

Does the Foreign Language Effect Apply to ‘What-if’ Thoughts?

Anna de Wind

S4373103

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group 2a

Supervisor: Dr. K. Epstude

Second evaluator: Dr. S.M. Donofrio

In collaboration with: Lara Bakker, Elias Eckardt, Britt Hollander, Naomi Meijnen, Monja Rinke

Month 06, 2025

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned

Abstract

Language shapes how we interpret and evaluate our surroundings, especially in morally ambiguous situations. The Foreign Language Effect (FLE) suggests that people may reason differently when using a non-native language, often becoming more emotionally detached and analytical. This study aimed to examine whether the FLE extends to counterfactual ‘what-if’ thinking and blame attribution. Additionally, it explored whether cultural background influences blame attribution, focussing on participants from Spain (individualistic) and Mexico (collectivistic). A 2 (language: Spanish vs English) x 2 (condition: mutable vs immutable) x 2 (nationality: Spanish vs English) between-subjects design was conducted. 595 native Spanish-speaking participants read a moral scenario in either Spanish (L1) or English (L2), about a negligent tutor whose help could have changed (mutable) or could not have changed (immutable) the outcome for a student. Blame attribution to the tutor was measured using Likert-scale items. Results showed that participants in the English condition attributed significantly more blame than those in the Spanish condition, contradicting the expected FLE. Blame was significantly higher in the mutable condition, confirming that perceived preventability of a harmful outcome increases blame. However, an alternative analysis revealed that blame levels were similar in both mutability conditions. The interaction between language and mutability was not significant. Spanish participants assigned more blame than Mexican participants, contradicting our expectations. Our findings suggest that foreign language use does not always reduce emotionality in moral judgement and cultural influences on blame attribution are complex. Future research should pretest scenarios for moral clarity, assess individual-level cultural values and explore additional cultural contexts in linguistic factors.

Keywords: Foreign Language Effect, counterfactual reasoning, blame attribution, collectivism-individualism

Does the Foreign Language Effect Apply to ‘What-if’ Thoughts?

Language is a tool that almost all of us use on a daily basis. While most people primarily communicate in their native language, a large number of individuals around the world use more than one language in daily life. When thinking about your own experience, you may recall a moment of discomfort or awareness, for example while ordering something on vacation and suddenly finding it more difficult to express yourself than usual. People are generally less proficient in a foreign language compared to their native language. On a small and informal scale, this might not matter much. However, what if one has to make a bigger or more important decision in a foreign language?

This example of a ‘what-if’ scenario also raises an interesting question: what if a potentially harmful outcome could have been prevented? What-if thoughts, also referred to as counterfactual thoughts, play a role in how people explain harmful events, as they consider to what extent a negative outcome could have been prevented (Alicke et al., 2008). In this study, we examine the influence of the so-called language effect on ‘what-if’ thoughts in the context of moral decision-making and the attribution of blame.

Foreign Language Effect

People tend to make different decisions when using a foreign language compared to their native language (Keysar et al., 2012; Circi et al., 2021). This phenomenon, known as the Foreign Language Effect (FLE), was first described by Keysar et al. (2012). In their study, participants were presented with an adaptation of the “Asian Disease” problem, which was formulated in two ways: (1) using a gain frame (eg. lives or jobs saved), and (2) using a loss frame (eg. lives or jobs lost). Participants were asked to make a decision in either their native language or a foreign language.

The results of this study showed that the framing effect, the influence of how options are presented, was significantly reduced when participants made decisions in a foreign

language. Specifically, while participants tended to be risk-averse for gains and risk-seeking for losses in their native language, this pattern reduced when they responded in a foreign language. These findings suggest that using a foreign language can lead to more utilitarian choices in moral dilemmas and a reduction in framing-related biases in the domain of risk aversion (Keysar et al., 2012).

Cognitive Underlying Mechanisms

Building on these previous findings, a growing body of research has sought to better understand the underlying mechanisms responsible for the FLE. Firstly, it can be explained by a reduction in emotional arousal when using a foreign language (Costa et al., 2014). Because foreign languages are often acquired in less emotionally grounded contexts, such as classrooms rather than everyday emotional experiences, they tend to elicit less affective responses. As a result, individuals may feel more emotionally detached when processing information in their non-native language.

Secondly, a mechanism that can help explain the FLE is cognitive control. According to dual-process theories of decision making, cognitive processing can be divided into two systems: a fast, intuitive system (system 1) and a slower, more deliberate system (system 2) (Barrouillet, 2011). It has been suggested that engaging with information in a foreign language might activate system 2, thereby enhancing cognitive control and reducing sensitivity to cognitive biases. This shift towards more analytical reasoning could influence how individuals evaluate actions and outcomes, particularly in emotionally charged or morally complex situations (Circi et al., 2021).

While reduced emotional arousal and increased cognitive control help explain the FLE in moral decision making, another important dimension to consider is the influence of cultural norms.

Cultural Influences

Cultural values strongly influence how individuals evaluate morally ambiguous behavior, such as failing to help others. A fundamental distinction in cross-cultural psychology is that between collectivistic and individualistic societies (Hofstede, 2001). Mexico, as a prototypically collectivistic culture, places a strong emphasis on interpersonal obligations, familial loyalty and maintaining group harmony. Spain, although sharing some collectivist values due to the Mediterranean heritage, generally scores higher on individualism and emphasizes personal autonomy and responsibility (Hofstede, 2001). These cultural orientations can shape moral judgments, particularly the attribution of blame.

Feinberg et al. (2019) found that individuals from collectivistic cultures tend to assign moral responsibility based not on intentions or agency of the actor, but rather on the severity of harm caused and if it disrupts social harmony. In contrast, individuals from individualistic cultures are more likely to base their judgements on the actor's intentions and perceived freedom to choose. Although Feinberg et al. (2019) focused on East Asian and Western participants, their findings can be extended to other collectivistic and individualistic cultures. Applying these findings, it is plausible that individuals in Mexico are more likely to assign blame to someone who fails to help, interpreting this as a violation of social obligation and a threat to group cohesion. Spanish people, by contrast, may be more inclined to consider whether the individual was personally able or willing to help, focusing on autonomy and intentionality rather than shared responsibility. Thus, cultural values surrounding social harmony and individual responsibility may shape different thresholds for assigning blame in morally ambiguous situations.

Counterfactual Reasoning

As mentioned earlier, 'what-if' thoughts, or in other words, counterfactual reasoning, play a role in how people explain harmful events (Alicke et al., 2008). For instance, consider

the thought: *“If I had left a few minutes earlier for work, I would not have been in that car accident.”* This counterfactual scenario reflects a common form of mental stimulation in the aftermath of harmful events. It compares the actual outcome (being in a car accident) with an imagined alternative outcome in which the accident is avoided, highlighting the contrast between what happened and what might have happened instead. These counterfactual ‘what-if’ thoughts can trigger emotional responses like regret, guilt and blame (Alicke et al., 2008). When individuals are able to imagine how a negative outcome could have been avoided, they often identify a specific action (or inaction) as the cause. This can, in turn, increase blame assignment to the person who was responsible for this (in)action (Roese, 1997).

