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Language attitudes and the Foreign Language effect in decision-making

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Abstract

The Foreign Language effect (FLe) refers to the tendency to change one's decisions depending on the language (native vs foreign) in which information is processed. The purpose of this study was to (1) investigate whether the FLe is present within the Puerto Rican bilingual population and (2) explore the relationship between language attitudes and the FLe. Participants in the control group (n=32) completed the decision-making task in Spanish and those in the experimental group (n=32), in English. Participants viewed one version of each of the following three dilemmas: the Trolley dilemma (*Switch* vs *Footbridge*), the Discount dilemma (*Discount on $15* vs *Discount on $125*) and the Asian Disease dilemma (*Gain frame* vs *Loss frame*). Aside from the decision-making task, participants filled out a Language Attitudes questionnaire towards their second language, English. Findings displayed a unique emergence of the FLe in all three dilemmas. As expected, the FLe was present in the Trolley dilemma, reducing the difference in utilitarian choices between both versions in the English group. In the case of the Discount dilemma, results did not replicate previous studies since participants tended to agree more in the *Discount on $125* version. However, there was a language effect since choices were significantly different in the English group. Lastly, the Asian Disease dilemma showed a language effect, but in the opposite expected direction: there was a bigger disparity between versions in the English condition. Language attitudes towards English had a significant effect on decisions only in the Trolley *Switch* version.

I. Introduction

The United Nations (UN) is an international institution with the power to oversee and act over several world issues, such as peace, security, human rights, and terrorism. Most

importantly, the UN is a *multilingual* institution that has six official languages, which perpetuate all types of communication, written and oral (UN, 2019). Therefore, most of the council and committee members who make important, world-wide, critical decisions process information in a foreign language (FL). A question that arises is whether they would have made the same decisions in their FL and in their native language (L1). To what degree do sociocultural, linguistic, and individual factors affect decisions made in FLs? Recently, scholars in psycholinguistics and cognitive psychology have begun to examine such questions.

Foreign Language effect on decision-making

According to dual-system theories of decision-making, when a person makes a decision, two psychological processes are involved. One of them is an unconscious, automatic, intuitive process where most decisions are deontological, meaning they respond to social norms and moral rules. Deontological decisions and judgments are accompanied by high emotional responses. On the other hand, consequentialist decisions are the product of a more controlled, slow, and conscious process. The focus of consequentialist decisions involves cost-benefit reasoning, which is hard to justify using deontological reasons (Corey et al., 2017; Geipel, 2015). For example, the consequentialist view would consider killing one man to save the life of many, while the deontological view would not because killing one man is an inappropriate, unjustifiable, and morally wrong action.

During the past five years, researchers have worked on investigating the Foreign Language effect on decision-making (Corey et al., 2017; Costa, Vives & Corey, 2017; Hayakawa, Costa, Foucart & Keysar, 2016; Geipel, 2015). Their findings point to an inhibitory process where using a FL reduces emotional responses to high emotional stimuli (i.e., a moral dilemma). The effect might be due to the high cognitive demands used in FL processing (Barlotti

& Marian, 2017) which, in turn, promotes the employment of the controlled process for decision-making (Geipel, 2015). Considering the previous example, it is more likely for a person to make a consequentialist decision (i.e., killing a man to save many) when processing such information in a FL than when processing the same information in their L1. However, since the interest in the Foreign Language effect (FLe) is relatively recent, there are still questions as to why and to what extent the effect persists in decision-making (Costa, Vives & Corey, 2017; Polonioli, 2018).This study attempts to contribute to this line of research by including a new population of bilinguals and by examining the role of language attitudes.

Language Attitudes

In the social sciences, attitudes are defined be means of two theoretical approaches. The behaviorist approach suggests that attitudes are studied through a person's responses to social interactions. Meanwhile, the mentalist approach defines attitudes as mental states, the variable between an external stimulus and the subsequent response. The mentalist view subdivides attitudes into three components: cognitive (knowledge), affective (emotion), and conative (action). In the case of language attitudes, the objects are all related to language, such as speech and dialect variations (Giles & Billings, 2004; Ladegaard, 1998) and FLs (Kempsell Jacinto, 2015; Lasagabaster & Sierra, 2009; Ladegaard, 1998).[1]

According to Clift (2016), it was after the 1960s when both sociolinguistics and social psychologists became interested in the study of language attitudes. However, since then, most of the work has centered on the affective aspect of language attitudes, while almost none has incorporated behavioral data (Ladegaard, 2000). A significant relationship between language attitudes and behavioral responses could explain social and individual differences in

[1] For a discussion of additional concepts related to language attitudes, see Coronel-Molina (2009).

psycholinguistic research. Giles and Billings (2004) discussed how language attitudes are "sensitive to local conditions and changes in the sociopolitical milieu" (p. 196). If a language attitude is the mental state between an external stimulus and its response, then the FLe may be influenced by an individual's own attitude towards the FL. Therefore, a Spanish-English bilingual from Spain may have a different experience in decision-making compared to a Spanish-English Puerto Rican bilingual because of the unique sociopolitical situation that permeates language attitudes.

For the purpose of this research, I will integrate language attitudes in the behavioral analysis of the FLe during decision-making. I will investigate the process of decision-making by Spanish-English bilingual Puerto Rican students. Therefore, the analysis for this study will include a between-language analysis (Spanish vs. English) and a within-language analysis of positive and negative language attitudes (i.e., positive attitudes towards English vs. negative attitudes towards English) regarding their decisions when facing moral dilemmas.

II. Previous studies

Research on the FLe has centered mainly on its relationship with moral dilemmas (Corey et al., 2017; Costa et al., 2014b; Geipel, Hadjichristidis & Surian, 2015) and cognitive biases (Ascher et al., 2017; Corey et al., 2017; Costa, Foucart, Arnon, Aparici & Apesteguia, 2014a; Costa et al., 2014b; Costa et al., 2019; Díaz-Lago & Matute, 2019; Gao, Zika, Rogers & Thierry, 2015; Geipel, Hadjichristidis & Surian, 2016; Hadjichristidis, Geipel & Savadori, 2015; Keysar, Hayakawa & An, 2012; Vives, Aparici & Costa, 2018), which play a role in decision-making processes.

Costa et al.'s (2014b) study was the first to detect the FLe in moral dilemmas. In the first of two experiments, the researchers used the *Footbridge* version of the Trolley dilemma, where

participants are asked to imagine they are standing on a footbridge overlooking a train track. A small on-coming train is about to kill five people and the only way to stop it is to push a heavy man off the footbridge in front of the train. This will kill him but save the five people. Then they are asked to decide whether to push the heavy man or let the five people die. Four participant groups were included, all of which were late learners of the second language (L2) who had acquired it through formal instruction: English-Spanish bilinguals in the US, Korean-English bilinguals in Korea, English-French bilinguals in France, and native Spanish or English speakers with L2-Hebrew in Israel. Their results showed that, in all groups, more participants selected the utilitarian choice in the FL condition, which supports their reduced emotional resonance hypothesis of the FLe. However, none of the Korean participants in the L1 chose to push the man off the footbridge, which represents a cultural difference consistent with other studies. Although some Korean participants chose the utilitarian choice, this occurred only in the FL.

In their second study, they addressed the possibility of people choosing randomly in the first study. Therefore, they designed another version of the experiment that elicited a lesser emotional reaction. Instead of pushing off a man to save five people, the participants could choose to pull a lever that would redirect the train to another track, killing only one man. Generally, people choose to pull the lever because it is less emotionally aversive than pushing a man, given that there is greater distance between the action and the consequence. If the FLe is the result of emotional distance, there should not be a language difference in the less emotional lever dilemma. Another issue they wanted to address was the cultural factor in decision-making. It could be argued that because Spanish-speaking societies tend to be more collectivistic than English-speaking societies, any between-participant differences could show a cultural language difference instead of a less emotional reaction. To counteract this effect, the second experiment

crossed the language and nativeness variables, by recruiting Spanish-English and English-Spanish bilinguals who were presented with both the *Footbridge* and the *Switch* dilemma.

The same results from the first experiment were replicated with the *Footbridge* dilemma, with only 18% of participants choosing the utilitarian choice in the L1 condition, compared to 44% of them choosing it in the FL condition. In the *Switch* dilemma, both in the L1 and FL conditions, more than 80% of participants chose the utilitarian option of pulling the lever. Since this scenario presented a less emotional version of the *Footbridge* dilemma and showed no FLe, the explanation of the FLe being due to emotional distance stands true. Regarding the cultural explanation, no specific relation arose between language, nativeness, and utilitarian choices. Participants chose to pull the lever or push the man off the footbridge more often in Spanish (40%) than in English (18%) when Spanish was the FL. Similarly, more utilitarian choices were made in English (47%) as a FL than in Spanish (19%). To further explain the FLe, Costa et al. (2014b) also conducted a post-hoc analysis that divided the foreign groups by level of proficiency. They found that the higher the self-rated proficiency, the fewer utilitarian choices were made in comparison to lower proficiency groups. Thus, a possible explanation is that higher levels of language proficiency may emotionally ground a FL, thus, making it susceptible to intuitive automatic processes.

Geipel et al.'s (2015) study also generated the same pattern of more utilitarian choices in the FL in the *Footbridge* version with University of Trento students in FL courses who received the materials in Italian (L1) or either English or German (L2). Moreover, the results included the same significant correlation between language proficiency and moral judgment as in Costa et al.'s (2014b) study. As further research, they administered the *Footbridge* and *Switch* dilemma to late Chinese-English bilingual students. However, after each dilemma, participants made a

binary (Yes/No) choice regarding the moral permissibility of the proposed action, and then used a more detailed 7-point scale (1=forbidden to 7=obligatory). At the end, participants were asked to rate which dilemma made them feel more distressed, using a 7-point scale. Like the first study, there was a significant FLe in the *Footbridge* dilemma, but not in the *Switch* dilemma. With respect to the perceived moral permissibility of a given action, Geipel et al. (2015) found that participants in the FL perceived consequentialist actions more morally permissible than did their counterparts in the L1. There was also a correlation between language proficiency and moral judgments in the *Footbridge* dilemma given in the FL: the lower the proficiency, the higher the number of consequentialist choices and the rating of moral permissibility. Lastly, the participants reported higher distress in the FL condition than in the L1 for both moral dilemmas. The authors concluded that the attenuation of emotions does not seem to be a probable cause of the FLe in the *Footbridge* dilemma.

Their third study analyzed if the FLe depended on the difference between personal dilemmas (i.e., those that involve the use of personal force or the instrumental use of a persona, e.g., the *Footbridge* one) and impersonal dilemmas (e.g., the *Trolley* one). The researchers created a high-emotion personal dilemma, called the *Crying baby* scenario, where one must choose whether to smother their own child to save themselves and others from being found by enemies, and a low-emotion impersonal dilemma, the *Lost wallet* scenario, which includes a decision to return a wallet full of cash to a wealthy individual. After deciding, participants had to rate the moral permissibility of each action on a 7-point scale. In terms of moral permissibility, across all four dilemmas, participants in the FL provided higher ratings than those in the L1. Once again, the authors found an evident FLe in the *Footbridge* dilemma, but not in the *Trolley* dilemma. Regarding the newly added dilemmas, there was a significant FLe in the *Lost wallet*

scenario, but not in the *Crying baby* scenario, displaying no evidence for a correlation between the FLe and personal-impersonal dilemmas.

On the contrary, Corey et al. (2017) found a FLe and personal-impersonal interaction when they presented Spanish students who were late learners of English as a L2 or L3 (after Catalan) with the *Hospital* dilemma (the participants must choose between letting five patients in a room die because of smoke getting to the room through the hospital ventilation system or pushing a button to divert the ventilation system so that the smoke goes to another room where one patient will die) and the *Terrorist* dilemma (during a negotiation with terrorists, the participants have to choose between shooting one of six tourists in order to save the other five or not shooting any tourist, in which case the terrorist leader will kill five of the six tourists). As expected by the authors, the *Hospital* dilemma findings (i.e., no FLe) resembled those of the *Lever* dilemma because of the similarities the scenarios shared in terms of personal involvement. The *Terrorist* dilemma, however, like the *Footbridge* dilemma, was affected by language.

Corey et al.'s (2017) work showed the scope and the limits of the FLe in moral dilemmas. For example, they investigated the influence of social inferences in the FLe. Decision-making can be altered depending on whether the actors of a dilemma are considered by the participants to be in-group or out-group members. When faced with a dilemma in their L1, participants may assume that the actors are in-group members while, in the FL, they may be considered out-group members. For this study, the actors in the *Footbridge* dilemma were Spanish (i.e., in-group) and those in the *Lever* dilemma were American (i.e., out-group). Results showed, nonetheless, that the magnitude of the FLe was the same regardless of the social inference. However, a limit of the FLe in moral dilemmas is due to framing effects. Corey et al. (2017) presented the *Footbridge* dilemma to Spanish-English students, but, this time, focused on the trade-off between the means

and the consequences proposed in each dilemma. Therefore, in the *Footbridge* dilemma, the final question was "Would you let five people die by pushing off a man?." Interestingly, the FLe was nullified, showing no difference in utilitarian choices between the FL and the L1. Finally, the researchers investigated how the intensity of the consequence, which contributes to high emotional aversion, may impact decision-making in a FL. The intensity refers to the fact that pushing a man will lead to his death (extreme severe consequence) versus it leading to disability (less extreme consequence). By making this small change in the consequence of the action, the emotional reaction was reduced and the FLe disappeared.

Research on the FLe and cognitive biases started with the work of Keysar et al. (2012), in which they studied two cognitive biases: the reversal of risk preferences and myopic loss aversion. The first study investigated the FLe in the reversal of risk preferences using a modified version of the *Asian disease* dilemma, where the government has enough funds for one of two types of medicine and the participant must choose which one. In the gain-frame condition, medicine A will save 200,000 people, while with medicine B there is a 33.33% chance that everyone will be saved and a 66.66% that no one will. Usually, participants are likely to choose the sure option of saving 200,000 people. However, when medicine A is presented in the loss-frame condition, where 400,000 people will die, participants are more willing to choose medicine B, even though it has the same implications as the first condition. People are biased to stray away from options which are worded in loss terms and are more willing to take a risk. The authors examined whether the use of a FL reduced this decision bias. Keysar et al. (2012) recruited four different sets of late bilinguals which differed in L1 and L2 (1a = L1-English and L2-Japanese, 1b = L1-Korean and L2-English, 1c = L1-English and L2-French; 1d = L1-English and L2-Spanish). They were divided into two linguistic groups, based on the language (L1 or FL) in

which they completed the session. The same pattern emerged in the four experiments. The framing effect was replicated in the L1 session, but it was eliminated in the FL session, demonstrating a reduction in the reversal of risk preference bias.

