10. ne pomoći nekome da pokupi papire koji su mu ispali.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

11. zadržati ostatak pogrešno vraćenog novca u dućanu.

1	2	3	4	5	6	7
potpuno pogrešno					potpuno ispravno	

12. ne ponuditi pomoć nakon nesreće.

1 2 3 4 5 6 7
potpuno pogrešno potpuno ispravno

13. ignorirati nepoznatu osobu koja je gladna.

1 2 3 4 5 6 7
potpuno pogrešno potpuno ispravno

14. ne glasati na izborima.

1 2 3 4 5 6 7
potpuno pogrešno potpuno ispravno

15. zadržati novac pronađen na ulici.

1 2 3 4 5 6 7
potpuno pogrešno potpuno ispravno

Pročitajte sljedeće opise situacija i označite moralnu ispravnost opisanih radnji na ljestvici od 1 do 7, u kojoj 1 označava potpuno moralno pogrešne radnje, a 7 potpuno moralno ispravne radnje.

Pas

Auto je pregazio Franjinog psa ispred njegove kuće. Franjo je čuo da ljudi u Kini povremeno jedu pseće meso i bio je znatiželjan oko okusa. Stoga je rasjekao meso, skuhao ga i pojeo za večeru. Je li bilo moralno ispravno pojesti pseće meso?

1 2 3 4 5 6 7

potpuno pogrešno potpuno ispravno

Droga

Jakov je sjedio ispred kafića kad mu je siromašan dječak prišao i zamolio ga za nešto novca kako bi si mogao kupiti nešto za jelo. Jakov mu je dao novac vjerujući da će ih on iskoristiti kako bi kupio hranu. Dječak je iskoristio novac kako bi kupio drogu, što je rezultiralo smrću predoziranjem. Je li bilo moralno ispravno dječaku dati novac?

1 2 3 4 5 6 7

potpuno pogrešno potpuno ispravno

Prometna nesreća

Tijekom vožnje prometnom gradskom ulicom na cestu ispred Vašeg vozila pada mlada majka koja u naručju nosi dijete. Vozite prebrzo da bi mogli stati na vrijeme i Vaša jedina mogućnost je skrenuti. Nažalost, na jedinom mjestu na koje možete skrenuti nalazi se jedna starija bakica. Izbjegavanjem mlade majke i djeteta nanijet ćete teške tjelesne ozljede bakici ili ju usmrtili. Je li moralno ispravno skrenuti i udariti bakicu kako bi izbjegli majku i dijete?

1 2 3 4 5 6 7

potpuno pogrešno potpuno ispravno

Vremenski stroj

Pronašli ste vremenski stroj i otputovali natrag u 1920. godinu. Dok ste se prijavljivali u hotel upoznali ste mladog sitnog kriminalca. Shvaćate da je on Juraj Brakić, čovjek koji će u budućnosti oteti dijete i držati ga kao taoca tjedan dana dok mu obitelj ne plati otkupninu. Odsjeda u sobi pored Vaše, a vrata su otključana. Ne bi bilo teško jednostavno ga ugušiti jastukom tijekom sna i nestati te time prevenirati otmicu i zahtjev za otkupninom. Međutim, do tog trenutka on nije počinio nikakav zločin i čini se pogrešnim povrijediti nevinu osobu. Je li moralno ispravno ubiti Juraja Brakića kako biste ga spriječili u otmici djeteta?

1 2 3 4 5 6 7

potpuno pogrešno potpuno ispravno

Jakna

Kristijan je svjesno i namjerno beskućniku dao svoju jedinu jaknu, iako je vani bilo ledeno hladno. Sat vremena kasnije dva muškarca su vidjela beskućnika s Kristijanovom jaknom i prebila ga jer su mislili da ju je ukrao. Je li bilo moralno ispravno dati jaknu beskućniku?