Blame Attribution

According to Weiner (1995) blame consists of two components: (1) identifying a responsible person and (2) assigning accountability for harm that is caused. Blame assignment involves moral judgement and there are several factors that influence the attribution of blame in explaining harmful outcomes. A model that provides a framework for understanding how individuals assign blame is the culpable control model (Alicke et al., 2008). This model emphasizes the role of perceived control and moral evaluation in the process. According to the model, people are more likely to attribute blame when they perceive that the perpetrator had control over the outcome and when the action or inaction evokes a negative evaluative response (Alicke et al., 2008; Murray et al., 2023). This includes considering factors such as the causal influence of the perpetrator, whether the outcome was brought about intentionally and the presence or absence of mitigating circumstances. Notably, the mutability of the outcome, how easily it can be imagined as having been avoided, only influences blame judgements when there is a perceived moral failing (Murray et al., 2023). For instance, when harm results from negligence, recklessness or malicious intent and the outcome is seen as

avoidable, blame is intensified. Conversely, if the perpetrator is judged to have taken reasonable precautions, the potential avoidability of the event plays a minimal role in blame attribution. Thus, blame is not determined only by the outcome itself, but by an interplay between control, preventability and the actor's perceived moral responsibility (Alicke et al., 2008; Murray et al., 2023).

Based on the ideas previously explained that 'what-if' thoughts often trigger emotional reactions like regret blame or guilt (Alicke et al., 2008) and that in a foreign language, the emotional weight of these thoughts is often less intense (Costa et al., 2014), it is plausible to assume that 'what-if' thoughts can also be influenced by the language in which they are generated.

Current research

The aim of this study is to (1) investigate the influence of the language effect on 'what-if' thoughts and the attribution of blame and (2) investigate the influence of cultural differences on the attribution of blame. More specifically this study will test the following hypotheses:

Hypothesis 1: Participants in the L1 condition (Spanish) will attribute higher blame to others, compared to participants in the L2 condition (English).

In addition to the effect of language, an effect of scenario content is also expected. In the mutable scenario, it becomes clear that the tutor could have influenced the outcome, which makes it more likely that a harmful outcome could have been prevented, while in the immutable scenario this is not the case. This leads to the following hypothesis:

Hypothesis 2: Blame attribution to the tutor will be higher in the mutable condition than in the immutable condition, regardless of the language condition.

Next to the influence of mutability and language, there is also an interaction between these two expected. Based on the idea that counterfactual thinking often triggers emotional

reactions and that in a foreign language, the emotional weight of these thoughts is often less intense, this leads to the following hypothesis:

Hypothesis 3: Participants in L1 condition (Spanish) who evaluate the mutable scenario will assign higher blame to the tutor than participants who evaluate the same mutable scenario in the L2 condition (English), while the difference in blame assignment between the mutable and immutable scenarios is reduced in the L2 condition (English) due to the FLE.

Lastly, next to the effect of language and scenario content, it is also expected that a difference in culture influences how people assign blame. In this study the participants are mainly from Mexico and Spain. Based on the idea that collectivistic cultures place greater emphasis on social obligations, mutual support and helping others the following hypothesis is tested:

Hypothesis 4: Participants from Mexico, representing a more collectivistic culture, will assign more blame to the tutor, compared to participants from Spain, who come from a more individualistic culture.

Methods

Participants

The study initially recruited 629 participants primarily from Spain and Mexico through the online platform Prolific. After implementing robust bot detection protocols, 17 bot accounts were identified and removed from the dataset. Next to this 17 people were excluded because they did not pass the control checks or did not give permission on the consent form. The final analytical sample comprised 595 valid participants between 19-66 years of age, who were native Spanish speakers with an intermediate to advanced English proficiency. 298 participants completed our questionnaire in English (L2 condition) and 297 participants in Spanish (L1 condition). All participants were evenly distributed across the *mutable* ($n = 314$) and *immutable* ($n = 281$) experimental conditions. In terms of nationality,

the majority of the participants were from Mexico ($n = 387$, 65.2%) or Spain ($n = 202$, 34.0%) and a few participants indicated that they have another nationality ($n = 5$, 0.8%). Most participants reported residing in either Mexico ($n = 386$, 64.9%) or Spain ($n = 209$, 35.1%). While the study used an educational scenario, participation was open to both students and non-students, as long as they met the age and language criteria. All participants received monetary compensation upon completion.

Exclusion criteria included never using one of the two languages and being flagged by the control checks. These checks were used to assess whether participants were paying attention or not by asking the participants to choose a specific answer option. Demographic data has been collected, such as age, gender, nationality and country of residence, English proficiency level and the frequency of English use. Participants have been provided with an informed consent sheet. This was to ensure that they were aware of their rights, including the ability to withdraw at any time and confirming the confidentiality and anonymity of their response.

Design

This study used a between-subjects experimental design. Participants from a convenience sample either answered the online questionnaire in Spanish as their native language, or in English as their foreign language. Upon participating in the study, the participant has been presented with a scenario followed by being randomly assigned to either one of the two outcomes. Afterwards, the participant was asked to evaluate this scenario on a quantitative questionnaire. This study followed a 2(language) x 2(outcome) design. Language (Spanish or English condition) and outcome (mutable or immutable condition) are the two independent variables, and the amount of blame attribution is the dependent variable. Additionally, English proficiency and demographic information of the participants have been collected to control for possible confounding variables. This study has been approved by the

ethics commission at the University of Groningen in accordance with EC-BSS guidelines for low-risk studies.

Materials and Measures

In this study, we used a two part survey presented in either the participants' native language (Spanish) or foreign language (English) which makes up one of the two factors with 2 levels. The survey had an approximate duration of 8 minutes.

Demographics and Foreign language learning (FLL)

Firstly, information about certain demographics, including gender identity, age, nationality and country of residency, was collected. In addition, we asked for the parents' native language, hereby focusing on our languages of interest individually: Spanish and English. FLL was assessed by asking multiple questions, including frequency of use in daily life, self-described proficiency, age of acquisition, and setting where most of the language skills were learned. The answer options and scales can be found in appendix A.

The counterfactual scenario

The scenario was divided into two parts. First, all participants read a general backstory set in a university context about a student, Nora, preparing for an important exam and relying on a tutor, Damian, who was asked for help. He was portrayed as negligent and did not read her email. Secondly, participants were randomly assigned to one of the two different outcomes that were evenly distributed, making up the other factor with 2 levels. In both possible outcome versions, the student failed her exam and was emotional because of the high stakes of the exam. The difference in the randomized scenario options was the increase in the possibility of a different outcome for Nora's situation. This was operationalized by stating that she knows for a fact she would (mutable condition) or would not have passed (immutable condition) with the help of her tutor. Here are the two different conditions. All scenario parts can be found in appendix A.