Further research on the reversal of risk preference bias is found in Costa et al.'s (2014a) study with native Arabic speakers with English or Hebrew as their FL. In addition to the *Asian Disease* dilemma, they also incorporated the *Financial crisis* dilemma which represented the same dilemma but dealt with economic gain and losses rather than human life. The purpose of the *Financial crisis* dilemma was to introduce a problem which elicited a lower emotional reaction (saving jobs versus saving lives). They found the same pattern as Keysar et al. (2012) in both problems. Having proved there is a significant difference in the reversal of risk preference bias, Keysar et al. (2012) further investigated the effect of the FL in decision-making by working with myopic loss aversion, which states that the fear of loss or negative impact outweighs the positive impact of an identical gain. Therefore, people are more willing to keep $10 than bet for the chance of winning $15 or losing everything, even if the chances of winning or losing are 50/50. In experiment 2, L1-Korean students with L2-English participated in a computer design study where they were presented a total of 18 equal-odds bets, all with positive values (i.e., there is always more money to win than lose). The participant could either decline or accept the bet. Half the bets had high stakes (i.e., lose ₩119,000 or win ₩170,000) and the other half had low stakes (i.e., lose ₩200 or win ₩500). Theoretically, there should be more loss aversion to high stakes in comparison to low stakes with an insignificant difference. On average, participants took more bets in their FL than they did in their L1, meaning the myopic loss aversion bias was reduced in the L2-English session. The language factor only affected the high stakes bets since the low stakes generally do not induce loss aversion. Also, in every level of the bet's

attractiveness, participants took more bets in English than in Korean. Thus, no matter if the bet was high or low stake, in every one of the 18 bets, the acceptance rate was higher for English. The same results were found in Ascher et al.'s (2017) study with their betting exercise with eighteen equal-odds gain versus loss bets, half with high-stakes and half with low-stakes, completed by Polish-English and Brazilian Portuguese-English bilinguals.

Costa et al. (2014a) used the Holt-Laury test, which presented ten lottery pairs to the participants to also study the risk or loss aversion behavior in betting behavior. In summary, lottery A involved potential gains of 2€ and 1.60€ while lottery B involved 3.85€ and 0.10€. Every given lottery pair had the same probability of winning the larger and lower price. For example, the participant was given the option of choosing lottery A that gives 2€ one out of ten times and 1.60€ nine out of ten times or lottery B that gives 3.85€ one out of ten times and 0.10€ nine out of ten times. In this case, lottery A presents the most attractive offer with a bigger certain reward. Nonetheless, since the higher gain in the lottery pair increases 1/10 of a probability in each round, lottery B becomes more attractive after every round. Risk attitude was measured by how soon a person started choosing lottery B over A. For this experiment, 300 L1-Spanish students with L2-English were given the Holt-Laury test. The results showed no difference in the first (1, 2, 3, 4) and last (7, 8, 9, 10) four pairs which was expected. However, there was a significant difference in the fifth and sixth lottery pair in which participants in the FL switched sooner to lottery B than their counterparts in the L1. These results suggest the presence of the FLe in risk aversion bias. Moreover, FL participants showed more consistent patterns (less switching back and forth between lottery A and B) than did L1 participants.

Costa et al. (2014a) further addressed the FLe on risk aversion though the Allais paradox, which is designed to study the independence axiom. The axiom states that probabilities should be

taken linearly: if option A is more attractive than option B, then the combination of A and a third option C should be more attractive than the combination of B and C. However, when given this test, most participants violate the independence axiom. Costa et al. (2014a) used the following two questions to replicate the Allais paradox:

Question 1

Consider the following two options, and select the one you prefer:

Option A: gives 500€ with 100% probability.

Option B: gives 2,500€ with 10% probability, 500€ with 89% probability, and 0€ with 1% probability.

Question 2

Consider the following two options, and select the one you prefer:

Option C: gives 500€ with 11% probability, and 0€ with 89% probability.

Option D: gives 2,500€ with 10% probability and 0€ with 90% probability.

If the axiom is not violated, the participant who chooses option A in Question 1 should choose option C in Question 2, the other pair being option B and D. Regarding the FLe, the researchers expected that participants would select option B (the riskier of the two) more in the FL than in the L1 condition. Additionally, the FLe should influence the number of times the axiom is violated, thus creating a more consistent pattern in FL participants. It turned out that FL participants did opt for option B more than the L1 group, but the results failed to support the independence axiom, which the authors consider a sign that the FL may not necessarily prompt logical thinking in all decision contexts.

Another cognitive bias which has been affected by using a FL is psychological or mental accounting. Costa et al. (2014a) define psychological accounting as the way people categorize

economic outcomes through global or minimal accounts. The *Ticket/Money lost* problem exemplifies how problem framing can lead to different psychological accountings. In the first case, a woman discovers that she has lost two tickets (80€ each) that she bought to go to the theater. The question is whether she will rebuy them in order to enter. In the second case, a woman discovers that she has lost the cash that she was planning to use to buy the two theater tickets. The question is whether she will use her credit card, which is allowed, to buy them in order to enter. Although both situations are identical in terms of economical outcomes, participants are more likely to say that the woman will buy the tickets in the second option (*Money lost*) than in the first one (*Ticket lost*) because of the categorization of economical outcomes in the minimal account. In the first scenario, the price for the tickets is psychologically accounted to be 320€ since they must be rebought, which assumes a global account. In the minimal account, the lost 160€ is not accounted for in the price of the tickets, hence, the second option seems to be the least expensive.

Psychological accounting is not only found in problems with losses, but also in those about potential gains. In addition to the *Ticket/Money lost* problem, Costa et al. (2014a) used the *Discount* problem to recreate this bias in potential gains. In one case, the scenario has the participant imagine that she wants to buy a jacket for 125€ and a calculator for 15€. The salesperson informs the buyer that the calculator is discounted to 10€ at their other shop, which is located at a 20-minute drive distance. The question is whether the buyer will go to the other shop. In the second case, the same scenario is presented, but the jacket originally costs 15€ while the calculator costs 125€, but is discounted at 120€ at the other shop. Although the economical outcome of both situations is the same—the discount is 5€ from the total price of 140€ in a global account—, in the first case the cheaper item is discounted and in the second case the more

expensive one is discounted. In a minimal account, a discount for 1/3 of the price (5€ out of 15€) is, at first glance, more attractive than a discount for 1/25 of the price (5€ out of 125€). Usually, more people agree to make the trip for the discount on the cheaper item.

To test whether the FLe persisted in biases other than loss aversion, Costa et al. (2014a) gave the same participants in their first study these two new problems. No clear indicator of the FLe emerged with the *Ticket/Money lost* problem. Both language groups were significantly affected by the framing bias, responding affirmatively to the *Ticket lost* problem more so than to the *Money lost* problem. With the *Discount* problem, a difference between languages arose. In their L1, participants responded affirmatively to the discount on 15€ more than they did to the one on 125€. In their FL, more participants still responded affirmatively to the 5€ discount, but the difference between both options was smaller than in the L1 condition; the framing effect was, thus, reduced to marginal levels of significance. The authors argue that the absence of the FLe in the *Ticket/Money lost* problem and its presence in the *Discount problem* is due to the direct repercussions of the decision for a third party (the woman) vs the participant herself.

The causality bias, otherwise known as the casual illusion or illusion of casualty, is another cognitive bias demonstrated to be altered in the presence of a FL. Díaz-Lago and Matute (2019) define this bias as the impression that two events are casually related when, in reality, they are not (p. 41). In their study, they presented late English-Spanish and Spanish-English bilingual students with a casual learning task and asked them to rate the effectiveness of an experimental drug. They were first shown a panel with the presence/absence of the pill (the patient took the pill/ did not take the pill) and then the outcome (the patient overcame her crisis/ did not overcome her crisis). According to the causality bias, participants will overestimate the correlation between the presence/absence and the outcome, even if they cannot truly know if the

pill was the sure cause. Their results showed that while the bias was found in both languages, participants in the FL condition gave less biased rating of the effectiveness of the drug.

Gao et al. (2015) studied the FLe in relation to the hot hand fallacy, which refers to people's tendency to overestimate a consecutive series of positive outcomes (i.e., a winning streak) as an indicator for future decisions. For example, if a person is playing a game of Head or Tails, consecutively winning four times by choosing Heads, they may not think too much about playing again for Heads since they are on a winning streak. However, because studies have shown that the emotional process differs in the L1 and the FL, the hot hand fallacy may be reduced when in a FL. To test their hypothesis, Gao et al. (2015) recruited Chinese-English bilingual students to participate in a series of gambles, where they had to either "play" or "leave". After each gamble, participants were shown either a positive valence adjective (i.e., "Good!" or "Excellent!") or a negative valence adjective (i.e., "Sad!" or "Sorry!"). These words created a language-emotional feedback which could induce the hot hand fallacy. Their results showed that, overall, participants displayed more gambles when positive outcomes increased, and there were fewer losses. However, feedback in the FL led to fewer and more slowed gambles than in the L1 condition. Therefore, participants in the English version were not as easily "hyped" by the consecutive winning outcomes. The results confirm the researchers' predictions and are consistent with previous findings of lesser emotional reactivity in a FL.

Geipel et al. (2016) were the first to study the outcome bias in a FL. Their research focused on whether a FL influenced how participants weighted intentions versus outcomes in moral evaluations. The first study presented scenarios involving actions with positive outcomes but underpinned by dubious intentions to participants who spoke either Italian or German as their L1 and English as their L2. They were presented one scenario at a time (e.g., adoption scenario:

a couple adopts a disabled child possibly to receive money from the state) and were then asked to rate the moral goodness of each scenario on a 9-point scale. Participants in the FL consistently had higher ratings in comparison to the L1; they found actions more permissible or morally good in the FL. On the other hand, Italian-English bilingual students generated fewer positive evaluations in the FL than in the L1 when presented with negative-outcome scenarios, but with positive intentions (e.g., drug scenario: an individual gives a poor boy money, which the boy uses to buy drugs and, consequently, dies of an overdose). Participants in the FL were influenced by the outcome bias since they perceived a morally good action (giving money to a poor boy) as less morally right because of the bad outcome (the boy buying drugs and dying). Therefore, moral judgements in a FL seem to weigh outcomes more than intentions.

Costa et al. (2019) also examined the interaction between the FLe and the roles of intention and outcomes in moral judgements. In Study 1, they asked participants to judge the morality of an act that led to a bad consequence. For their analyses, they manipulated two conditions: FL vs L1, and good intention vs bad intention. They recruited participants from Spain and the US, resulting in a mixed group of Spanish and English bilinguals. The situation involved Terrance, the boss of a company, making a bad investment because he believed making more money would encourage his workers to keep working hard (A-good intention) or he believed making more money might make his workers lazy and decided to lose some money (B-bad intention). The result is always a bad outcome. Then, participants were asked to rate, from 0 ("none at all") to 100 ("the most possible"), four questions relating to damage (How much damage did Terrance's investment in the project cause the employees?), responsibility (How much responsibility does Terrance deserve for making the investment?), moral wrongness (How

morally wrong was Terrance for making the investment?), and punishment (How much should Terrance be punished for making the investment?).

The results showed no interaction between intentions and language with the damage question. The only difference regarding this dependent variable concerned the population. Native Spanish speakers perceived more damage in the situation than native English speakers. With respect to intention, the good intention scenario received a lower rating of responsibility, and there were less responsibility ratings in the FL. However, a lack of intention x language interaction reflected that intentions mattered to the same degree in both languages when judging responsibility (Costa et al., 2019, p. 6). As expected, the bad intention scenarios prompted higher ratings of moral wrongness. The analysis of the punishment variable showed that bad intention scenarios were perceived as more deserving of punishment. Participants in the FL provided higher ratings on punishment than those in the L1. The two language groups gave similar ratings of punishment to the bad intention scenario, but the L1 group believed the good intention boss should have received a lesser punishment. Because this difference was not so pronounced in the FL group, the results suggest that the FL reduced the weight of intentions in moral judgments, but that suggestion is restricted to the punishment variable. Costa et al. (2019) conducted a second study with late English-German bilinguals, in which they manipulated both intention and outcome. The scenario presented was of two friends fighting in a car and, at the end, one of them exited the car. The story could end with either the friend in the car backing up and hitting the other friend accidentally or intentionally (intention) and the injured friend ending up with six hours or six months in the hospital (outcome). Most of the questions from Study 1 were used. Even though, the authors expected a FLe difference between high-harm or low-harm outcomes, the results showed no presence of the FLe, contrary to those obtained by Geipel et al. (2016).

Other studies have also shown inconsistent findings regarding the scope of the FLe. For example, Hadjichristidis et al. (2015) documented the FLe in the ratings of risk and benefit of late Italian-English bilinguals. In their first study, they presented Italian-English bilinguals with 26 activities/issues (e.g., nanotechnology, pesticides, traveling by airplane) and asked them to rate each one in terms of risk and benefit following a 7-point scale (1=absolutely not risky [beneficial] to 7=absolutely risky [beneficial]). The scales for risk and benefit were presented separately and the order was counterbalanced among participants. Their results showed that, compared to the L1, in their FL, participants gave lower risk judgments and higher benefit judgments. Overall, across both L1 and FL groups, there were higher ratings of risk than of benefit. However, when comparing risk ratings between languages, the mean rating for risk was higher in the L1 (4.23) than in the FL (4.03). As expected, the opposite was found with the benefit rating, in which the FL (3.97) surpassed the L1 (3.71). Since there was a negative correlation between risk and benefit ratings in all participants regardless of the language, Hadjichristidis et al. (2015) argued that both language processes are underpinned by the affect heuristics, which are a byproduct of the emotional, automatic system.

To further assess the relationship between FL and positive affect, the authors recreated the first study through an online survey with a new sample of Italian-English speakers, but, in addition to rating the risk/benefit of each item, they were also asked to rate in terms of positive and negative feelings. The ratings for feelings were presented in separate blocks followed by a 5-point scale (1=not at all to 5=extremely) Overall, the same pattern of lower risk and higher benefit ratings in FL were also found in the second study. The analysis between feelings and language conduction was consistent with the authors' FL hypothesis. In terms of the negative feeling ratings, both the L1 and FL group showed a similar pattern (mean L1: 2.72 and mean FL:

2.59). There was, however, a significant disparity between groups in terms of positive feeling ratings: participants in the FL consistently rated items higher on positive feelings (mean: 2.97) than in the L1 (mean: 2.61). Therefore, there is no evident attenuation of negative feelings in the FL, but more of an amplification of positive feelings. The relationship between positive/negative feelings and risk/benefit judgments evidences the presence of the affect heuristics in both languages. There was a high positive correlation between risk judgments and negative feelings and an equally high correlation between benefit judgments and positive feelings. Therefore, affect seems to play a role in risk/benefit judgments regardless of the language. The authors' findings also suggest that language attitudes (affect, anxiety) may influence the FLe (Hadjichristidis et al., 2015, p. 127).