1 2 3 4 5 6 7

potpuno pogrešno potpuno ispravno

Bonus

Dva zaposlenika su jednako radila na projektu. Projekt je dobro prošao pa imaju pravo na zajednički bonus u iznosu od 1000 eura. Julija je voditeljica i prijateljica jednog od zaposlenika te mu želi dodijeliti čitav iznos. Poslala je e-mail uredu za financije, no on nije

stigao zbog greške na serveru. Zbog toga je svaki zaposlenik dobio 500 eura. Je li bilo moralno ispravno poslati e-mail?

1 2 3 4 5 6 7

potpuno pogrešno

potpuno ispravno

Incest

Brat i sestra su sami u kući i odluče se samo jednom voditi ljubav. Sestra pije kontracepcijske tablete, a brat koristi kondom. Oboje uživaju u ovom činu, ali odlučuju da to više neće ponoviti. Obećaju da će to biti tajna. Je li bilo moralno ispravno voditi ljubav?

1 2 3 4 5 6 7

potpuno pogrešno

potpuno ispravno

Posvajanje

Mladi par je otkrio da su neplodni. Odlučuju se na posvajanje djeteta i uspješno prolaze ispite državne agencije za posvajanje. Obaviješteni su da djeca koja se mogu posvojiti imaju urođene tjelesne mane, što je vrlo vjerojatno i uzrokovalo njihovo napuštanje od strane bioloških roditelja. Posvojitelji primaju naknadu za dijete kao i invalidninu. Par nema sredstava za međunarodno posvojenje. Odlučili su nastaviti s posvojenjem unutar države. Je li moralno ispravno posvojiti dijete?

1 2 3 4 5 6 7

potpuno pogrešno

potpuno ispravno

Ispit

Učenik ne zna neke odgovore na pitanja u testu i prepíše ih od učenika koji sjedi ispred njega. Ne bude uhvaćen pa oba učenika dobiju dobre ocjene. Je li moralno ispravno varati na testu?

1 2 3 4 5 6 7

potpuno pogrešno

potpuno ispravno

Zastava

Žena posprema ormar i pronalazi državnu zastavu. Odluči izrezati ju na manje komade i te komade iskoristiti za čišćenje WC-a. Je li moralno ispravno iskoristiti zastavu za čišćenje?

1 2 3 4 5 6 7

potpuno pogrešno

potpuno ispravno

English version

In your opinion, on a scale from 1 to 7 how morally wrong is it to...

1. Fail to keep minor promises
1 2 3 4 5 6 7
completely wrong completely correct
2. Take the last seat on a crowded bus
1 2 3 4 5 6 7
completely wrong completely correct
3. Sell someone a defective car
1 2 3 4 5 6 7
completely wrong completely correct
4. Drive after having one drink
1 2 3 4 5 6 7
completely wrong completely correct
5. Cut in line when in a hurry
1 2 3 4 5 6 7
completely wrong completely correct
6. Not give blood during blood drives
1 2 3 4 5 6 7
completely wrong completely correct
7. Be mean to someone you don't like
1 2 3 4 5 6 7
completely wrong completely correct
8. Say a white lie to get a reduced fare
1 2 3 4 5 6 7
completely wrong completely correct
9. Drive out the homeless from your neighborhood
1 2 3 4 5 6 7
completely wrong completely correct
10. Not help someone pick up their dropped papers
1 2 3 4 5 6 7
completely wrong completely correct
11. Keep excess-change at a store
1 2 3 4 5 6 7
completely wrong completely correct
12. Not offer to help after an accident
1 2 3 4 5 6 7
completely wrong completely correct

13. Ignore a hungry stranger

1 2 3 4 5 6 7
completely wrong completely correct

14. Fail to vote in minor elections

1 2 3 4 5 6 7
completely wrong completely correct

15. Keep money found on the ground.

1 2 3 4 5 6 7
completely wrong completely correct

Read the following moral dilemmas carefully and mark the moral correctness of the actions described on a scale from 1 to 7 with 1 meaning “completely morally wrong” and 7 “completely morally right”.