Blame attribution and Sympathy

Blame attribution and sympathy was measured by six questions about how participants assign blame to Damian as well as Nora and their sympathy towards Nora, as well as help expectancy. An example is: “Damian is to blame for Nora’s bad grade”. The questions were asked on a Likert scale from 1 (‘strongly disagree/not at all’) to 5 (‘strongly disagree/extremely’). For each of the current and following questions, with the exception of the ”Halo Effect” scale, the reaction time was measured. The questions of this part can be found in appendix A.

Emotionality

Additionally, we measured the extent how emotional/personal the scenarios felt to the participants. This was done on the same scale as the previous part. The question of this part can be found in appendix A.

Halo effect

This part starts with a reminder of Nora’s attribute from the scenario, described as “hard working”, and is followed by eight adjectives, like “kind”, or “dedicated”, that needed to be rated on a 5-point Likert scale from 1 (‘not at all likely’) to 5 (‘extremely likely’) in response to the question whether Nora is likely to possess these traits. We also included a plausibility check here to ensure participants perceived the scenario as realistic. This was asked as: “The scenario is plausible/realistic to me” scaled on a 5-point Likert scale from (‘not at all’) to 5 (‘very much’). Response time was not measured here. All details of this part can be found in appendix A.

Correspondence Bias and Likeability

The next nine battery statements had to be rated on a 5-point Likert scale from 1 (‘not at all’) to 5 (‘very much’), in response to being asked how much they apply to the scenario. The statements centered around different correspondence manipulations about Damian and

oneself, like “Damian’s failure to help was due to his personality”, and likeability, like “I think Damian is a likeable person”. We included one control check and response time was measured again. All details of this part can be found in appendix A.

Cultural Influence

Cultural influence was assessed by using participants’ nationality as an indirect indicator of cultural orientation. Specifically, participants who identified as Mexican were assumed to represent a more collectivistic cultural background and participants from Spain a more individualistic background (Hofstede, 2001). Participants reported their nationality at the beginning of the questionnaire and responses were coded into two groups: Mexico and Spain. These groups were then compared in terms of blame attribution to assess whether cultural background influenced the extent to which participants assigned blame to the tutor.

Validity and Reliability

Generally, since the study focused on subjective moral judgments rather than standardized psychological constructs, traditional measures of validity and reliability did not directly apply. For the internal consistency of the blame measure used in the analysis (consisting of “Damian is at fault for Nora’s bad situation” and “Damian is to blame for Nora’s bad grade”), the correlation between the two items was calculated. The two items showed a significant positive correlation with $r = 0.67$, and $p < 0.001$, which suggests acceptable item agreement.

Procedure

On the online platform Prolific, the participants could either sign up for the Spanish version of the questionnaire (native language condition: L1) or English (foreign language condition: L2). These were the two language conditions. If a participant signed up for the Spanish version, they were not able to sign up for the English version, and vice versa. After signing up, the participants were directed to our questionnaire on Qualtrics

(www.Qualtrics.com). They could participate in their own time on a device of their choice. First, they were asked to read the information about the research and then guided to the consent form (Appendix A and B). Only the participants who gave informed consent could continue with the questionnaire. Following the questions of demographic information, they were randomly assigned to either the immutable condition or the mutable condition. The last part of the questionnaire consisted of rating scales that measured moral judgement. This included questions about the amount of assigned blame (to both the tutor and student). These responses were timed. Lastly, a plausibility check was conducted to see if the scenario was believable, which was measured on a 1-5 Likert scale with “completely disagree” as 1 and “completely agree” 5. At the end of the study, the participants were thanked and given the opportunity to contact the researchers for more information.

Results

Our dependent variable is *blame attribution* and our between factor variables are *language* (L1 Spanish or L2 English) and *condition* (mutable or immutable). Blame attribution is a quantitative variable computed as the sum of 2 questionnaire items, each rated on a 5-point Likert scale. The variable *language* is a binary variable coding for English or Spanish and the variable *condition* is a binary variable coding for mutable or immutable.

Assumptions Main Analysis

For our main analysis we conducted a univariate Analysis of Variance (ANOVA). Prior to conducting the 2x2 ANOVA relevant assumptions were examined. Levene’s test for equality of variances was significant, $F(3, 591) = 11.72, p < .001$, indicating a violation of the homogeneity of variances assumption. Despite this, the ANOVA was conducted because the analysis is generally robust to such violations when group sizes are relatively equal. In our study, group sizes were ranging from 281 to 314, which is reasonably balanced to proceed with the analysis.

The Shapiro-Wilk tests of normality indicated significant deviations from normality in all conditions: L1 Spanish, $W = 0.81, p < .001$; L2 English, $W = 0.72, p < .001$; mutable condition, $W = 0.78, p < .001$; immutable condition, $W = 0.78, p < .001$. The QQ-plots for all conditions also showed that data points deviated from the diagonal line (figure 1 appendix B), indicating that the assumption of normality was violated. Histograms for all conditions showed pronounced skewness in the data distribution (figure 2 appendix B). Despite these significant results, given the large sample size these deviations are not considered as serious concerns and we proceeded the analysis. However, results should be interpreted with caution.

Testing Hypothesis 1

For hypothesis 1 we used a univariate ANOVA to test whether participants in the L1 condition (Spanish) condition attributed more blame to Damian compared to participants in the L2 condition (English). There was a significant main effect for language $F(1, 591) = 14.77, p < .001$ (table 3 appendix C), indicating that there is a statistically significant difference between the two language groups.

To check in which language condition the blame attribution to Damian was higher, we looked at the means and standard deviations in both groups (table 1). This showed that blame attribution was significantly higher in the L2 English condition ($M = 1.74, SD = 0.86$) than in the L1 Spanish condition ($M = 1.49, SD = 0.72$), $t(593) = 3.892, p < .001, d = .319$, which is the opposite of what we expected in hypothesis 1. The partial $\eta^2 = .024$ is an indication that around 2.4% of the variance in blame assignment is explained by language condition, after accounting for mutability and the interaction (table 3 appendix C).

Table 1*Means and Standard Deviations for Blame Attribution in Different Conditions.*

Variable	Condition	Level	M	SD
Blame assignment	Language	Spanish	1.49	0.72
		English	1.74	0.86
	Mutability	Mutable	1.68	0.89
		Immutable	1.54	0.70
	Interaction	Spanish * Mutable	1.50	0.73
		English * Mutable	1.86	0.99
		Spanish * Immutable	1.47	0.71
		English * Immutable	1.61	0.68

Note. M = Mean; SD = Standard Deviation.

As mentioned earlier the assumptions for homogeneity and normality were violated. Therefore we also conducted an alternative non-parametric analysis, without assuming homogeneity and normality. The Mann-Whitney U test also revealed a statistically significant difference in blame assignment between the two language groups; $U = 36,448.50$, $Z = -4.00$, $p < .001$, $r = -.16$, also indicating that participants in the L2 English condition attributed more blame than participants in the L1 Spanish condition.