So far, researchers have emphasized the need to further examine the scope of the FLe in decision-making contexts and what variables come into play. For example, there does not seem to be a language interaction in the base-rate neglect fallacy nor the conjunction fallacy (Vives et al., 2018). Results from the Cognitive Reflection Test (CRT) also show no difference between linguistic groups (Turula, 2019). Aside from decision-making contexts, there is a gap in the literature about how the bilingual experience plays a role in the FLe. To date, every study has focused on late bilingual learners. Wong and Ng's (2018) work presents, to our knowledge, the only published study on the FLe phenomenon in early bilinguals. They recruited early English-Chinese bilingual students in Singapore who had acquired both languages before age 3. Participants were shown ten different scenarios of moral dilemmas, categorized into five pairs of situations (e.g., *Trolley*/*Footbridge*, *Shark Attack*, *Crying Baby*) deviating by the chosen action (i.e., personal or impersonal). In this experiment, participants were not asked to choose between two actions, but rather they were presented with the utilitarian course of action and then asked to

rate how committed they were to the given action on a 7-point scale (1=definitely no to 7=definitely yes). Therefore, higher ratings represented more willingness to make utilitarian choices. In addition, they also rated how distressing they found each action on another 7-point scale. Finally, participants completed the Bilingual Language Profile (Birdsong, Gertken, & Amengual, 2012), which collects information on language history, language use, language proficiency, and language attitudes.

Overall, their results showed no significant difference between languages, leaning towards an interpretation of no FLe in early bilinguals. However, Wong and Ng (2018) did find a significant relation between language proficiency and use and the ratings on utilitarian choices, where higher proficiency and use resulted in an attenuation of the FLe. One of their most important findings, although not the purpose of their study, was the correlation between language attitudes and the FLe in moral dilemmas. The results showed that the participants who had more positive feelings towards a language were less likely to accept a utilitarian response for a personal action as compared to an impersonal one (p. 8). They attribute their findings to the interplay between language, identity, and psychological distancing, which involves feelings of detachment that an individual may have towards a given language, possibly prompting a lesser feeling of responsibility in their actions. Taken together, these findings reflect the complexity of the bilingual experience and in terms of the role of additional factors in the process of decision-making. It is crucial to continue to examine the link between language attitudes and the FLe.

III. Theoretical framework

According to Brocas and Carrillo (2014), dual-process theories have been a part of psychological research since the late 1970s with the work of Schneider and Shiffrin. After a series of experiments, they proposed that information processing is based on two main

processing modes: one that is automatic and another that is controlled. Throughout the years, research has expanded the characteristics of these two main systems (Frankish, 2010). First, it is imperative to understand that these Systems do not comprise one homogenous system; they are actually a set of sub-systems which work accordingly or in a similar matter. The activation of one sub-system entails the activation of others encapsulated in the System.

System 1 is described as the innate process humans share with other animals and it is the first of the two Systems to be developed (Evans, 2003). Sub-systems in System 1 are fast and automatic. Their activation requires low effort, but they work at a high capacity. System 1 has also been particularly linked to emotions and intuition (Frankish, 2010). System 1 is crucial to understand decision-making processes because of its susceptibility toward heuristics and biases. Costa et al. (2014a) state that biases are a function of implicit intuitive decision processes that allow individuals to make fast decisions without the need to resort to a costlier, slow logical reasoning. Therefore, biases can be perceived as a sub-product of System 1.

While System 1 is deemed automatic and intuitive, System 2 is considered controlled and analytical. The activation of System 2's sub-systems requires more effort than its counterpart, System 1. Thus, System 2 provokes a slower and more thought-out reasoning which, in turn, accounts for a reduction of susceptibility to heuristics and biases (Evans, 2003; Frankish, 2010). Research on the FLe has been grounded on the dual-process theory because of the apparent relationship between the two Systems and the use of a L1 and a FL.

The first FLe framework proposed was the *increased systematicity account* by Keysar, Hayakawa and An (2012), also known as the *increased deliberation account* in Geipel, Hadjichristidis and Surian's (2016) work. This framework argues that the use of a FL activates System 2, which prompts more rational decisions. The cause of System 1's deactivation is the

creation of emotional distance that deviates the activation process toward System 2. One of the limitations of the *increased systematicity account* is the view of FLs as being devoid of emotions. This limitation is addressed in Hadjichristidis, Geipel, and Savadori's (2015) *reduced intuition account* (also referred to as the *reduced emotional resonance hypothesis* by Geipel, Hadjichristidis and Surian, 2015).

This second framework suggests that the use of a FL does not imply the deactivation of System 1, but rather the attenuation of System 1's emotional reactivity. Hadjichristidis, Geipel, and Savadori (2015) believe the emotional attenuation is due to an intuitive inhibition of negative affections prompted by a positive bias, caused by the learning context and experience of the FL. They explain that the reduced emotional resonance in a FL may be due to language-specific encoded memories and the language learning context. Therefore, the emotional accessibility of a bilingual who has acquired the language through formal classroom learning and has no further FL interaction in their social life may have a positive bias towards that language. Their hypothesis is supported by various studies showing that bilinguals have a lesser physiological reaction to negative words in their FL compared to their L1. Therefore, if a person is processing sensible life or death information in the FL, they may respond more to the positive aspects than the negative ones, prompting a less emotional and, consequently, more rational decision.

However, the *reduced intuition account* is based on the notion that the participants' bilingual experience is the same because of their FL acquisition through formal classroom. Such view homogenizes and reduces the bilingual experience which may limit the scope of our understanding of the FLe. Therefore, obtaining information on people's attitudes toward a given language provides a glimpse of how they signify their FL experience in a much broader sense. Following the *reduced intuition account*, if there is a positive attitude towards the FL, there

should be more rational decisions and vice versa for a negative attitude, given the reduction of the positive bias. Wong and Ng (2018), however, argue the contrary. The less attached a person feels towards the FL, the less responsible they feel for their actions. Thus, a person may choose to make utilitarian choices (i.e., pushing a man off the bridge to save five people) in a personal dilemma. In Wong and Ng's (2018) *psychological distance* hypothesis, a negative attitude toward the FL will prompt more rational choices.

IV. Justification

Although research on the FLe has increased over the years, there is still much uncharted territory to explore. First, while current research showcases a diverse bilingual population, in terms of both geography (i.e., Spain, US) and language (i.e., English-Spanish bilingual, Spanish-English bilingual), to our knowledge, there is no previous study on this phenomenon in the Caribbean, and, specifically, the Puerto Rican bilingual population. Furthermore, this population provides an opportunity to study a new dimension of the bilingual experience. Since 1949, all Puerto Rican formal school instruction requires English as one of its main language components (Pousada, 2017). Therefore, Puerto Rican bilinguals represent a unique early bilingual population residing in a mostly Spanish-speaking territory. Another distinctive aspect of bilingualism in Puerto Rico is the complex relationship that Puerto Ricans have toward their L2, English. Pousada (1990) summarizes the language situation in Puerto Rico, stating:

> English has long been viewed on the island as both a tool of liberation and an instrument of oppression. Children are told from the earliest grades that English will be vital for their educational and professional advancement, while they are also cautioned that learning it too well may endanger their Puerto Rican identity (p. 33).

The duality of attitudes towards the FL in Puerto Rico provides the opportunity to investigate a new sociolinguistic dimension of the FLe. As previously stated, language attitudes serve as a reflection of the individual bilingual experience, which is also heavily influenced by the social and cultural environment. For these reasons, studying the FLe in Puerto Rican bilinguals will help expand the current theoretical proposals by providing data on early bilinguals belonging to a Caribbean population, as well as contributing a sociolinguistic perspective through the analysis of language attitudes.

V. Method

Participants

The participants in this study were recruited according to the following criteria: (1) they were at least 18 years old, (2) they were undergraduate students at the University of Puerto Rio, Río Piedras campus, (3) they were Puerto Rican (defined as having lived in Puerto Rico since at least age 5), and (4) Spanish was their L1 and English was their L2. In order to have a more homogeneous group of participants in terms of language dominance and language attitudes, those who have lived in an English-speaking country uninterruptedly for more than a year were ineligible to participate and their data were excluded from the analysis. Participants were recruited by announcing the study during the classes of several professors who were willing to spare some time from their classes for this research. Furthermore, some participants were recruited with flyers containing a brief description of the study, the eligibility criteria, and contact information of the researcher. Participants were recruited and then equally divided into two groups. The experimental group completed the main task in English and the control group completed it in Spanish.

Materials

Throughout the study, participants received a series of documents. The informed consent form, which was written in Spanish, provided general information regarding a description of the study, the eligibility criteria, a description of the tasks to be completed, the possible risks and benefits of participating in the study, information on the safeguarding of participant confidentiality, and the participants' rights. Each participant group (experimental and control groups) received a specific informed consent form depending on the language of their decision-making task (See Appendices A and B).

Participants filled out a demographic data and language history questionnaire, which was written in Spanish and included some questions on demographic information, such as age, gender, country of origin, as well as others regarding the participants' language acquisition process, their language use and exposure, and their self-rated level of proficiency (See Appendix C). To ensure that the participants had a similar level of language proficiency, those who provided a mean self-rating lower than 3.5 on a 5-point scale were excluded from the study.

In order to examine the relationship between language attitudes and the FLe, participants also received a language attitudes questionnaire to collect information about their attitudes towards English. This questionnaire was created based on the work of Bichani (2015), O'Rourke (2005) and, more specifically, on Pizarro's (2005) doctoral dissertation on the ethnolinguistic identity of first-year college students at the University of Puerto Rico, Río Piedras campus. The questions were written in English and ranged from the participants' experience with their English acquisition to their ethnolinguistic identity, which includes the social and cultural dimensions of their language attitudes (See Appendix D). This quantitative instrument was developed to analyze the possible correlation between participants' language attitudes and their responses in the decision-making task. By primarily using Likert scales, it was possible to situate participants

on a spectrum between negative and positive attitudes, which provided the basis for further analysis. After creating the questionnaire, an expert in language attitudes in Puerto Rico, Dr. Brenda Domínguez-Rosado, and two students, who were representative of this study's population, participated a content validation process. They evaluated each item and instruction of the questionnaire in terms of clarity, syntax, and relevance (the last criterion was only evaluated by the expert; See Appendices E and F). Changes were then made to the final version of the questionnaire based on the content validation results.

Participants also completed the grammar sections of the Michigan English Language Institute College Entrance Test (MELICET) in order to obtain additional English proficiency data to complement their self-ratings. The MELICET is an advanced level English language test created by the University of Michigan English Language Institute (http://www.michigan-proficiency-exams.com/melicet.html) to examine ability in different English language areas. It is primarily used to test nonnative speakers of English by educational institutions as an admissions or placement test. The portion of the test used in this study contained 50 multiple-choice items, which evaluate grammar, vocabulary, and reading competence in isolated sentences, as well as longer stretches of discourse (See Appendix G). Although this task is more important for the experimental group, it was also given to the control group to ensure homogeneity among the participants.

The main task of this study, the decision-making task (DMT) was designed following previous studies on the FLe. The task consisted of three items. The first item studied participants' moral judgment through the Trolley dilemma (Corey et al., 2017; Costa et al., 2014b; Geipel et al., 2015). This moral dilemma has two versions: the *Switch* version (impersonal) and the *Footbridge* version (personal), presented below.

Switch version A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track. Would you change the track?
Footbridge version A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people. Would you push him?

The second item, adapted from Costa et al.'s (2014a) study, dealt with psychological accounting. The Discount dilemma is a two-version problem in which both problems account for the same amount of money, but they are presented in different manners (*Discount on $15* vs *Discount on $125*). The difference in how the problems are presented (displayed below) is meant to activate the cognitive bias of psychological accounting.

Discount on $15 version Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away. Would you make the trip to the other shop?
Discount on $125 version Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away. Would you make the trip to the other shop?

Lastly, the third item was taken from Keysar et al.'s (2012) study and it investigated the cognitive bias of reversal of risk preferences. Aside from being a cognitive bias, similarly to the

last two dilemmas, the Asian Disease dilemma comprises a framing bias. One version of the dilemma frames the problem in terms of gain and the other one, in terms of loss. Although both versions of the dilemma lead to the same outcome, the way they are framed leads to different decisions.

Loss frame version Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made. If you choose Medicine A, 200,000 people will be saved. If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved. Which medicine do you choose?
Gain frame version Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made. If you choose Medicine A, 400,000 people will die. If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die. Which medicine do you choose?

To counterbalance order effects, dilemma order and dilemma version were both controlled. One set of the DMT was structured in the following order: (1) Trolley dilemma, (2) Discount dilemma and (3) Asian Disease dilemma. In another set, the Trolley dilemma and the Asian Disease dilemma were switched. Since both of these dilemmas account for high emotion reactions, as they deal with life or death situations, the Discount dilemma was always used as a buffer between the two. After controlling problem order, there were eight different order possibilities considering the two versions of each problem. In the end, 16 versions were made for each language group (See Appendix F for all versions).

All 16 versions of the decision-making task were distributed in both participant groups for a total of 2 participants per version. Consequently, every version of each item was given to 32 participants, 16 participants in each language group. Given that all the items were taken from previous studies in their English version, they were translated to Spanish for the control participant group.

Procedure

The study was completed separately by each participant group in a classroom setting at the University of Puerto Rico, Río Piedras campus. The participants completed the study in two parts. After obtaining permission from the professors of several courses who were willing to spare some time from their classes, during the first part of the study, the researcher addressed the entire class. The informed consent form was discussed and any questions that the students had were addressed. Participation in the study was voluntary and students had the right to refuse to participate or abstain from participating at any point in the study with no penalty. Those students who agreed to participate received a folder from the researcher containing the informed consent form so that they could review the details of the study and sign the form. The folder also contained the demographic data and language history questionnaire and the language attitudes questionnaire. The participants were asked to take the folder home and complete the documents in their free time. It took participants approximately five minutes to review and sign the informed consent form, ten minutes to complete the demographic data and language history questionnaire, and 20 minutes to complete the language attitudes questionnaire. For the second part of the study, the researcher returned to the classrooms and asked the participants to hand in the packets with the completed documents. After making sure that all the documents were completed and that each participant wished to finish the study, the participants completed the DMT on a written

document (approximately 20 minutes) in the classroom in the presence of the researcher. After the DMT, they proceeded to complete the MELICET on a written document (approximately 20 minutes) in the presence of the researcher. Participants received one point for each correct answer and no points for incorrect answers. To ensure that the participants haD a similar level of language proficiency, those who obtained a score lower than 25 out of 50 possible points were excluded from the study. The DMT and the MELICET were taken in presence of the researcher to ensure that participants' responses were not influenced by other people.