Dog

Frank's dog was killed by a car in front of his house. Frank had heard that in China people occasionally eat dog meat, and he was curious what it tasted like. So he cut up the body and cooked it and ate it for dinner. Was it morally correct to eat dog meat?

1 2 3 4 5 6 7

completely wrong completely correct

Drug

Giorgio is sitting outside a coffee-shop when a poor boy comes and asks him for some money to get something to eat. Giorgio gives him some money trusting that the boy would use it to get food. The boy used this money to buy drugs and as a result he dies of an overdose. Was it morally correct to give the money to the boy?

1 2 3 4 5 6 7

completely wrong completely correct

Time machine

You find a time machine and travel back to the year 1920. While checking into a hotel, you meet a young petty criminal. You realize this is George Brackman, a man who later on abducted a child and held her for a week until her family paid him some ransom money. He is staying in the hotel room next to yours and the doors are not locked. It would be easy to simply smother him with a pillow in his sleep and disappear, stopping the abduction and ransom demands before they even start. However, he has not committed any crimes yet and it seems wrong to hurt an innocent person. Is it morally correct for you to kill George Brackman in order to prevent him from taking a child hostage?

1 2 3 4 5 6 7

completely wrong completely correct

Car accident

You are driving through a busy city street when all of a sudden a young mother carrying a child trips and falls into the path of your vehicle. You are going too fast to break in time; your only hope is to swerve out of the way. Unfortunately, the only place you can swerve is currently occupied by a little old lady. If you swerve to avoid the young mother and baby, you will seriously injure or kill the old lady. Is it morally correct to swerve and hit the old lady in order to avoid the young mother and child?

1 2 3 4 5 6 7

completely wrong completely correct

Jacket

Cristiano deliberately and intentionally gave a homeless man his only jacket, even though it was freezing outside. One hour later two guys saw the homeless person with Cristiano's jacket and beat him up as they thought that he had stolen the jacket. Was it morally correct to give the homeless man the jacket?

1 2 3 4 5 6 7

completely wrong completely correct

Bonus

Two employees have worked equally toward a project. The project went well so they are entitled to a collective bonus of 1000 Euros. The manager, Giulia, is a friend of one of the employees and wants to allocate the entire bonus to him. Giulia sends an e-mail to the finance office, but the e-mail never arrives due to a server failure. As a result, each employee gets 500 Euros. Was it morally correct to send the e-mail?

1 2 3 4 5 6 7

completely wrong completely correct

Incest

A brother and sister are alone in the house and decide to make love just once. The sister is already taking birth control pills and the brother uses a condom. They both enjoy the act but decide not to do it again. They promise each other to keep it a secret. Was it morally correct to make love?

1 2 3 4 5 6 7

completely wrong completely correct

Adoption

A young couple discovers they are infertile. They decide to adopt a child and successfully pass the exams of the national adoption agency. They are informed that the children that are available for adoption have various birth defects, which most likely caused their biological parents to abandon them. Adopters receive child's pension as well as a disability pension because of the children's condition. The couple does not have money for international adoption. They decide to proceed with the adoption. Is it morally correct to adopt the child?

1 2 3 4 5 6 7

completely wrong completely correct

Exam

A student who doesn't know the answers to some of the questions in an exam copies them from a student sitting in front of him. He doesn't get caught and he and the other student both get good grades. Was it morally correct to cheat?

1 2 3 4 5 6 7

completely wrong completely correct

Flag

A woman is cleaning out her closet, and she finds a national flag. She decides to cut it up into small pieces and uses the pieces to clean the toilet. Was it morally correct to use the flag for cleaning?