Testing Hypothesis 2

For hypothesis 2 we used a univariate ANOVA to test whether participants in the mutable condition attributed more blame to Damian compared to participants in the immutable condition. There was a significant main effect for condition $F(1, 591) = 4.93$, $p =$

.027 (table 3 appendix C), indicating a significant influence of mutable or immutable condition.

To check in which condition most blame was attributed to Damian we looked at the means and standard deviations in both groups (table 1). Participants in the mutable condition ($M = 1.68$, $SD = 0.89$, $N = 314$) assigned significantly more blame than those in the immutable condition ($M = 1.54$, $SD = 0.70$, $N = 281$). This suggests that mutability of the situation influenced participants' blame judgments, which is in line with our hypothesis 2.

However, for hypothesis 2 we also conducted the Mann-Whitney U test as alternative analysis because of violation of homogeneity and normality assumptions. In contrast, this test did not reveal a statistically significant difference in blame assignment between the two mutability conditions; $U = 41,677.00$, $Z = -1.25$, $p < .211$, $r = -.05$, indicating that participants in the mutable condition attributed similar levels of blame as participants in the immutable condition.

Testing Hypothesis 3

The interaction between language and condition was not significant $F(1, 591) = 2.98$, $p = .085$ (table 3 appendix C), indicating that the effect of condition on blame attribution did not significantly differ between the two language groups. However, the pattern of means (table 1) suggested that the difference between the mutable and immutable conditions was more pronounced in the English condition ($M = 1.87$, $SD = 0.99$ vs. $M = 1.61$, $SD = 0.68$) than in the Spanish condition ($M = 1.50$, $SD = 0.71$ vs. $M = 1.47$, $SD = 0.72$), which is the opposite of what we expected in hypothesis 3.

Assumptions Subanalysis

Prior to conducting the 2x2x2 ANOVA for the subanalysis we examined the relevant assumptions. Levene's test for equality of variances in both language conditions combined was significant, $F(7, 598) = 8.25$, $p < .001$, indicating a violation of the homogeneity of

variances assumption. Furthermore, group sizes were considerably unbalanced (ranging from 32 to 220), which compromises the robustness of the ANOVA.

The Shapiro-Wilk tests of normality indicated significant deviations from normality in both nationality conditions: Spain, $W = 0.85, p < .001$; Mexico, $W = 0.71$. The QQ-plots for both nationality conditions also showed that data points deviated from the diagonal line, indicating that the assumption of normality was violated. Histograms for both conditions showed pronounced skewness in the data distribution (figure 3 appendix B). As mentioned before, group sizes were considerably unbalanced (ranging from 32 to 220). Therefore, results should be interpreted with caution.

Testing Hypothesis 4

We used a univariate 2x2x2 ANOVA to test hypothesis 4, whether participants from Mexico attributed more blame to Damian compared to participants from Spain. Across both versions of the survey we found a significant main effect for nationality $F(1, 583) = 8.93, p < .001$ (table 4 appendix C), indicating that there is a statistically significant difference in blame assignment between the two nationality groups. We also found a significant interaction effect between language and mutability, $F(1, 583) = 5.32, p = .021$, indicating that the effect of mutability on blame assignment depends on language and vice versa.

To test from which nationality participants attributed most blame to the tutor we looked at the means and standard deviations in both nationality groups (table 2). We found that Spanish participants assigned significantly more blame ($M = 1.60, SD = 0.78$; $M = 2.04, SD = 0.96$; $M = 1.77, SD = 0.93$; $M = 1.81, SD = 0.76$) to the tutor compared to Mexican participants ($M = 1.47, SD = 0.78$; $M = 1.76, SD = 1.01$; $M = 1.38, SD = 0.59$; $M = 1.44, SD = 0.56$), which is the opposite of what we expected in hypothesis 4. The partial $\eta^2 = .031$ is an indication that around 3.1% of the variance in blame assignment is explained by nationality, after accounting for language, mutability and the interactions (table 4 appendix C).

Table 2*Means and Standard Deviations for Blame Attribution in Different Nationalities.*

Nationality	Conditions							
	L1 * mutable		L2 * mutable		L1 * immutable		L2 * immutable	
	M	SD	M	SD	M	SD	M	SD
Mexico	1.47	0.70	1.76	1.01	1.38	0.59	1.44	0.56
Spain	1.60	0.78	2.04	0.96	1.77	0.93	1.81	0.76

Note. M = Mean; SD = Standard Deviation.

Plausibility Check

To ensure the scenario was perceived as realistic, a plausibility check was included using a 1-5 Likert scale. A one sample t-test with a neutral midpoint of 3 indicated that participants in the Spanish condition ($M = 4.29$, $SD = 0.75$) rated the scenario as slightly more plausible than participants in the English condition ($M = 4.15$, $SD = 0.78$). Specifically, plausibility ratings were significantly higher than the midpoint in both the Spanish, $t(296) = 29.62$, $p < .001$, $d = 0.75$, and English condition, $t(297) = 25.53$, $p < .001$, $d = 0.78$. These findings confirm that the scenario was perceived as realistic in both language conditions.

Discussion

The current study aimed to investigate whether the Foreign Language Effect (FLE) extends to counterfactual ‘what-if’ thinking and blame attribution, and whether cultural background influences moral evaluations. Four hypotheses were tested in the context of a moral scenario involving a tutor’s (in)action and its consequences.

Summary of Findings

Hypothesis 1 predicted that participants in the L2 condition (English) would attribute less blame to the tutor than participants in the L1 condition (Spanish), based on the idea that using a foreign language reduces emotional engagement (Costa et al., 2014). Contrary to expectations, a significant difference was found between language groups, but in the opposite direction: participants in the English condition attributed more blame to the tutor than those in the Spanish condition. This outcome suggests that the assumed emotional distancing effect of using a foreign language may not directly apply in contexts involving moral judgment and counterfactual reasoning.

Hypothesis 2 proposed that blame attribution would be higher in the mutable scenario than in the immutable scenario, regardless of language, based on the role of mutability in counterfactual reasoning and moral judgment (Alicke et al., 2008; Murray et al., 2023). This hypothesis was supported: participants in the mutable condition attributed significantly more blame to the tutor, suggesting that when harm is perceived as preventable, blame attribution increases, aligning with prior literature. However, after performing the alternative non-parametric analysis, results revealed that blame assignment levels were similar in the mutable and immutable condition.

Hypothesis 3 expected an interaction between mutability and language, such that the highest blame attribution would occur in the mutable-Spanish condition and the lowest in the immutable-English condition. While the interaction was not statistically significant, the pattern of means revealed a trend opposite to expectations: the difference in blame attribution between mutable and immutable scenarios appeared more pronounced in the English (L2) condition than in the Spanish (L1) condition. This may indicate that foreign language use does not universally reduce emotional engagement in counterfactual reasoning.

Hypothesis 4 expected that participants from Mexico, representing a more collectivistic culture, would assign more blame than participants from Spain, due to stronger

cultural expectations around social obligation and helping behavior (Hofstede, 2001; Feinberg et al., 2019). However, our findings again contradicted this prediction: Spanish participants assigned more blame to the tutor than Mexican participants. This may reflect nuanced cultural differences not fully captured by the collectivism–individualism framework or other variables such as legal norms, education systems or differing expectations about authority figures like tutors.