VI. Hypotheses

Since there are no previous studies on the FLe with Puerto Rican bilinguals nor any research focused on the relationship between language attitudes and the FLe, this study had various hypotheses which were divided into two main groups. Regarding the objective of examining the FLe with Puerto Rican bilinguals, a between-groups analysis was executed to address the following hypotheses:

H_0= There is no significant difference between the Control Group (Spanish) and the Experimental Group (English) in terms of performance in the DMT.

H_1= There is a significant difference between the Control Group (Spanish) and the Experimental Group (English) in terms of performance in the DMT.

If the alternative hypothesis is proven, a within-group analysis in the Experimental Group using the language attitudes variable would be conducted. Taking into consideration Hadjichristidis et al.'s (2015) *reduced intuition account* and Wong and Ng's (2018) *psychological distance* hypothesis, there are two possible relationships between the FLe and language attitudes, leading to the following hypotheses.

H_0 = There is no significant relationship between language attitudes and the FLe.

H_{1a}= The more positive the language attitudes, the less Type A responses in the DMT and vice versa.

H_{1b}= The more positive the language attitudes, the more Type A responses in the DMT and vice versa.

It is important to note that the analysis of the DMT was conducted by comparing how many times the participants in each group chose option A with each version of the same dilemma, as has been done in previous studies (i.e., Costa et al., 2014a; Keysar et al., 2012). In terms of data extraction, option A received a value of 1, which then resulted in a number representative of each group's behavior in each behavioral item. Therefore, both sets of hypotheses depend on the number of Type A responses in (1) between-groups and (2) within-group comparisons.

VII. Results

Participants

In total, 76 undergraduate students were recruited for the study. However, eight participants were excluded because they obtained a MELICET score lower than 25 (50%), two participants were excluded due to reporting a language other than Spanish as their L1, and two additional participants were excluded because they reported having lived or having stayed in an English speaking country for more than one consecutive year. The data of the remaining 64 participants were used in the final analysis. The sample included more females (n=38) than males (n=26) and the mean age was 21 years. Students' college majors were diverse, with a vast majority in Business (n=30), Humanities (n=16), and Social Sciences (n=15). In terms of school year, students ranged from being in their second to their seventh year as undergraduates, while most of the students were in their third or fourth year. Lastly, and in accordance with the study's

inclusion criteria, all students were born and raised in Puerto Rico (see Appendix I for additional details on the participants' demographic information).

Regarding their education, most students went to a private elementary and middle school, but the disparity between private and public education evened out when it came to high school education. Among participants, 38 reported learning their L2 (English) before age five, 19 participants reported learning English between ages six and ten, while two participants learned it after age 11. Four participants did not specify an age but indicated that they started learning when they were young. Overall, the majority reported an age of acquisition (mean = 5.19 years) congruent with Puerto Rico's language policy, according to which all children start learning English as a second language in Kindergarten. Therefore, the participants in this study were considered early Spanish-English bilinguals. There was, however, a significant number of participants (n=31) who reported speaking more than two languages, which, although not the common occurrence in the Puerto Rican population, is understandable due to participants being college students.

On average, participants reported using or being exposed to English mostly in entertainment (music and television), followed by reading and with friends. The contexts in which English was used the least comprised the home and the family, which may indicate a generational gap in terms of English use and proficiency since participants were most likely to use English with their peers than other (including older) family members. Concerning English language proficiency self-ratings, participants displayed the following averages for each language component: speaking- 4.16, reading- 4.61, writing- 4.20, and Comprehension- 4.67. Overall, the mean English language self-rating was 4.41 (see Appendix J for additional details on the participants' linguistic history.).

MELICET

On average, participants scored 78% (39.05/50) on the MELICET English Grammar Test. There was no significant correlation between the MELICET scores and the demographic information (i.e., gender, private or public schooling, etc.) provided by the participants. The MELICET scores had a correlation of 0.55 with participants' average L2-proficiency self-ratings. Among the self-ratings for the four language components, the MELICET had the highest correlation with the writing self-rating (0.60) and the lowest correlation with the reading self-rating (0.37).

Language Attitudes

In general, participants reported having a positive relationship with English (see Table 1). With one exception, all participants believed English played an important role in their lives. Travel, entertainment, and school were the scenarios in which most participants indicated that English played an important role. On the other hand, social status was the least marked scenario, chosen by 59.38% of the participants (see Table 2).

Table 1. Responses to question "In general, would you say that you have a positive relationship with the English language?"

	f	%
Strongly Agree (1)	42	67.19
Agree (2)	13	20.31
Somewhat agree (3)	7	10.94
Somewhat disagree (4)	2	3.13
Disagree (5)	0	0
Strongly Disagree (6)	0	0

Table 2. Participant responses regarding scenarios in which English plays an important role

	f	%

Work	56	87.5
School	58	90.63
Communicating with others	56	87.5
Entertainment	58	90.63
Social Status	38	59.38
Travel	64	100

Regarding participants' preferences in the usage of English vs Spanish, the results correlate with the data obtained from the Language history questionnaire. The only scenarios in which participants indicated a preference for English over Spanish were in the following: "read literary works", "read textbooks/academic documents", "read newspaper/magazines", "listen to music," and "watch TV". All are activities included in the school and entertainment contexts (see Table 3).

Table 3. Participant responses regarding preferences in language use

I prefer to…	Preference	
	Spanish	English
Speak	53	11
Listen to other people	44	20
Write notes/emails/text messages	34	30
Write academic documents	39	25
Read literary works	29	**34**
Read textbooks/academic documents	25	**38**
Read newspaper/magazines	30	**33**
Read notes/emails/text messages	32	31
Listen to music	19	**45**
Watch TV	1	**62**
Think	48	16
Count	59	5

*Bolded numbers indicate most frequently chosen responses by participants regarding preference for English.

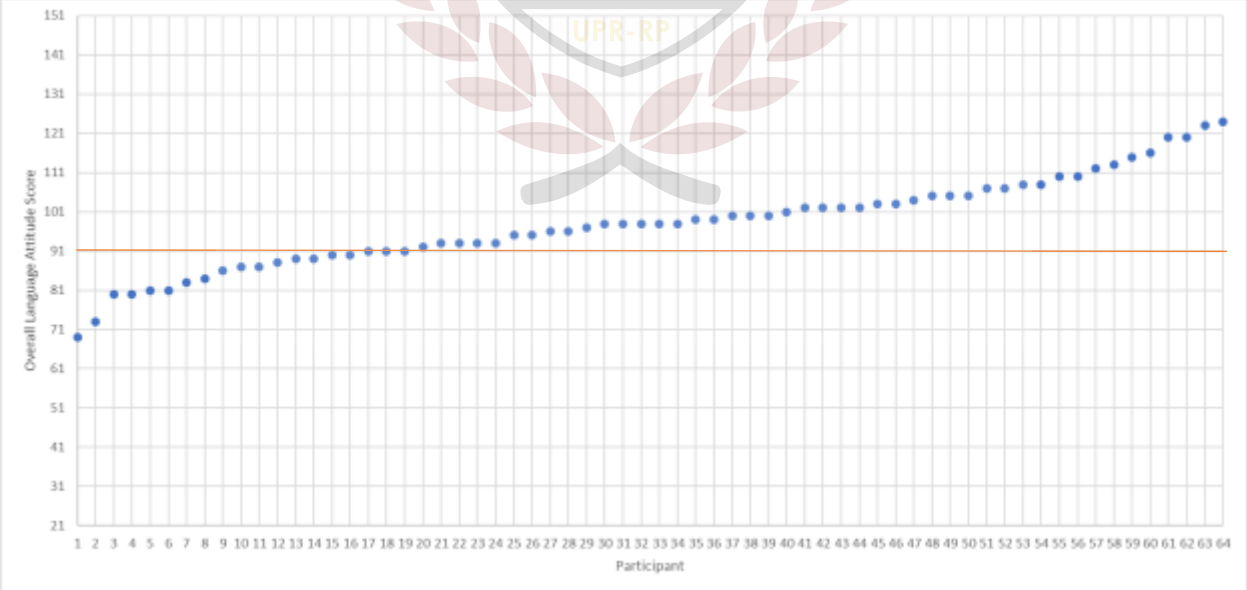
Participants' responses in items concerning English education in Puerto Rico were positive overall. They believed that Puerto Rican children should learn in both English and Spanish equally (n=46). Fifteen participants felt that children should learn more Spanish than English at home. More than half of the participants reported that they would consider sending their children to an all-English school. In general, participants agreed to some extent that they enjoyed learning English (n=60) and most of them disagreed that it was not an easy process (n=43). However, the degree of disagreement is varied, with 12 participants somewhat disagreeing, 12 agreeing, and 19 strongly disagreeing. A vast majority agreed that Puerto Rican children should learn English. More than half believed that private schools should not be forced to offer all their courses in Spanish (except the English language course) and that English should be a required course in the curriculum. This fact correlates with the percentage of participants (90.63%) who disagreed that it was wrong to take English in school. Furthermore, participants considered it a good idea for some courses to be taught in English to give students the opportunity to practice their language skills. Most participants agreed that English will never become the common means of communication in Puerto Rico, but they also agreed that Puerto Ricans should speak more English and just as well as they speak Spanish. In general, participants agreed that they need to preserve English and that they are committed to using the language as much as possible.

Although participants presented an overall positive attitude in almost all of the categories, they were divided in regards to the impact of English on their Spanish expression and proficiency. Thirty-three participants agreed that the presence of English in Puerto Rico has negatively affected the quality of their Spanish, while 31 disagreed. However, the majority provided mixed responses, with 14 somewhat agreeing to the negative effects of English and 13

somewhat disagreeing. Such results seem counterintuitive with their professed commitment to using English as much as they can. It could be argued that, because more than 84% considered English to be a prestigious language and more than half agreed that knowing English was more important for getting a job than knowing Spanish, the benefits of improving their English language skills are greater than the perceived costs to their Spanish.

By combining the scores in every category, participants' overall attitudes towards English were obtained. The highest possible score, which presented the most positive attitude, was 151 and the lowest possible score was 27. Considering the mid-point between these scores (a score of approximately 90) as the most neutral attitude towards the language, the participants' score could be placed in a spectrum of most negative to most positive attitudes. Figure 1 presents the scores obtained in this study.

Figure 1. Overall language attitude scores toward English by each participant



As seen in Figure 1, most participants were above the mid-point score, therefore, they presented a more positive attitude towards English. Based on the sample of 64 college students, there is an

overall positive attitude toward English and its implication in social, educational, and cultural Puerto Rican structures.

Overall language attitude scores had distinctively varied correlations with MELICET scores, average L2 proficiency self-ratings, and L2 context of use. The MELICET scores, which were used to obtain a more objective measure of participants' English proficiency, had a low correlation of 0.15 with their language attitudes. The more subjective measures of English proficiency (average L2 proficiency self-ratings), on the other hand, had a slightly higher—although still not significant—correlation of 0.40 with the language attitudes. The variable with the highest correlation (0.48) with language attitudes was participants' average L2 context of use, which could indicate that the amount of L2 use is what most affects overall language attitudes toward the L2.

Decision-making task (DMT)

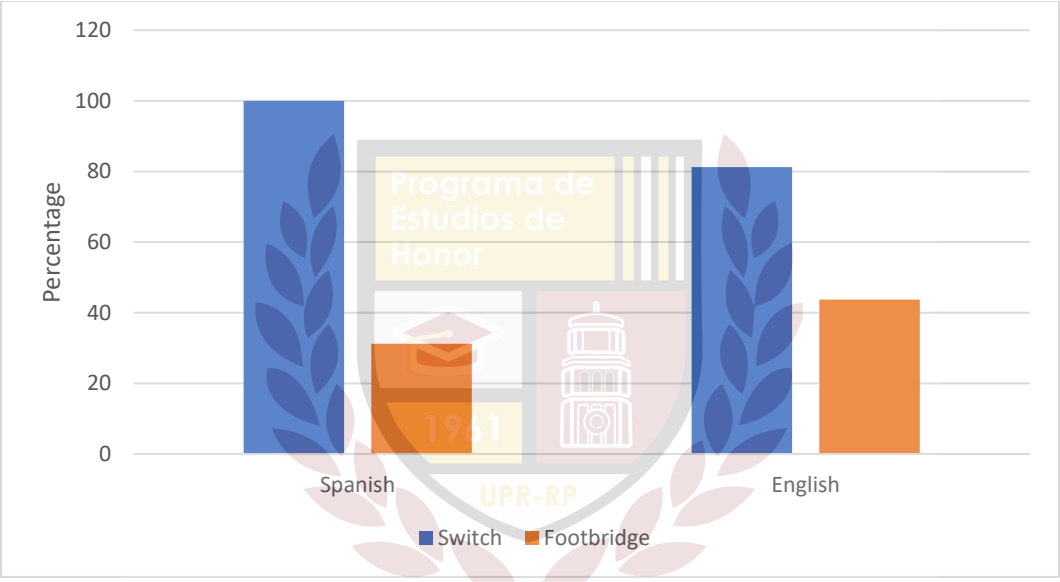
The 64 participants were divided into two language groups: Spanish (n=32) and English (n=32). Each language group had 16 different versions of the DMT, which accounted for two participants per version. Thus, each version of each of the three dilemmas was read by 16 participants.

Trolley dilemma

In the native language (Spanish) condition, all participants (16/16) in the *Switch* version (version A) chose the utilitarian action of killing one person to save five. The number was significantly reduced in version B, in which only 31.25% (5/16) of the participants in the Spanish group said that they would push a man to save five. The difference in the proportion from both groups was statistically significant ($z = 4.09$, $p < .0001$). In the case of the English group,

81.25% of the participants chose the utilitarian option in the *Switch* version (version A) compared to a 43.75% in the *Footbridge* version (version B). The difference in the proportions between both groups was also significant (z = 2.19, p = 0.0289). Figure 2 shows the comparison of the percentages of utiliatrian responses between both versions of the Trolley dilemma per language group.