1 2 3 4 5 6 7

completely wrong completely correct

Demographic background questions:

1. Age:
2. Gender:
3. What is your highest education level?
 - a) high school or vocational school
 - b) bachelor's degree

Linguistic background questions:

1. Please list all the languages you know **in order of acquisition** (your native language first). _____
2. At what **age** and where did you begin acquiring English?
Age: _____
Environment: _____
3. Please circle your level of proficiency in **speaking** in English.
0 1 2 3 4 5 6 7 8 9 10
0=none; 1= very low; 2= low; 3= fair; 4= slightly less than adequate;
5=adequate; 6= slightly more than adequate; 7= good; 8= very good;
9=excellent; 10=perfect
4. Please circle your level of proficiency in **reading** in English.
0 1 2 3 4 5 6 7 8 9 10
0=none; 1= very low; 2= low; 3= fair; 4= slightly less than adequate;
5=adequate; 6= slightly more than adequate; 7= good; 8= very good;
9=excellent; 10=perfect
5. Please circle your level of proficiency in **listening** in English.
0 1 2 3 4 5 6 7 8 9 10
0=none; 1= very low; 2= low; 3= fair; 4= slightly less than adequate;
5=adequate; 6= slightly more than adequate; 7= good; 8= very good;
9=excellent; 10=perfect
6. Please circle your level of proficiency in **writing** in English.
0 1 2 3 4 5 6 7 8 9 10
0=none; 1= very low; 2= low; 3= fair; 4= slightly less than adequate;
5=adequate; 6= slightly more than adequate; 7= good; 8= very good;
9=excellent; 10=perfect
7. Please circle how much the following factors contributed to you learning this language:

school	0	1	2	3	4	5	6	7	8	9	10
	not a contributor						most important contributor				
work	0	1	2	3	4	5	6	7	8	9	10
	not a contributor						most important contributor				
interacting with friends	0	1	2	3	4	5	6	7	8	9	10
	not a contributor						most important contributor				
interacting with family	0	1	2	3	4	5	6	7	8	9	10
	not a contributor						most important contributor				

13. When choosing a language to speak with a person who is equally fluent in English, what percentage of time would you choose to speak English?

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

14. Please circle to what extent you are currently exposed to English in the following contexts.

school

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

work

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

interacting with friends

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

interacting with family

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

watching TV or using streaming services

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

social media

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

listening to radio/music

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

reading

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

self-instruction

0 1 2 3 4 5 6 7 8 9 10
 never almost never half of the time always

15. Please leave any comments about your language background that you believe might be relevant.

Proficiency test

"This test consists of about 60 trials, in each of which you will see a string of letters. Your task is to decide whether this is an existing English word or not. If you think it is an existing English word, you click on "yes", and if you think it is not an existing English word, you click on "no".

If you are sure that the word exists, even though you don't know its exact meaning, you may still respond "yes". But if you are not sure if it is an existing word, you should respond "no".

In this experiment, we use British English rather than American English spelling. For example: "realise" instead of "realize"; "colour" instead of "color", and so on. Please don't let this confuse you. This experiment is not about detecting such subtle spelling differences anyway.

You have as much time as you like for each decision. This part of the experiment will take about 5 minutes.

If everything is clear, you can now start."

0 platory	19 spaunch	40 magrity
0 denial	20 allied	41 nourishment
0 generic	21 slain	42 abergy
1 mensible	22 recipient	43 proom
2 scornful	23 exprate	44 turmoil
3 stoutly	24 eloquence	45 carbohydrate
4 ablaze	25 cleanliness	46 scholar
5 kermshaw	26 dispatch	47 turtle
6 moonlit	27 rebondicate	48 fellick
7 lofty	28 ingenious	49 destription
8 hurricane	29 bewitch	50 cylinder
9 flaw	30 skave	51 censorship
10 alberation	31 plaintively	52 celestial
11 unkempt	32 kilp	53 rascal
12 breeding	33 interfate	54 purrage
13 festivity	34 hasty	55 pulsh
14 screech	35 lengthy	56 muddy
15 savoury	36 fray	57 quirky
16 plaudate	37 crumper	58 pudour
17 shin	38 upkeep	59 listless
18 fluid	39 majestic	60 wrought

Thank you for participating!