Plausibility Check

A plausibility check confirmed that participants in both language conditions found the scenario realistic, however, in the Spanish version this was significantly higher than in the English version. This could possibly be due to a better understanding of the scenario in the native language. While the study assumed participants had sufficient proficiency in English to engage meaningfully, language proficiency levels were not formally assessed. Variations in proficiency may have influenced comprehension or cognitive load, potentially confounding the FLE.

Limitations and Future Directions

A notable limitation of the study concerns the overall low levels of blame attribution across all conditions. Mean blame ratings did not exceed 2.06 on a 5-point Likert scale, suggesting that the scenario may not have been perceived as strongly blameworthy, even in the mutable condition. This could indicate that the scenario lacked sufficient moral weight to elicit blame attribution. Next to this it could also indicate that more clarity is needed regarding the tutor's role and responsibility. Future research should consider increasing the moral weight of the scenario, possibly using a different scenario context that increases the perceived severity of harm and may elicit stronger emotional reactions. Furthermore, it would be recommended to pretest the scenario to ensure that the scenario is perceived as blameworthy.

Regarding mutability, our main analysis revealed that participants in the mutable condition attributed more blame than participants in the immutable condition. This is in line with the idea that when harm is perceived as preventable, blame attribution increases (Alicke et al., 2008). A strength of our research is that we used this well-studied concept to shape our scenarios with similar counterfactual thoughts as used in existing literature. However, our alternative non-parametric analysis did not replicate this difference between mutability conditions, showing similar blame levels in the mutable and immutable condition. This could indicate that our mutability manipulation may have had weaker influence than anticipated, suggesting that participants did not consistently perceive the scenario as preventable. Future studies could strengthen the mutability manipulation by introducing more ambiguity in the scenario to elicit stronger counterfactual thinking in blame responses. Next to this, it would also be recommended again to pretest the scenario to ensure that differences in perceived preventability are salient and robust.

Regarding the cultural differences we expected that participants from Mexico, representing a more collectivistic culture, would assign more blame than participants from Spain. Our findings contradicted our expectations potentially reflecting the complexity of attributing collectivist or individualist values to national identity. While Mexico is often categorized as more collectivistic than Spain, this does not automatically translate into greater blame in all scenarios. Spanish participants may have interpreted the tutor's inaction as a violation of professional duty or personal responsibility, while Mexican participants may have viewed the scenario with more tolerance or attributed blame differently based on different contextual expectations. These differences highlight the need for future studies to include additional variables that may help explain cultural variation, such as participants' endorsement of collectivist or individualist values at the individual level, social norms, moral reasoning styles or perceived role obligations.

In short, future studies could expand on our findings by including more emotionally charged and morally relevant scenarios regarding blame assignment. It would be recommended to strengthen mutability manipulation by introducing more ambiguity to elicit stronger counterfactual reasoning. Next to this, it would be beneficial to assess individual differences in language proficiency to better understand how participants reason about blame and counterfactuals in different languages. Regarding cultural differences there is a need for future studies to include additional variables that may help explain cultural variation. Investigating these processes in additional cultural contexts beyond Spain and Mexico would offer a richer picture of how language and culture interact in shaping moral judgment. Lastly, it would be recommended to pretest the scenarios to ensure blame responses and perceived preventability.

References

- Alicke, M. D., Buckingham, J., & Davis, T. (2008). Culpable control and counterfactual reasoning in the psychology of blame. *Personality and Social Psychology Bulletin*, 34(10), 1371–1381. <https://doi-org.proxy-ub.rug.nl/10.1177/0146167208321594>
- Barrouillet, P. (2011). Dual-process theories and cognitive development: Advances and challenges. *Developmental review*, 31(2-3), 79-85.
<https://doi.org/10.1016/j.dr.2011.07.002>
- Circi, R., Gatti, D., Russo, V., & Vecchi, T. (2021). The foreign language effect on decision-making: A meta-analysis. *Psychonomic Bulletin & Review*, 28(4), 1131–1141.
<https://doi.org/10.3758/s13423-020-01871-z>
- Costa, A., Foucart, A., Hayakawa, S., Aparici, M., Apesteguia, J., Heafner, J., & Keysar, B. (2014). Your morals depend on language. *PLOS ONE*, 9(4).
<https://doi.org/10.1371/journal.pone.0094842>
- Feinberg, M., Fang, R., Liu, S., & Peng, K. (2019). A world of blame to go around: Cross-cultural determinants of responsibility and punishment judgments. *Personality and Social Psychology Bulletin*, 45(4), 634–651.
<https://doi.org/10.1177/0146167218794631>
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Sage Publications.
- Keysar, B., Hayakawa, S. L., & 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.proxy-ub.rug.nl/10.1177/0956797611432178>

- Murray, S., Krasich, K., Irving, Z., Nadelhoffer, T., & De Brigard, F. (2023). Mental control and attributions of blame for negligent wrongdoing. *Journal of Experimental Psychology: General*, 152(1), 120–138. <https://doi.org/10.1037/xge0001262>
- Roese, N. J. (1997). Counterfactual Thinking. *Psychological Bulletin*, 121(1), 133–148. <https://doi.org/10.1037/0033-2909.121.1.133>
- Weiner, B. (1995). *Judgments of responsibility: A Foundation For a Theory of Social Conduct*. New York, NY: Guilford Press

Table of Contents Appendix

Appendix A.....	28
English version of the questionnaire.....	28
Appendix B.....	36
Figure 1.....	36
Figure 2.....	37
Figure 3.....	38
Appendix C.....	39
Table 3.....	39
Table 4.....	39
Appendix D.....	40
Acknowledgements.....	40

Appendix A

English version of the questionnaire

General Information about the Research:

Why do I receive this information?

You are invited to participate in the research “Reflecting on what could have been.”. This information is to inform you about what you can expect from this specific research. The topic of the research is how people evaluate unexpected situations in daily life and how they view the people involved. This research plan has been approved by the Ethical Committee Psychology. This research is conducted by Kai Epstude, Naomi Meijnen, Britt Hollander, Elias Eckardt, Monja Rinke, Anna de Wind, & Lara Bakker (University of Groningen)

Do I have to participate in this research?

Participation in the research is voluntary. However, your consent is needed. Therefore, please read this information carefully. If there is something unclear, or you have questions about the research, please contact k.epstude@rug.nl before participating. Only afterwards you decide if you want to participate. If you decide to not participate, you do not need to explain why, and there will be no negative consequences for you. You have this right at all times, including after you have consented to participate in the research.

Why this research?

The topic of the research is how people evaluate unexpected events in daily life and how they view the people involved. It will help to get a fuller understanding of how individuals form impressions of such situations.

What do we ask of you during the research?

After agreeing to the information and signing the informed consent, an online questionnaire will take place. There are no wrong answers, and you should not have to think

about any negative consequences for any of your answers. Please answer the questions in the questionnaire based on your own opinion. The research will take around 10 minutes of your time. You will be compensated via Prolific.