Figure 2. Percentage of utilitarian choices between *Switch* vs *Footbridge* versions per group

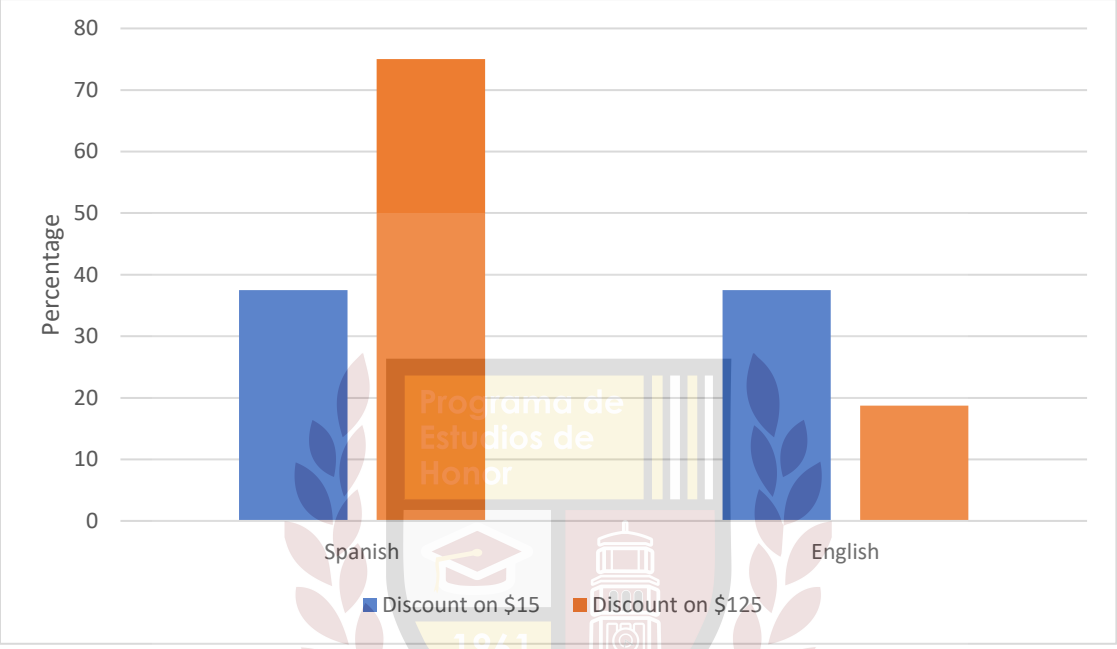


Discount dilemma

Overall, participants in the Spanish condition were more willing to make the trip to the other store in the *Discount on $125* version (12/16 = 75%) than in the *Discount on $15* version (6/16 = 37.5%). The difference in the proportions between both groups was significant (z = 2.12, p = 0.032). However, the preference was inverted in the English group. More participants in the L2 condition accepted the *Discount on $15* (6/16 = 37.5%) than on *$125* (3/16= 18.75%). The difference in the porportions between both groups was not significant (z = 1.18, p = 0.238).

Figure 3 shows the comparison between both versions of the Discount dilemma per language group.

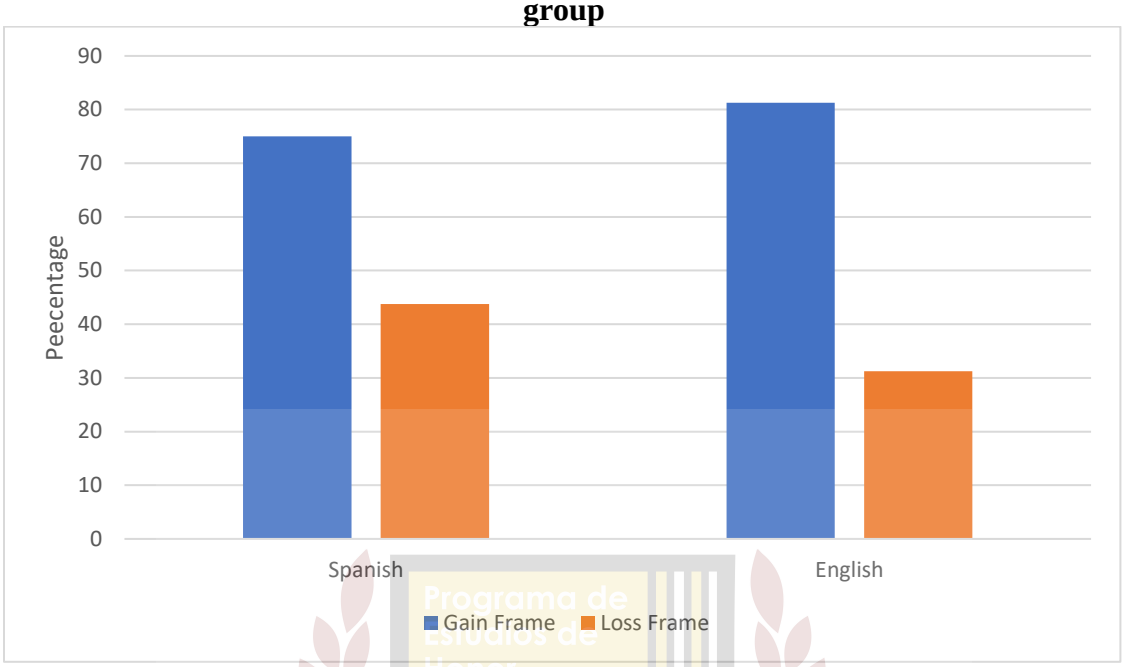
Figure 3. Percentage of Yes responses in *Discount on $15* vs *Discount on $125* versions per group



Asian Disease dilemma

In both the Spanish and English conditions, participants markedly chose the sure option (Medicine A) more often in the *Gain frame* version (75 % in Spanish and 81.25% in English). In terms of the *Loss frame* version, 43.75% of the participants in the Spanish group chose the risky option (Medicine B), while 31.25% chose it in the English group. The difference in proportions between Medicine A responses in the *Gain frame* and *Loss frame* versions was not significant in the Spanish Group ($z = 1.77$, $p = 0.072$), but it was significant in the English group ($z = 2.85$, $p = 0.004$). Figure 4 shows the comparison between both versions per language group.

Figure 4. Percentage of Medicine A (sure option) in *Gain frame* vs *Loss frame* versions per group



DMT x Language Attitudes

Trolley dilemma

An independent-samples t-test was conducted to compare overall language attitudes in the utilitarian and not utilitarian choices in the Trolley problem. In the *Switch* version, there was a significant effect for language attitudes t(14) =3.30, p = .005. The participants that chose to kill a man to save five had a higher mean score (M = 106, SD = 1.73) than participants that chose not to (M = 93.69, SD = 6.26). Language attitudes did not have a significant effect on the choices made in the *Footbridge* version, t(14) = 0.25, p = .806. When merging the risk preference in both versions, language attitudes did not influence whether participants had a tendency of choosing the utilitarian or non-utilitarian option, t(30) = 1.11, p = .277.

Discount dilemma

Participants' attitude towards English did not influence whether they chose to make the trip in either of the Discount versions. An independent-samples t-test conducted with language attitudes and "Yes" responses to the trip generated non-significant results in the *Discount on $15* version, $t(14) = 0.53$, $p = .607$, and in the *Discount on $125* version, $t(14) = 1.10$, $p = 0.290$. In both versions, the mean language attitudes score was higher (Discount on $15: $M = 94.83$, $SD = 6.85$; Discount on $125: $M = 102$, $SD = 15.58$) in the group that said "Yes" to making the other trip.

Asian Disease dilemma

The independent-samples t-test showed that there was no significant effect ($t(14) = 0.89$, $p = 0.390$) of language attitudes towards a tendency to opt for Medicine A ($M = 93.08$, $SD = 11.10$) or Medicine B ($M = 100$, $SD = 17.32$) in the *Gain frame* version. Similar results were obtained in the *Loss frame* version with a lower language attitudes score for participants that chose Medicine B ($M = 96.64$, $SD = 8.24$) than Medicine A ($M = 93$, $SD = 4.47$), but still no significant relationship, $t(14) = 0.92$, $p = 0.375$.

DMT X MELICET

Another independent-samples t-test was performed to analyze the relationship between MELICET scores and participants' performance in the DMT.

Trolley dilemma

There was a significant effect of MELICET scores and participants' choices in the *Switch* version $t(14) = 2.21$, $p = 0.044$ with a higher mean score in participants who did not choose the utilitarian option of killing one man to save five ($M = 46.33$, $SD = 2.08$) compared to those who did choose it ($M = 37.23$, $SD = 6.89$). On the other hand, participants who chose to push a man

to save five had a higher MELICET mean score (M = 39.29, SD = 7.59) than participants who chose not to (M= 35.11, SD = 5.69). However, MELICET scores did not have a significant effect on participants' choice in the *Footbridge* version, t(30) = 1.26, p = 0.228.

Discount dilemma

Results showed no significant MELICET score effect on participants' tendency to answer "Yes" or "No" in neither the *Discount on $15* version, t(14) = 0.49, p = 0.633, nor the *Discount on $125* version, t(14) = 0.61, p = 0.553. Mean MELICET scores were higher for participants who responded "No" on the *Discount on $15* version (M = 38.4, SD = 8.76) than for those who responded "Yes" (M = 36.33, SD = 7.06). In the *Discount on $125* version, participants who chose to make the trip to the other shop had a higher mean MELICET score (M = 36.33, SD = 5.51) than those who chose not to (M = 35.69, SD = 6.14).

Asian Disease dilemma

MELICET scores did not have a significant effect on whether participants chose Medicine A (safe option) over Medicine B (risky option) in either of the two versions (*Gain frame*: t(14) = 0.91, p = 0.380; *Loss frame*: t(14) = 0.19, p = 0.844). MELICET mean scores were higher for Medicine B (M = 40, SD = 2.65) in the *Gain frame* in comparison to Medicine A (M = 35.77, SD = 7.79). In the *Loss frame* version, participants who opted for Medicine A had a higher MELICET score (M = 39.8, SD = 7.66) than those who opted for Medicine B (M = 39.09, SD = 6.35).

DMT x Self-rate in L2

A final independent-samples t-test was run to explore the relationship between participants' average self-ratings and their performance in the DMT.

Trolley dilemma

Results showed no significant effect of self-ratings on participants' performance in the Trolley dilemma (*Switch* version: t(14) = 0.33, p = 0.750; *Footbridge* version: t(14) = 0.38, p = 0.713) . Participants' mean self-ratings were higher when they chose the utilitarian option (M = 4.54, SD = 0.48) in the *Switch* version. In the *Footbridge* version, participants who did not choose the utilitarian option of killing one person to save five had a higher mean score (M = 4.08, SD = 0.72).

Discount dilemma

Self-ratings had no effect on whether participants chose to make the trip to the other shop in either version of the Discount dilemma (*Discount on $15*: t(14) = 1.03, p = 0.322; *Discount on $125*: t(14) = 0.72, p = 0.485). In the *Discount on $15* version, participants who chose not to make the trip to the other store had a higher mean self-rating (M= 4.36, SD = .08). Meanwhile, in the other version (*Discount on $125)*, there was a higher mean score (M= 4.58, SD = 0.72) for participants who chose to make the trip.

Asian Disease dilemma

The results from the independent-samples t-test showed no significant relationship between self-ratings and performance in the Asian Disease dilemma. For the *Gain frame* version, t(14) = 0.09, p = 0.928, there was no significant difference between participants who chose the safe option (M = 4.29, SD = 0.76) and those who chose the risky option (M = 4.3, SD = 0.76). In the *Loss frame* version (t(14) = 0.085, p = 0.407), participants who opted for the risky option reported a higher mean self-rating (M = 4.34, SD = 0.53) than those who opted for the safe one (M = 4.00, SD = 1.10).

VIII. Discussion

Trolley dilemma

Considering the differences in risky tendencies between the *Switch* version and the *Footbridge* version, the risk-reversal cognitive bias was present in both language groups. However, the effect's level of significance between both versions was reduced in the English group ($p < 0.05$). These results are similar to those found in previous studies on the FLe. Thus, there was a language effect in reducing the risk-reversal cognitive bias in the case of the Trolley dilemma.

The analysis on language attitudes demonstrated that there was a significant effect ($p < 0.05$) on participants' choices in the *Switch* version. The more positive the attitude towards English, the more probable the participant was to choose the non-utilitarian option of killing five people. This statistical significance was not obtained in the analyses for the *Footbridge* version. However, the statistical significance was replicated when examining the relationship between MELICET scores and the utilitarian choices in the *Switch* version. The higher the MELICET score, the more probable it was for the participant to choose not to switch the train, although the effect of MELICET scores on utilitarian choices had a less significant p-value (0.044)—and, therefore, represented a smaller effect—than that of language attitudes (0.005) on the same choice. This finding supports previous studies (Costa et al., 2014b; Čavar & Tytus, 2018), in which higher L2 proficiency accounted for a reduction in utilitarian choices due to a supposedly increased emotionality.

This relationship was not found in the Self-ratings, which presents a problem as to the type of methodologies used when researching the FLe. Studies such as that by Costa et al.

(2014b) analyzed the relationship between utilitarian choices and language proficiency by using self-ratings. The authors found a significant difference between higher and lower proficiency groups and their choices in the Trolley dilemma. Taking into consideration the correlations between MELICET scores (objective measure) and self-ratings (subjective measure), it could be argued they measure different constructs that do not always have a similar effect in FLe. This claim could be supported by the higher correlation between self-ratings and language attitudes (0.40) than that between MELICET and language attitudes (0.15).

Discount dilemma

When compared to previous studies, the results pertaining to the Discount dilemma in the present study were unexpected. In this study, participants had a marked preference for the *Discount on $125* in the native language condition. Meanwhile, in Costa et al.'s (2014a) study, participants agreed to make the other trip more often in the *Discount on $15* version than in the *Discount on $125* version when performing the task in their L1. Their results came from Spanish-English bilinguals in Spain and were similar to those obtained by Tversky and Kahneman (1981) in their study with English monolinguals in the United States. Nonetheless, Iswari's (2020) work that examined the Discount dilemma with Indonesian participants showed that there was no preference in responding "Yes" to either version. Therefore, the preference for the *Discount on $125* version when making the decision in the L1 could be explained on account of cultural differences. That is, some cultures may value discounts on more expensive items, while others may prefer to spend the least amount of money possible, therefore, preferring discounts on products that are already less expensive to begin with. However, there is still a tendency for a minimal perspective in the psychological discount bias in the native language group.

The Discount dilemma is the only one of the three dilemmas studied here in which there was an apparent reversal of choice preference. Participants in the L1 group agreed to make the trip more often in the *Discount on $125* version, while in the L2 group, they preferred to make the trip in the *Discount on $15* version. It is also important to note that, overall, participants were more likely to consent to the trip in the Spanish condition than in the English condition, regardless of the version. The differences between versions was statistically significant in the Spanish group ($p < 0.05$), but not in the English group. Therefore, the FLe appears to be present in this dilemma.

Asian Disease dilemma

In the Asian Disease dilemma, both language groups showed the same preference for Medicine A (sure option) over Medicine B (risky option) in the *Gain frame* version, as expected. However, the results in the *Loss frame* version were unexpected because participants in the L1 condition chose Medicine A more often than participants in the L2 condition. Thus, the difference in Medicine A choices between both versions was statistically significant in the English group ($p < 0.05$), but not in the Spanish group. Based on these results, the FLe was present, but not in the way that it was expected. The expected FLe was that the Spanish group would have a more significant disparity between Medicine A responses in both versions, whereas, in this case, the FLe appeared in the opposite direction, creating a larger difference in the English group. However, the basis for comparisons has been studies conducted in different populations, which were not Puerto Rican. A possible explanation for the unexpected results could be that the risk-reversal bias presents itself differently in the Puerto Rican population. For example, it may be that Puerto Ricans tend to prefer sure options, be it in gain or loss frames, and

have an aversion towards taking risks. It is also possible that the cognitive bias is present, but not as pronounced in Puerto Rican culture, when compared to other cultures.

However, the fact that there was a more pronounced difference in Medicine A choices in the English group than in the Spanish group does not mean FLe was not present. There was an effect of foreign language in the participants' decision-making process just not in the direction expected according to previous studies. If the participants in this study have an aversion towards risk instead of loses, then their preferences changed in the foreign language condition since there were more Medicine B (risk choice) responses in the English group.

Language Attitudes

Taking into consideration the one case in which there was a significant relationship between language attitudes and the FLe, the results supported one of the hypotheses (H_{1a}), according to which the more positive the attitude, the more Type A responses in the DMT. Although not statistically significant, the other cases showed a similar pattern in their mean scores; the most positive attitudes accounted for more Type B responses (except for the *Discount on $15* version), meaning the opposite for negative attitudes. These findings provide insight as to how language attitudes are incorporated into the existing theoretical frameworks of the FLe in decision-making. The higher mean language attitude score for participants who chose Type B responses could mean that positive language attitudes did not create a positive bias in foreign language decision-making. Instead of looking at language attitudes as emotional reactivity to positive or negative languages, it may be more accurate to conceptualize them as closeness to the L2. In other words, language attitudes may inform the psychological distance a person feels toward their foreign language. The more positive the language attitude, the less psychological distance there is between the person and the language involved.

IX. Conclusion

This study served as a way to explore the Foreign Language effect in decision-making in young Spanish-English bilinguals in Puerto Rico. To better understand the scope of the FLe, three dilemmas with three distinctive cognitive biases were used: the Trolley dilemma (moral impersonal/personal), the Discount dilemma (psychological accounting), and the Asian Disease dilemma (reversal of risk preference). Participants were divided into two groups—Spanish and English—which provided the opportunity to examine whether language had an effect in reducing cognitive biases. All dilemmas studied showed a language effect which proved the alternative hypothesis true, but in different ways. This goes to show that the scope of the FLe must be further studied. Specifically, future studies should take into consideration cultural differences in sample populations. For example, they should consider that the way cognitive biases present themselves may differ in every population; therefore, establishing a baseline for each population is essential.

Moreover, given the fact that, to our knowledge, these dilemmas have not been given to a Puerto Rican population, future studies should address how and why Puerto Ricans prefer one choice over the other. The explanations given in this study are speculative in nature, but serve as a starting point for other studies. Asking participants at the end of every dilemma to explain their choice may be a way to begin to gather data to answer these questions. Another way to see if cultural factors are a possible cause for a preference in the decision-making process is to conduct this same study with English-Spanish Puerto Ricans in the United States.

A second objective of this study was to explore the relationship between language attitudes towards the L2 in the FLe. Thus, a language attitudes questionnaire was created to measure participants' attitudes towards English. Aside from the *Switch* version of the Trolley

dilemma, the findings in this study do not support there being an effect of language attitudes on the FLe. However, one of the limitations of this study is the small sample size, in comparison to previous studies of a similar nature. A future study should be conducted with more participants to confirm the tendencies found in this study. Furthermore, the instrument used for acquiring language attitudes should be further validated for a refined analysis. Additionally, since most participants in this study were college students and they reported having an overall positive attitude, another study on language attitudes should include older generations which may present more negative attitudes towards English. Two groups that have more distinct attitudes toward English would be optimal for studying the effects on the FLe. Puerto Ricans that migrated to the U.S. and later came back to Puerto Rico may have other distinctive language attitudes. This is considering that some may have negative experiences while in the U.S. which would in turn be associated with English.

Overall, the results from this study help understand the scope and limits of the Foreign Language effect in decision-making. Puerto Rican bilinguals presented a unique opportunity to see how this phenomenon can manifest itself differently, when compared to other previously studied populations. Furthermore, future research should take into consideration how participants' L2 proficiency data are collected. As exhibited in this study, subjective and objective measures may show different effects in the analysis. Thus, instruments should be carefully selected and adapted for each studied population.

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Appendix A. Informed Consent Form (Control group)

HOJA DE CONSENTIMIENTO INFORMADO

El bilingüismo (ESPAÑOL-inglés) y la toma de decisiones en Puerto Rico

Descripción
Usted ha sido invitado/a a participar de una investigación sobre la toma de decisiones por parte de bilingües puertorriqueños. Esta investigación es realizada por la estudiante subgraduada del Departamento de Psicología, Nicole A. Vargas Fuentes, para cumplir con el componente de Tesis del Programa de Estudios de Honor. El propósito de esta investigación es explorar el proceso de toma de decisiones en estudiantes de la Universidad de Puerto Rico, Recinto de Río Piedras.

Usted ha sido invitado a participar debido a que tiene entre 18 y 35 años, es puertorriqueño (que se define como haber vivido en Puerto Rico desde, al menos, los 5 años), es estudiante subgraduado de la Universidad de Puerto Rico y es bilingüe de español (lengua materna) e inglés (segunda lengua). Se estima que alrededor de 200 personas participarán en el estudio.

Si usted decide participar en esta investigación, completará las siguientes tareas.

(1) Un cuestionario de datos demográficos e historial lingüístico en español En esta tarea contestará preguntas abiertas y cerradas sobre información demográfica (e.g., género, edad, lugar de nacimiento) y sobre el proceso de su adquisición de lenguas, su exposición a las lenguas, su uso de las lenguas, su nivel de dominio de las lenguas, etc. Completará esta tarea por su cuenta y se estima que tardará aproximadamente 10 minutos en completarla. Debe devolver el cuestionario completado a la investigadora principal.

(2) Un cuestionario sobre las lenguas en Puerto Rico (en inglés) En esta tarea contestará preguntas sobre su experiencia durante la adquisición del inglés y su identidad lingüística, social y cultural. Completará esta tarea por su cuenta y se estima que tardará aproximadamente 20 minutos en completarla. Debe devolver el cuestionario completado a la investigadora principal.

(3) Una prueba de toma decisiones en español En esta tarea, se le presentarán tres situaciones sobre las que debe reflexionar y tomar una decisión al contestar una pregunta relacionada. Completará esta tarea en un salón de clases, en presencia de la investigadora principal, y se estima que tardará aproximadamente 10 minutos en completarla.

(4) Una prueba de gramática en inglés En esta tarea contestará una serie de preguntas de selección múltiple que evalúan gramática, vocabulario y lectura en oraciones individuales y discurso más extenso. Completará esta tarea en un salón de clases, luego de la tarea de toma de decisiones, en presencia de la investigadora principal, y se estima que tardará aproximadamente 20 minutos en completarla.

Riesgos y beneficios

Los riesgos asociados con este estudio son mínimos y se relacionan con la incomodidad que pueden causar algunas preguntas incluidas en la prueba de toma de decisiones. Se estima que dichos riesgos no sobrepasarán los riesgos de incomodidad que se sienten regularmente en la vida diaria estudiantil (al completar trabajos de los cursos). Usted puede abstenerse de contestar cualquier pregunta incluida en el estudio; asimismo, puede retirarse de la investigación en cualquier momento sin ninguna penalidad. El estudio no incluye beneficios directos para el/la participante.

Confidencialidad
Su identidad será protegida durante la recolección y el análisis de los datos, y la redacción de los resultados. Su nombre solo aparecerá en la hoja de consentimiento informado, junto con un código de identificación que se le asignará. En los demás documentos utilizados para el estudio solo aparecerá su código de identificación.

La información o los datos que puedan identificarlo/a directa o indirectamente serán manejados confidencialmente. Por lo tanto, solo la investigadora principal, Nicole A. Vargas Fuentes, y su directora de la investigación, la Dra. Rosa Guzzardo Tamargo, tendrán acceso a los datos crudos o que puedan identificarlo/a, incluyendo esta hoja de consentimiento.

Oficiales del Recinto de Río Piedras de la Universidad de Puerto Rico responsables de velar por la integridad en la investigación podrían requerirle a la investigadora los datos obtenidos en este estudio, incluyendo este documento.

Entre los documentos impresos del estudio, la hoja de consentimiento informado se almacenará por 3 años y el cuestionario de datos demográficos e historial lingüístico, la prueba de toma de decisiones y la prueba de gramática se almacenarán por un 1 año, en la residencia de la investigadora principal. Luego del año o de los 3 años, estos documentos se triturarán y desecharán. Los datos del estudio de todos los participantes se pasarán a un documento Excel en el que solo aparecerá el código de identificación de cada uno (no el nombre). Este documento digital se almacenará indefinidamente en la computadora de la investigadora principal y se compartirá con otros investigadores, si así lo solicitan.

Derechos
Si leyó este documento y decidió participar, por favor entienda que su participación es completamente voluntaria y que tiene derecho a abstenerse de participar o a retirarse del estudio en cualquier momento, sin ninguna penalidad. También tiene derecho a no contestar alguna pregunta en particular. Además, tiene derecho a recibir una copia de este documento.

Si tiene alguna pregunta o desea más información sobre esta investigación, puede comunicarse con Nicole A. Vargas Fuentes al correo electrónico nicole.vargas2@upr.edu o al teléfono (939) 630-6381, o con la Dra. Rosa Guzzardo Tamargo al correo electrónico rosa.guzzardo@upr.edu o al teléfono (787) 640-1488.

Si tiene preguntas sobre sus derechos como participante o una reclamación o queja relacionada con su participación en este estudio, puede comunicarse con la Oficial de Cumplimiento del

Recinto de Río Piedras de la Universidad de Puerto Rico, al teléfono 787-764-000, extensión 86773 o a cipshi.degi@upr.edu.

Su firma en este documento significa que decidió participar en esta investigación después de leer y discutir la información presentada en esta hoja de consentimiento y que recibió copia de este documento.

_____	_____	_____
Nombre del/de la participante	Firma	Fecha

Discutí el contenido de esta hoja de consentimiento con el/la arriba firmante.

_____	_____	_____
Nombre de la investigadora	Firma	Fecha

Appendix B. Informed Consent Form (Experimental group)

HOJA DE CONSENTIMIENTO INFORMADO

El bilingüismo (español-INGLÉS) y la toma de decisiones en Puerto Rico

Descripción

Usted ha sido invitado/a a participar de una investigación sobre la toma de decisiones por parte de bilingües puertorriqueños. Esta investigación es realizada por la estudiante subgraduada del Departamento de Psicología, Nicole A. Vargas Fuentes, para cumplir con el componente de Tesis del Programa de Estudios de Honor. El propósito de esta investigación es explorar el proceso de toma de decisiones en estudiantes de la Universidad de Puerto Rico, Recinto de Río Piedras.

Usted ha sido invitado a participar debido a que tiene entre 18 y 35 años, es puertorriqueño (que se define como haber vivido en Puerto Rico desde, al menos, los 5 años), es estudiante subgraduado de la Universidad de Puerto Rico y es bilingüe de español (lengua materna) e inglés (segunda lengua). Se estima que alrededor de 200 personas participarán en el estudio.

Si usted decide participar en esta investigación, completará las siguientes tareas.

(1) Un cuestionario de datos demográficos e historial lingüístico en español En esta tarea contestará preguntas abiertas y cerradas sobre información demográfica (e.g., género, edad, lugar de nacimiento) y sobre el proceso de su adquisición de lenguas, su exposición a las lenguas, su uso de las lenguas, su nivel de dominio de las lenguas, etc. Completará esta tarea por su cuenta y se estima que tardará aproximadamente 10 minutos en completarla. Debe devolver el cuestionario completado a la investigadora principal.

(2) Un cuestionario sobre las lenguas en Puerto Rico (en inglés) En esta tarea contestará preguntas sobre su experiencia durante la adquisición del inglés y su identidad lingüística, social y cultural. Completará esta tarea por su cuenta y se estima que tardará aproximadamente 20 minutos en completarla. Debe devolver el cuestionario completado a la investigadora principal.

(3) Una prueba de toma decisiones en inglés En esta tarea, se le presentarán tres situaciones sobre las que debe reflexionar y tomar una decisión al contestar una pregunta relacionada. Completará esta tarea en un salón de clases, en presencia de la investigadora principal, y se estima que tardará aproximadamente 10 minutos en completarla.

(4) Una prueba de gramática en inglés En esta tarea contestará una serie de preguntas de selección múltiple que evalúan gramática, vocabulario y lectura en oraciones individuales y discurso más extenso. Completará esta tarea en un salón de clases, luego de la tarea de toma de decisiones, en presencia de la investigadora principal, y se estima que tardará aproximadamente 20 minutos en completarla.

Riesgos y beneficios

Los riesgos asociados con este estudio son mínimos y se relacionan con la incomodidad que pueden causar algunas preguntas incluidas en la prueba de toma de decisiones. Se estima que dichos riesgos no sobrepasarán los riesgos de incomodidad que se sienten regularmente en la vida diaria estudiantil (al completar trabajos de los cursos). Usted puede abstenerse de contestar cualquier pregunta incluida en el estudio; asimismo, puede retirarse de la investigación en cualquier momento sin ninguna penalidad. El estudio no incluye beneficios directos para el/la participante.

Confidencialidad
Su identidad será protegida durante la recolección y el análisis de los datos, y la redacción de los resultados. Su nombre solo aparecerá en la hoja de consentimiento informado, junto con un código de identificación que se le asignará. En los demás documentos utilizados para el estudio solo aparecerá su código de identificación.

La información o los datos que puedan identificarlo/a directa o indirectamente serán manejados confidencialmente. Por lo tanto, solo la investigadora principal, Nicole A. Vargas Fuentes, y su directora de la investigación, la Dra. Rosa Guzzardo Tamargo, tendrán acceso a los datos crudos o que puedan identificarlo/a, incluyendo esta hoja de consentimiento.