What are the consequences of participation?

As a participant in this study, you will be compensated via Prolific. There are no known risks to participation beyond those encountered in everyday life and the time that will be invested.

How will we treat your data?

Your data will be collected from the questionnaire. The measured traits cannot be linked to any personal information. We will have no direct access to directly identifying information (names, email addresses) and we will ensure privacy by keeping the data confidential. The only personal information that will be asked for during data collection are age, nationality and gender. We are not able to identify individual participants based on that, given that we have no access to information like names and emails for participants in the Prolific participant pool.

What else do you need to know?

You may always ask questions about the research: now, during the research, and after the end of the research. You can do so by emailing (k.epstude@rug.nl). Do you have questions or concerns regarding your rights as a research participant? For this you may also contact the Ethics Committee of the University of Groningen: ecp@rug.nl.

Do you have questions or concerns regarding your privacy, or regarding the handling of your personal data? For this you may also contact the Data Protection Officer of the University of Groningen: privacy@rug.nl.

As a research participant you have the right to a copy of this research information.

Informed Consent (for Participants Aged 18 Years or Older)

I have read the information about the research. I have had enough chances to ask questions about it. I understand that at the end of the research, there is room for further questions. I understand what the research is about, what is being asked of me, which consequences participation can have, how my data will be handled, and what my rights are. I understand that participation in the research is voluntary. I understand that my responses will be kept confidential. I myself choose to participate. I can stop participating at any moment. If I stop, I do not need to explain why. Stopping will have no negative consequences for me. By proceeding to the next page, I acknowledge that I have read the information and consent to participate in the study. (Please close this window if you do not want to participate in this research).

- ☐ Yes, I give my consent and wish to proceed.

Demographic Information

1. Which gender identity do you most identify with?

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ Prefer not to say

2. What is your current age?

3. What is your nationality?

- ☐ Spain
- ☐ Mexico
- ☐ Other _____

4. Which country do you currently reside in?

- ☐ Spain

- ☐ Mexico
- ☐ Other _____

5. Is the native language of your parents Spanish?

- ☐ Yes, of both my parents
- ☐ Yes, of my mother
- ☐ Yes, of my father
- ☐ No
- ☐ Other _____

6. Is the native language of your parents English?

- ☐ Yes, of both my parents
- ☐ Yes, of my mother
- ☐ Yes, of my father
- ☐ No
- ☐ Other _____

Language Characteristics

We would now like to ask you to answer some questions about using the English language.

1. How often do you use English in your daily life?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Daily

2. How would you describe your English proficiency?

- ☐ Terrible
- ☐ Poor

- Average
- Good
- Excellent

3. At around what age did you actively start to learn English? (In Years)

4. Where did you acquire most of your English skills? (Multiple answers possible)

- ☐ Formal education (school/university)
- ☐ Self-study (books, apps, online courses, etc.)
- ☐ Living in an English-speaking country
- ☐ Speaking with native speakers (friends, family, colleagues, etc.)
- ☐ Media (movies/shows, music, video games)
- ☐ Using English at work/daily life
- ☐ Other: _____

Instruction for Reading

Now, please read the scenario presented on the next page carefully.

Scenario Part: 1

Nora is a student who is studying for her final exam of her dream study. It is really important for her to get a good grade in order to graduate this year and get into a master's program. Nora is a hard-working student who is passionate about the course. She has been keeping up with the material the entire semester. For this last exam she needs some help with studying for this exam from her reliable tutor Damian. He has helped her in the past too with several courses.

Damian is her tutor. Throughout Nora's study he has helped her for several courses. A week before Nora's last exam he received an email from her asking for his help. He saw the email coming in, but did not open it because he had his mind somewhere else. This was because he was playing a game on his phone. Nora never received his help.

Scenario Part: 2

(Mutable Outcome Condition)

Nora has waited for two weeks and today she got her grade back from the exam. She clicks on the link online and finds out she failed the important course. Nora is devastated, because this means she will not be able to graduate this year. However, upon going to the exam review, she realized that she would have definitely passed with the help from Damian.

(Immutable Outcome Condition)

Nora has waited for two weeks and today she got her grade back from the exam. She clicks on the link online and finds out she failed the important course. Nora is devastated because she will not be able to graduate this year. However, upon going to the exam review, she realized that she would not have passed even with the help from Damian.

Timer

All of the following questions were timed: Timer 1 measured the first click, Timer 2 the last click, Timer 3 when the page was submitted and the click count was also measured.

Moral Judgement and Blame Assignment Questions

How much do you agree with the following statements? Click to the next page for each new statement.

These questions were measured on a Likert Scale from 1 to 5, with the following answer options: 1) strongly disagree, 2) somewhat disagree, 3) neither agree nor disagree, 4) somewhat agree and 5) strongly agree:

1. Damian is to blame for Nora's bad grade
2. Nora is to blame for her bad grade
3. Nora could have expected Damian's help

4. Damian should have helped Nora
5. I feel bad for Nora

These questions were measured on a Likert Scale from 1 to 5, with the following answer options: 1) not at all, 2) slightly, 3) moderately, 4) very and 5) extremely:

6. Damian is at fault for Nora's bad situation
7. How emotional/personal did the scenario feel to you? (*Emotionality check*)

Measurement of Halo Effect

Based on the scenario describing Nora as a "hard working", how likely is it that she possesses the following character traits?

These questions were measured on a Likert Scale from 1 to 5, with the following answer options: 1) not at all, 2) slightly, 3) moderately, 4) very and 5) extremely:

- 1) Kind, 2) Dedicated, 3) Ambitious, 4) Adventurous, 5) Empathetic, 6) Disciplined, 7) Reliable and 8) Charismatic.

These questions also contained a control check: 'Pick "slightly likely" for this question.'

Measurements of Correspondence Bias and Likeability

How much do you think the following statements apply to the scenario?

These questions were measured on a Likert Scale from 1 to 5, with the following answer options: 1) not at all, 2) not really, 3) neutral, 4) somewhat and 5) very much.

The questions measuring either the correspondence bias or the likeability scores of Damian alternated and also included a control check and a plausibility check:

1. Damian's failure to help was due to his personality. (*Correspondence bias*)
2. I think Damian is a likeable person. (*Likeability Damian*)
3. Damian's failure to help was due to the situation. (*Correspondence bias*)

4. Damian's behavior reflects a general pattern of his personality. (*Correspondence bias*)
5. I believe Damian is a sympathetic person. (*Likeability Damian*)
6. External factors influenced Damian's decision. (*Correspondence bias*)
7. Pick "Somewhat" for this question (*Control check*)
8. I have warm feelings about Damian. (*Likeability Damian*)
9. I would blame myself for not responding,
if I was in a situation like Damian. (*Hypothetical
self-blame*)
10. The scenario was plausible/realistic to me. (*Plausibility check*)

Final Page

We thank you for your time spent taking this survey. Your response has been recorded. Please click "continue" to return to Prolific.