Oficiales del Recinto de Río Piedras de la Universidad de Puerto Rico responsables de velar por la integridad en la investigación podrían requerirle a la investigadora los datos obtenidos en este estudio, incluyendo este documento.

Entre los documentos impresos del estudio, la hoja de consentimiento informado se almacenará por 3 años y el cuestionario de datos demográficos e historial lingüístico, la prueba de toma de decisiones y la prueba de gramática se almacenarán por un 1 año, en la residencia de la investigadora principal. Luego del año o de los 3 años, estos documentos se triturarán y desecharán. Los datos del estudio de todos los participantes se pasarán a un documento Excel en el que solo aparecerá el código de identificación de cada uno (no el nombre). Este documento digital se almacenará indefinidamente en la computadora de la investigadora principal y se compartirá con otros investigadores, si así lo solicitan.

Derechos
Si leyó este documento y decidió participar, por favor entienda que su participación es completamente voluntaria y que tiene derecho a abstenerse de participar o a retirarse del estudio en cualquier momento, sin ninguna penalidad. También tiene derecho a no contestar alguna pregunta en particular. Además, tiene derecho a recibir una copia de este documento.

Si tiene alguna pregunta o desea más información sobre esta investigación, puede comunicarse con Nicole A. Vargas Fuentes al correo electrónico nicole.vargas2@upr.edu o al teléfono (939) 630-6381, o con la Dra. Rosa Guzzardo Tamargo al correo electrónico rosa.guzzardo@upr.edu o al teléfono (787) 640-1488.

Si tiene preguntas sobre sus derechos como participante o una reclamación o queja relacionada con su participación en este estudio, puede comunicarse con la Oficial de Cumplimiento del

Recinto de Río Piedras de la Universidad de Puerto Rico, al teléfono 787-764-000, extensión 86773 o a cipshi.degi@upr.edu.

Su firma en este documento significa que decidió participar en esta investigación después de leer y discutir la información presentada en esta hoja de consentimiento y que recibió copia de este documento.

_____	_____	_____
Nombre del/de la participante	Firma	Fecha

Discutí el contenido de esta hoja de consentimiento con el/la arriba firmante.

_____	_____	_____
Nombre de la investigadora	Firma	Fecha

Appendix C. Demographic Data and Language History Questionnaire

Cuestionario de datos demográficos e historial lingüístico

1) Género: ____ Masculino ____ Femenino ____ Prefiero no especificar

2) Edad: ____

3) Facultad: _____

4) Concentración: _____

5) Año académico: _____

6) Pueblo y país de nacimiento: _____

7) Pueblo y país de crianza: _____

8) Pueblo donde vive actualmente _____

9) La escuela o colegio elemental al/a la que asistió, ¿es público/a o privado/a?
____ Público/a ____ Privado/a

10) La escuela o colegio intermedio/a al/a la que asistió, ¿es público/a o privado/a?
____ Público/a ____ Privado/a

11) La escuela o colegio superior al/a la que asistió, ¿es público/a o privado/a?
____ Público/a ____ Privado/a

12) Si ha pasado más de dos semanas consecutivas en un lugar fuera de Puerto Rico, mencione dónde, por cuánto tiempo y que idioma(s) utilizó durante ese tiempo. (Si no le aplica, por favor, dejar en blanco.)

Lugar (pueblo, país)	Tiempo (semanas, meses, años)	Idioma(s)

13) Enumere todos los idiomas que conoce, empezando por el primer idioma que adquirió y siguiendo en el orden en que adquirió o aprendió los demás. Además, indique a qué edad comenzó a adquirirlos o aprenderlos, si continúa utilizándolos en su vida diaria y en qué contexto(s).

Idioma	Edad	¿Continúa utilizándolo?	¿En qué contexto(s)?

14) Indique, entre 1 (nunca) y 5 (siempre), qué tan expuesto está al ESPAÑOL en las siguientes situaciones.

	1 (nunca)	2	3	4	5 (siempre)
A) Escuela	1	2	3	4	5
B) Hogar/Familia	1	2	3	4	5
C) Trabajo	1	2	3	4	5
D) Amistades	1	2	3	4	5
E) Televisión	1	2	3	4	5
F) Música	1	2	3	4	5
G) Lectura	1	2	3	4	5

15) En una escala del 1 (muy bajo) al 5 (perfecto), indique cuál es su nivel de dominio en ESPAÑOL en las siguientes áreas.

	1 (muy bajo)	2	3	4	5 (perfecto)
A) Hablar (expresión oral)	1	2	3	4	5
B) Leer (comprensión de lectura)	1	2	3	4	5
C) Escribir (escritura)	1	2	3	4	5
D) Entender (comprensión oral)	1	2	3	4	5

16) Indique, entre 1 (nunca) y 5 (siempre), qué tan expuesto está al INGLÉS en las siguientes situaciones.

	1 (nunca)	2	3	4	5 (siempre)

A) Escuela	1	2	3	4	5
B) Hogar/Familia	1	2	3	4	5
C) Trabajo	1	2	3	4	5
D) Amistades	1	2	3	4	5
E) Televisión	1	2	3	4	5
F) Música	1	2	3	4	5
G) Lectura	1	2	3	4	5

17) En una escala del 1 (muy bajo) al 5 (perfecto), indique cuál es su nivel de dominio en INGLÉS en las siguientes áreas.

	1 (muy bajo)	2	3	4	5 (perfecto)
A) Hablar (expresión oral)	1	2	3	4	5
B) Leer (comprensión de lectura)	1	2	3	4	5
C) Escribir (escritura)	1	2	3	4	5
D) Entender (comprensión oral)	1	2	3	4	5

Appendix D. Language Attitudes Questionnaire

Questionnaire on Languages in Puerto Rico

1) In general, would you say that you have a positive relationship with the English language?

Strongly agree	1
Agree	2
Somewhat agree	3
Somewhat disagree	4
Disagree	5
Strongly disagree	6

2) In general, do you believe English is important in your life? ____ Yes ____ No

2a) If YES, please check all the scenarios in which you believe English plays an important role.

Work	
School	
Communicating with others	
Entertainment	
Social status	
Travel	

3) Please specify your preference between English and Spanish in the following scenarios.

I prefer to…	in English	in Spanish
a) speak		
b) listen to other people speak		
c) write notes/emails/text messages		
d) write academic documents		
e) read literary works		
f) read textbooks/academic documents		
g) read newspapers/magazines		
h) read notes/emails/text messages		
i) listen to music		
j) watch TV		
k) think		
l) count		

4) What language do you think Puerto Rican children should learn at home?

Only English	1
More English than Spanish	2
Both equally	3
More Spanish than English	4

Only Spanish	5

5) If you had children and there was an all-English school near your home, would you consider sending them there?
_____ Yes _____ No

6) Please answer the following questions as sincerely as possible. Circle the number that best describes your opinion.

	Strongly Agree 1	Agree 2	Somewhat Agree 3	Somewhat Disagree 4	Disagree 5	Strongly Disagree 6
a) English is a beautiful language.	1	2	3	4	5	6
b) English is a prestigious language.	1	2	3	4	5	6
c) I like to listen to spoken English.	1	2	3	4	5	6
d) Knowing English is more important for getting a job than knowing Spanish.	1	2	3	4	5	6
e) Activities and objects associated with English are not part of Puerto Rican culture.	1	2	3	4	5	6
f) English will never become the common means of communication in Puerto Rico.	1	2	3	4	5	6
g) Puerto Ricans should speak more English.	1	2	3	4	5	6
h) Puerto Ricans should speak English just as well as Spanish.	1	2	3	4	5	6
i) It is better to speak some English than no English at all.	1	2	3	4	5	6
j) I am committed to using English as much as I can.	1	2	3	4	5	6
k) I enjoyed learning English.	1	2	3	4	5	6
l) It was not easy to learn English.	1	2	3	4	5	6
m) I think all children in Puerto Rico should study English.	1	2	3	4	5	6

n) We need to preserve English.	1	2	3	4	5	6
o) The presence of English in Puerto Rico has negatively affected the quality of our Spanish.	1	2	3	4	5	6
p) English will disappear in Puerto Rico.	1	2	3	4	5	6
q) Private schools should be obligated to give all their courses in Spanish, with the exception of the English course.	1	2	3	4	5	6
r) English classes in Puerto Rican schools should be elective courses instead of requirements.	1	2	3	4	5	6
s) It would be a good idea for some courses to be taught in English to give students the opportunity to practice their language skills.	1	2	3	4	5	6
t) I believe it was wrong to be obligated to take English in school.	1	2	3	4	5	6

Appendix E. Language Attitutes Questionnaire (Student Content Validation Form)

Questionnaire on Languages in Puerto Rico

In a scale from 0 to 3, where 0 is the lowest possible score, evaluate each section of the questionnaire, based on the following criteria:

Clarity – Is the item or instruction clear enough to be understood?

Syntax – Is the item or instruction written in a grammatically correct form?

Write the rating of your choice (0, 1, 2, 3) in the box above each criterion.

I. Evaluate the item:

In general, how would you describe your relationship with English?

Clarity	Syntax

II. Evaluate the alternatives:

Strongly opposed	1
Somewhat opposed	2
Somewhat in favor	3
Strongly in favor	4

Clarity	Syntax

III. Evaluate the item:

In general, do you believe English is important in your life?

Clarity	Syntax

IV. Evaluate the alternatives:

___ Yes ____ No

Clarity	Syntax

Evaluate the item:

If YES, please check all the scenarios in which you believe English plays an important role.

Clarity	Syntax

V. Evaluate item #1:

Work

Clarity	Syntax

VI. Evaluate item #2:

School

Clarity	Syntax

VII. Evaluate item #3:

Communicating with others

Clarity	Syntax

VIII. Evaluate item #4:

Entertainment

Clarity	Syntax

IX. Evaluate item #5:

Social Status

Clarity	Syntax

Evaluate item #6:

Travel

Clarity	Syntax

X. Evaluate the instruction:

Please specify your preference between English and Spanish in the following scenarios.

Clarity	Syntax

XI. Evaluate the alternatives:

I prefer to…	English	Spanish

Clarity	Syntax

XII. Evaluate item #1:

Speak

Clarity	Syntax

XIII. Evaluate item #2:

Listen to other people speak

Clarity	Syntax

XIV. Evaluate item #3:

Write notes/emails/text messages

Clarity	Syntax

XV. Evaluate item #4:

Read literary works

Clarity	Syntax

XVI. Evaluate item #5:

Read textbooks/academic documents

Clarity	Syntax

XVII. Evaluate item #6:

Read newspapers/magazines

Clarity	Syntax

XVIII. Evaluate item #7:

Read notes/emails/text

Clarity	Syntax

XIX. Evaluate item #8:

Listen to music

Clarity	Syntax

XX. Evaluate item #9:

Watch TV

Clarity	Syntax

XXI. Evaluate item #10:

Think

Clarity	Syntax

XXII. Evaluate item #11:

Count

Clarity	Syntax

XXIII. Evaluate the item:

What language do you think Puerto Rican children should learn at home?

Clarity	Syntax

XXIV. Evaluate the alternatives:

Only English	1
More English than Spanish	2
Both equally	3
More Spanish than English	4
Only Spanish	5

Clarity	Syntax

XXV. Evaluate the item:

If you had children and there were an all-English school near your home, would you consider sending them there?

Clarity	Syntax

XXVI. Evaluate the alternatives:

___ Yes ____ No

Clarity	Syntax

XXVII. Evaluate the instruction:

Please answer the following questions as sincerely as possible. Circle the number that best describes your opinion.

Clarity	Syntax

XXVIII. Evaluate the alternatives:

Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4

Clarity	Syntax

XXIX. Evaluate item #1:

English will never become the common means of communication in Puerto Rico.

Clarity	Syntax

XXX. Evaluate item #2:

It is better to speak some English than no English at all.

Clarity	Syntax

XXXI. Evaluate item #3:

Things associated with English are not part of Puerto Rican culture.

Clarity	Syntax

XXXII. Evaluate item #4:

Puerto Ricans should speak more English.

Clarity	Syntax

XXXIII. Evaluate item #5:

English is a prestigious language.

Clarity	Syntax

XXXIV. Evaluate item #6:

I am committed to using English as much as I can.

Clarity	Syntax

XXXV. Evaluate item #7:

English is a beautiful language.

Clarity	Syntax

XXXVI. Evaluate item #8:

Knowing English is more important for getting a job than knowing Spanish.

Clarity	Syntax

XXXVII. Evaluate item #9:

I enjoyed learning English.

Clarity	Syntax

XXXVIII. Evaluate item #10:

It was not easy to learn English.

Clarity	Syntax

XXXIX. Evaluate item #11:

I think all children in Puerto Rico should study English.

Clarity	Syntax

XL. Evaluate item #12:

I like to hear English.

Clarity	Syntax

XLI. Evaluate item #13:

English will disappear in Puerto Rico.

Clarity	Syntax

XLII. Evaluate item #14:

We need to preserve English.

Clarity	Syntax

XLIII. Evaluate item #15:

English classes in Puerto Rican schools should be elective courses instead of requirements.

Clarity	Syntax

XLIV. Evaluate item #16:

It would be a good idea for some courses to be taught in English to give students the opportunity to practice their language skills.

Clarity	Syntax

XLV. Evaluate item #17:

Private schools should be obligated to give all their courses in Spanish, with the exception of the English course.

Clarity	Syntax

XLVI. Evaluate item #18:

Puerto Ricans should speak English just as well as Spanish.

Clarity	Syntax

XLVII. Evaluate item #19:

I believe it was wrong to be obligated to take English in school.

Clarity	Syntax

XLVIII. Evaluate item #20:

The presence of English in Puerto Rico has negatively affected the quality of our Spanish.

Clarity	Syntax

Appendix F. Language Attitudes Questionnaire (Expert Content Validation Form)

Questionnaire on Languages in Puerto Rico

In a scale from 0 to 3, where 0 is the lowest possible score, evaluate each section of the questionnaire, based on the following criteria:

Clarity – Is the item or instruction clear enough to be understood?

Syntax – Is the item or instruction written in a grammatically correct form?

Relevance – Is the item or instruction relevant to the study? Does it measure what it intends to measure? Is it appropriate for undergraduate students?

Write the rating of your choice (0, 1, 2, 3) in the box above each criterion.

I. Evaluate the item:

In general, how would you describe your relationship with English?

Clarity	Syntax	Relevance

II. Evaluate the alternatives:

Strongly opposed	1
Somewhat opposed	2
Somewhat in favor	3
Strongly in favor	4

Clarity	Syntax	Relevance

III. Evaluate the item:

In general, do you believe English is important in your life?