Appendix B

Figure 1

QQ-plots for Normality Assumption Mainanalysis

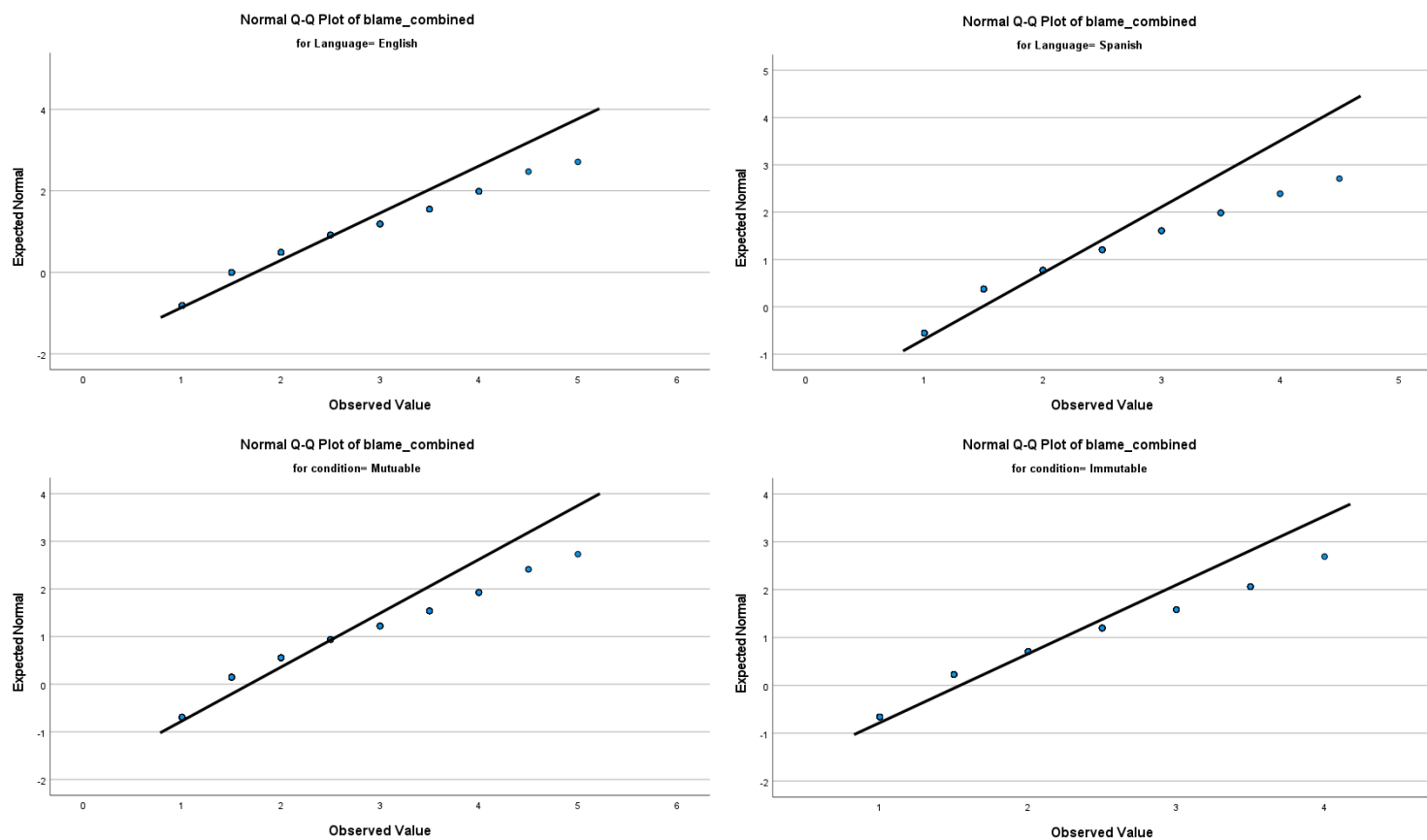


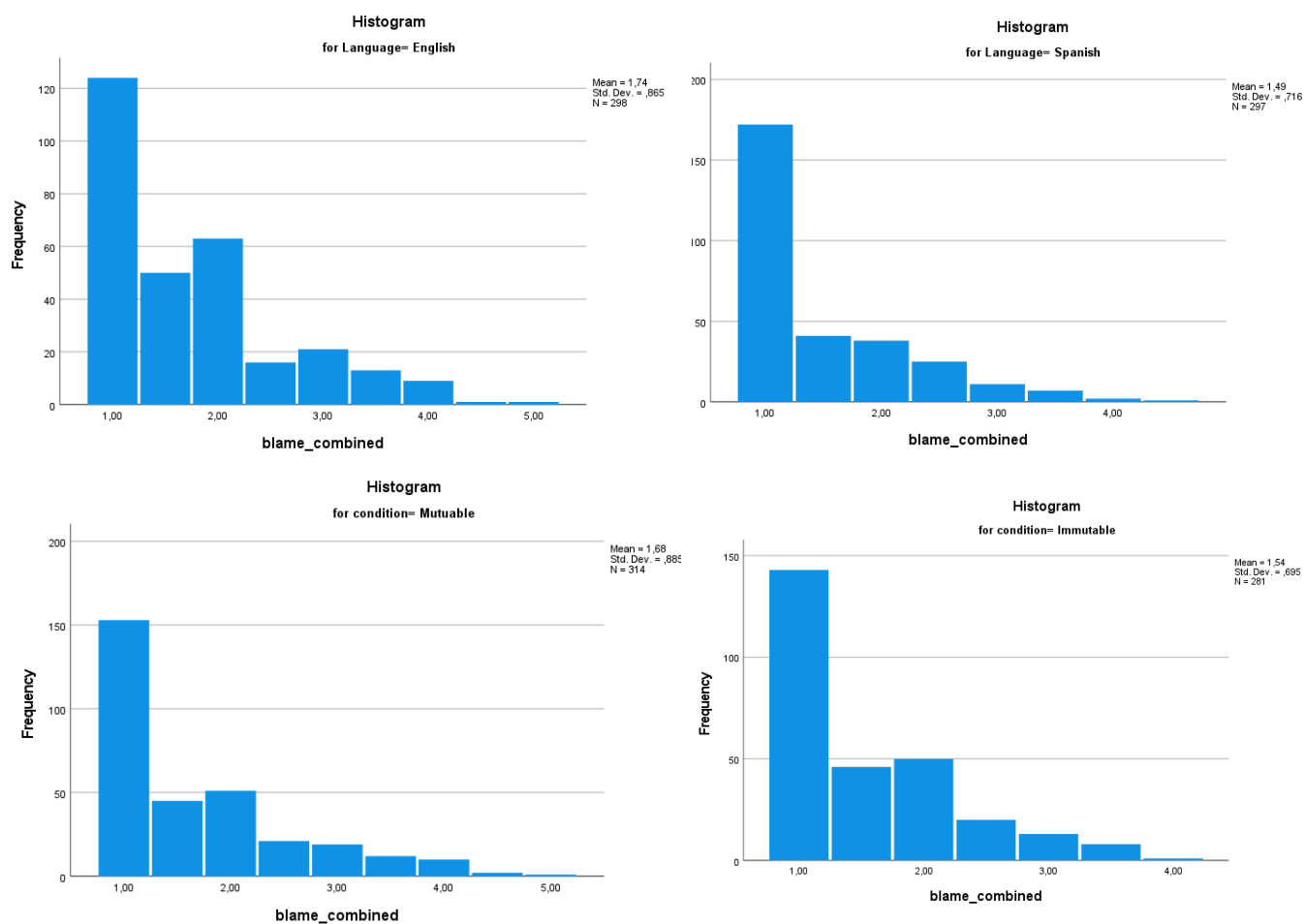
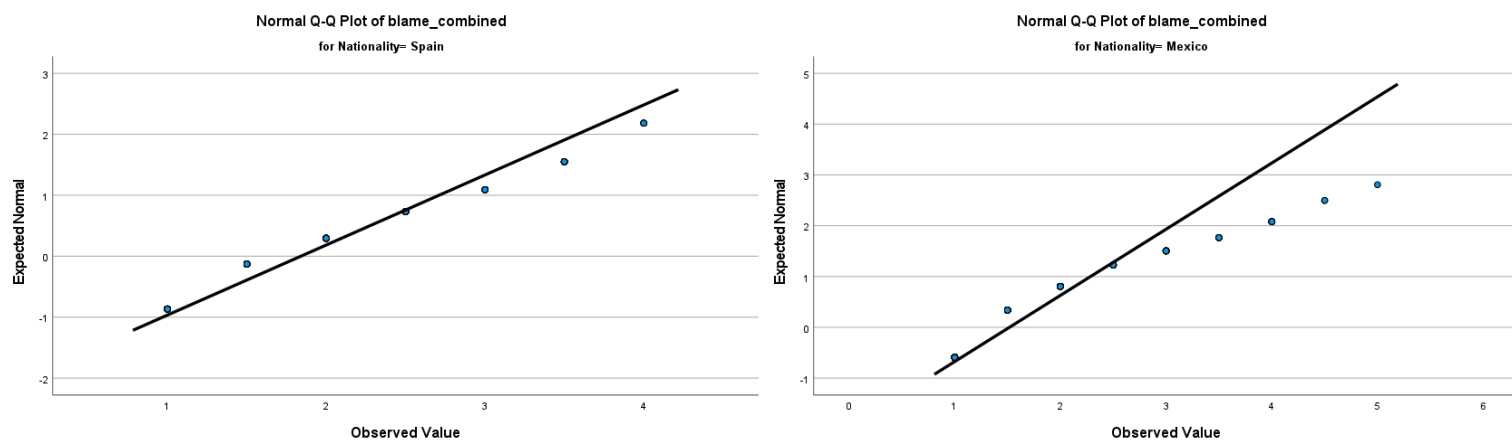
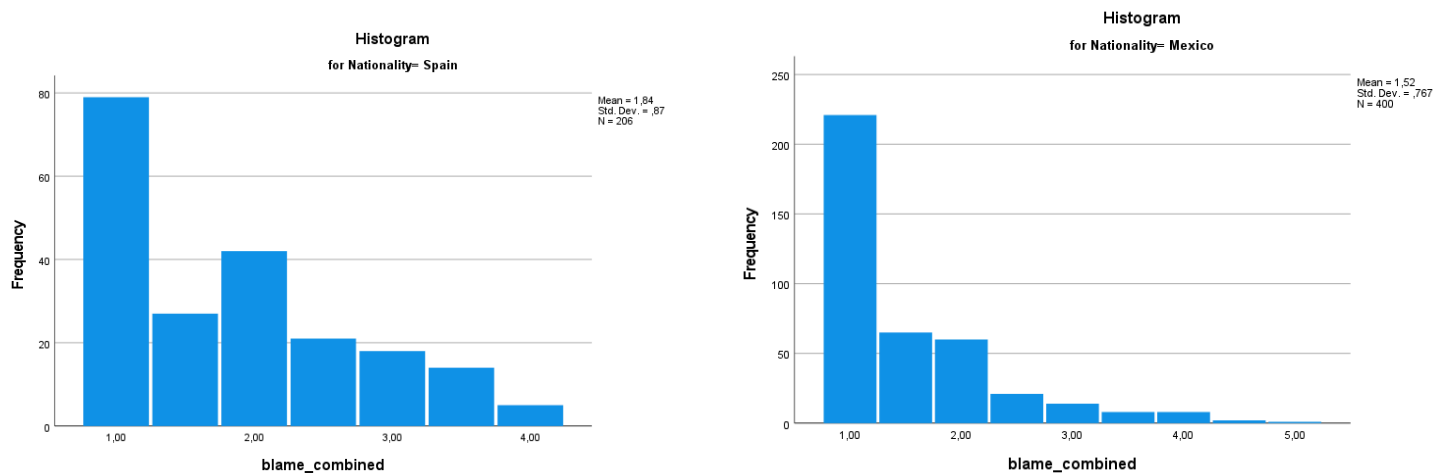
Figure 2*Histograms for Data Distribution Mainanalysis*

Figure 3*QQ-plots for normality assumption subanalysis**Histograms for data distribution subanalysis*

Appendix C

Table 3

2x2 ANOVA table for Blame Assignment by Language and Mutability

Source	SS	df	MS	F	p	η^2p
Language	9.22	1	9.22	14.77	<.001	.024
Mutability	3.08	1	3.08	4.93	.027	.008
Language * Mutability	1.86	1	1.86	2.98	.085	.005
Error (within)	368.86	591	0.62			
Total	1935.50	595				

Table 4

2x2x2 ANOVA table for Blame Assignment by Language, Mutability and Nationality

Source	SS	df	MS	F	p	η^2p
Language	0.02	1	0.02	0.04	.851	5.63×10^{-6}
Mutability	0.28	1	0.28	0.47	.495	7.89×10^{-4}
Nationality	10.87	2	5.44	8.93	<.001	.031
Language * Mutability	3.24	1	3.22	5.32	.021	.005
Language * Nationality	0.90	2	0.45	0.74	.479	.009
Mutability * Nationality	1.83	2	0.91	1.50	.224	.005
Language * Mutability * Nationality	0.23	1	0.23	0.37	.543	.001
Error (within)	354.96	583	0.61			
Total	1934.50	594				

Appendix D

Acknowledgements

I acknowledge the use of <https://chatgpt.com/> to generate materials for background research and self-study in the drafting of this assessment.

The following prompts were input into ChatGPT: “I’m writing my thesis about the influence of the language effect on counterfactual reasoning and blame attribution, can you help me brainstorm about other interesting topics I could focus on for my research question?” “Can you summarize the main findings of this research paper?”

I acknowledge the use of <https://chatgpt.com/> to generate materials that are included in my work in a modified form.

The following prompts were input into ChatGPT: “Can you give improvements on spelling and grammar mistakes?” “Can you help me write this more academically?”