Clarity	Syntax	Relevance

IV. Evaluate the alternatives:

___ Yes ____ No

Clarity	Syntax	Relevance

V. Evaluate the item:

If YES, please check all the scenarios in which you believe English plays an important role.

Clarity	Syntax	Relevance

VI. Evaluate item #1:

Work

Clarity	Syntax	Relevance

VII. Evaluate item #2:

School

Clarity	Syntax	Relevance

VIII. Evaluate item #3:

Communicating with others

Clarity	Syntax	Relevance

IX. Evaluate item #4:

Entertainment

Clarity	Syntax	Relevance

X. Evaluate item #5:

Social Status

Clarity	Syntax	Relevance

XI. Evaluate item #6:

Travel

Clarity	Syntax	Relevance

XII. Evaluate the instruction:

Please specify your preference between English and Spanish in the following scenarios.

Clarity	Syntax	Relevance

XIII. Evaluate the alternatives:

I prefer to…	English	Spanish

Clarity	Syntax	Relevance

XIV. Evaluate item #1:

Speak

Clarity	Syntax	Relevance

XV. Evaluate item #2:

Listen to other people speak

Clarity	Syntax	Relevance

XVI. Evaluate item #3:

Write notes/emails/text messages

Clarity	Syntax	Relevance

XVII. Evaluate item #4:

Read literary works		
Clarity	Syntax	Relevance

XVIII. Evaluate item #5:

Read textbooks/academic documents		
Clarity	Syntax	Relevance

XIX. Evaluate item #6:

Read newspapers/magazines		
Clarity	Syntax	Relevance

XX. Evaluate item #7:

Read notes/emails/text		
Clarity	Syntax	Relevance

XXI. Evaluate item #8:

Listen to music		
Clarity	Syntax	Relevance

XXII. Evaluate item #9:

Watch TV		
Clarity	Syntax	Relevance

XXIII. Evaluate item #10:

Think

Clarity	Syntax	Relevance

XXIV. Evaluate item #11:

Count

Clarity	Syntax	Relevance

XXV. Evaluate the item:

What language do you think Puerto Rican children should learn at home?

Clarity	Syntax	Relevance

XXVI. Evaluate the alternatives:

Only English	1
More English than Spanish	2
Both equally	3
More Spanish than English	4
Only Spanish	5

Clarity	Syntax	Relevance

XXVII. Evaluate the item:

If you had children and there were an all-English school near your home, would you consider sending them there?

Clarity	Syntax	Relevance

XXVIII. Evaluate the alternatives:

___ Yes ____ No

Clarity	Syntax	Relevance

XXIX. Evaluate the instruction:

Please answer the following questions as sincerely as possible. Circle the number that best describes your opinion.

Clarity	Syntax	Relevance

XXX. Evaluate the alternatives:

Strongly Agree 1	Agree 2	Disagree 3	Strongly Disagree 4

Clarity	Syntax	Relevance

XXXI. Evaluate item #1:

English will never become the common means of communication in Puerto Rico.

Clarity	Syntax	Relevance

XXXII. Evaluate item #2:

It is better to speak some English than no English at all.

Clarity	Syntax	Relevance

XXXIII. Evaluate item #3:

Things associated with English are not part of Puerto Rican culture.

Clarity	Syntax	Relevance

XXXIV. Evaluate item #4:

Puerto Ricans should speak more English.

Clarity	Syntax	Relevance

XXXV. Evaluate item #5:

English is a prestigious language.

Clarity	Syntax	Relevance

XXXVI. Evaluate item #6:

I am committed to using English as much as I can.

Clarity	Syntax	Relevance

XXXVII. Evaluate item #7:

English is a beautiful language.

Clarity	Syntax	Relevance

XXXVIII. Evaluate item #8:

Knowing English is more important for getting a job than knowing Spanish.

Clarity	Syntax	Relevance

XXXIX. Evaluate item #9:

I enjoyed learning English.

Clarity	Syntax	Relevance

XL. Evaluate item #10:

It was not easy to learn English.

Clarity	Syntax	Relevance

XLI. Evaluate item #11:

I think all children in Puerto Rico should study English.

Clarity	Syntax	Relevance

XLII. Evaluate item #12:

I like to hear English.

Clarity	Syntax	Relevance

XLIII. Evaluate item #13:

English will disappear in Puerto Rico.

Clarity	Syntax	Relevance

XLIV. Evaluate item #14:

We need to preserve English.

Clarity	Syntax	Relevance

XLV. Evaluate item #15:

English classes in Puerto Rican schools should be elective courses instead of requirements.

Clarity	Syntax	Relevance

XLVI. Evaluate item #16:

It would be a good idea for some courses to be taught in English to give students the opportunity to practice their language skills.

Clarity	Syntax	Relevance

XLVII. Evaluate item #17:

Private schools should be obligated to give all their courses in Spanish, with the exception of the English course.

Clarity	Syntax	Relevance

XLVIII. Evaluate item #18:

Puerto Ricans should speak English just as well as Spanish.

Clarity	Syntax	Relevance

XLIX. Evaluate item #19:

I believe it was wrong to be obligated to take English in school.

Clarity	Syntax	Relevance

L. Evaluate item #20:

The presence of English in Puerto Rico has negatively affected the quality of our Spanish.

Clarity	Syntax	Relevance

Appendix G. MELICET

English Grammar Test

Instructions: Choose the word or phrase that best completes the conversation.

1. "What time will we arrive in San Francisco?"
   "I'm not sure, because I don't know _____ from here."
   a. it is how far
   b. how far is it
   c. how far it is
   d. how is it far

2. Did George enter the photography contest?"
   "No, but if he had, I think he _____."
   a. would have won
   b. had won
   c. would won
   d. will have won

3. "What's the matter?"
   "I feel _____ out."
   a. tire
   b. tiring
   c. tired
   d. being tired

4. "May I bring you a cup of tea?"
   "I prefer coffee _____ tea."
   a. to
   b. than
   c. rather
   d. instead

5. "Have you ever gone to Tahiti?"
   "No, but I have _____ for a long time."
   a. wanted
   b. been wanted
   c. wanting to
   d. been wanting to

6. "Will you come to my party on Saturday?"
   "_____ I'd like to, I can't."
   a. The same as
   b. As much as
   c. So much that
   d. More than

7. “Don’t forget to pay the rent tomorrow!”
   “Please remind _____ in the morning.”
   a. me it
   b. me of it
   c. it to me
   d. it me

8. “Susan plays the piano very well.”
   “_____ that, she’s an excellent singer.”
   a. As well
   b. But also
   c. Not only
   d. In addition

9. “Which chair should I take?”
   “The _____ over there.”
   a. bright green folding one
   b. bright folding green one
   c. one bright green folding
   d. one bright folding green

10. “Mark isn’t very smart, is he?”
    “Actually, he’s smarter than he _____ to be.”
    a. might seem
    b. seem
    c. is seeming
    d. is seemed

11. “What do you think of American football?”
    “I think it’s _____ sport.”
    a. very dangerous
    b. very dangerous a
    c. too dangerous a
    d. too dangerous

12. “What shall we do about this problem?”
    “John suggests _____ a meeting.”
    a. of calling
    b. that call
    c. that will call
    d. calling

13. “Where did you get those curtains?”
    “My wife made them _____ an old tablecloth.”
    a. from out

b. from in
c. out from
d. out of

14. “Do you like sugar in your coffee?”
“Yes, _____ better.”
a. the more the
b. more the
c. the more
d. more

15. “Why did John refuse to pay for his dinner?”
“Because _____ two hours by the time he was served.”
a. he’s been waiting
b. he’s been waited
c. he’d been waiting
d. he’d been waited

16. “When is the meeting going to begin?”
“_____ Fred comes, we can get started.”
a. Then
b. Until
c. Once
d. At

17. “Does John have a lot of accidents at work?”
“Yes. He isn’t _____ he should be.”
a. as careful work
b. as careful as a worker
c. as careful worker as
d. as careful a worker as

18. “Did David enter the writing contest?”
“Yes, he thinks he has _____.”
a. a chance to win
b. a chance of win
c. a chance win
d. the chance to win

19. “Does Barbara have a difficult job?”
“Yes. She is responsible_____ many important decisions.”
a. her making
b. for making
c. to make
d. of making

20. “You gave me the wrong amount of money.”
“How _____? I gave you what you asked for.”
    a. can be that
    b. can that be
    c. can be
    d. that can be

21. “Will Bill’s report be ready by Friday?”
“No, I don’t think he _____ it by then.”
    a. has finished
    b. will have finished
    c. finishes
    d. will be finished

22. “When will this paint be dry?”
“Not long. This is very _____ paint.”
    a. fast to dry
    b. fast drying
    c. dry fast
    d. fast dry

23. “Does Sue like circuses?”
“Yes, the clowns always make _____.”
    a. her laughing
    b. she laughs
    c. her laugh
    d. her to laugh

24. “Did you do well on the history test?”
“No. I studied all night _____ failed.”
    a. still yet
    b. even though
    c. although
    d. but still

25. “How do those shoes fit?”
“My feet are too big _____ them.”
    a. for wear
    b. that to wear
    c. to wear
    d. that I can’t wear

26. “Do Mary’s children help with the housework?”
“Yes, if she asks _____.”
    a. it them
    b. them to do

c. them to
d. them for

27. “Where’s the box I asked for?”
“Over there, _____ on the table.”
a. seated
b. sitting
c. sat
d. seating

28. “Let’s plan a picnic for Saturday.”
“_____ it rains?”
a. What if
b. Nevertheless
c. Except
d. In spite of

29. “Is Lynn going to buy a new suit?”
“Yes, she’s looking for a suit like _____.”
a. your wool one
b. one wool of yours
c. wool one of yours
d. one of yours wool

30. “That movie isn’t very good.”
“Just wait. The best part _____.”
a. has come yet
b. is yet coming
c. is yet to come
d. come yet

Instructions: Read the passage, then select the word which best fills the blank in both grammar and meaning.

Color is such a constant part of our environment that we tend to ignore its messages. Many people with perfect vision suffer (of / from / such / like) a sort of cultural color blindness. But (that / other / even / have) unnoticed color influences feelings as well. (Many /Some / Lot / Reports) of experiments with both infants and (colors / adults / also / muscles) indicate that blue light tends to (lessen / create / release / increase) activity and produce a state of restfulness. (Even / But / As / The) more tense a person is, the (more / color / light / worse) blue will act as a tranquilizer. Red, (in / is / on / affects) the contrary, excites the nervous system, (and / so / suppose / imagine) that if this page were printed (with / on / as / in) red paper, electrodes attached to your skin (would / will / and / to) show a define increase in muscle (intensity / system / naturally / tension), restlessness, and eye movements compared with (eye / its / your / their) reactions to the white page. Studies (were / have / which / nevertheless) found that patients in hospital rooms (colored / see / painted / on) red or other bright colors require (more / much / the / special) attention from nurses than patients in (blue / not / rooms / which) painted in more

subdued colors. Furthermore, (studies / results / teachers / it) has been found that school children (show / will / are / were) more alert and learn faster in (brightly / red / blue / subdued) painted rooms. However, this is unfortunately accompanied by an increase in restlessness and noisiness.

Appendix H. Decision-Making Task

English - Version (EA1)

Decision-Making Task (EA1)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

   If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA2)

Decision-Making Task (EA2)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

   If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA3)

Decision-Making Task (EA3)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

   If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA4)

Decision-Making Task (EA4)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

   If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA5)

Decision-Making Task (EA5)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

   If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA6)

Decision-Making Task (EA6)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

   If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA7)

Decision-Making Task (EA7)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

   If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EA8)

Decision-Making Task (EA8)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

2. Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

   If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

English - Version (EB1)

Decision-Making Task (EB1)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

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   Would you make the trip to the other shop?
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   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

English - Version (EB2)

Decision-Making Task (EB2)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

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   a. Yes
   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   c. Yes
   d. No

English - Version (EB3)

Decision-Making Task (EB3)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

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   Would you make the trip to the other shop?
   a. Yes
   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

English - Version (EB4)

Decision-Making Task (EB4)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

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   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped. Five people will die if you stay on this track. There is another track that you can use to divert the train. At the end of this track there is one man that will die if you change the track.

   Would you change the track?
   a. Yes
   b. No

English - Version (EB5)

Decision-Making Task (EB5)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

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2. Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

English - Version (EB6)

Decision-Making Task (EB6)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

   If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.

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   a. Medicine A
   b. Medicine B

2. Imagine that you want to buy a jacket for 125 dollars and a calculator for 15 dollars. The salesman tells you that the calculator you want to buy is on offer for 10 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

English - Version (EB7)

Decision-Making Task (EB7)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 200,000 people will be saved.

   If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

2. Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

English - Version (EB8)

Decision-Making Task (EB8)

Please carefully read the following situations and answer with ONE of the two proposed courses of action. Answer as honestly as you can; there are no wrong or right answers.

1. Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

   If you choose Medicine A, 400,000 people will die.

   If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.

   Which medicine do you choose?
   a. Medicine A
   b. Medicine B

2. Imagine that you want to buy a jacket for 15 dollars and a calculator for 125 dollars. The salesman tells you that the calculator you want to buy is on offer for 120 dollars at their other shop, located 20 min drive away.

   Would you make the trip to the other shop?
   a. Yes
   b. No

3. A train is going down a track very fast toward five people. The train has a problem and cannot be stopped unless a heavy weight is dropped on the track. There is a very fat man next to you—your only way to stop the train is to push him onto the track, killing him to save five people.

   Would you push him?
   a. Yes
   b. No

Spanish - Version (SA1)

Tarea de Toma de Decisiones (SA1)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a cinco personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiarías de vía?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de oportunidad que 600,000 personas sean salvadas y un 66.6% de oportunidad que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA2)

Tarea de Toma de Decisiones (SA2)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a 5 personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiarías de vía?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de oportunidad que nadie morirá y un 66.6% de oportunidad que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA3)

Tarea de Toma de Decisiones (SA3)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a 5 personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiarías de vía?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de oportunidad que 600,000 personas sean salvadas y un 66.6% de oportunidad que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA4)

Tarea de Toma de Decisiones (SA4)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a 5 personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiarías de vía?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de oportunidad que nadie morirá y un 66.6% de oportunidad que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA5)

Tarea de Toma de Decisiones (SA5)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de oportunidad que 600,000 personas sean salvadas y un 66.6% de oportunidad que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA6)

Tarea de Toma de Decisiones (SA6)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de oportunidad que nadie morirá y un 66.6% de oportunidad que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA7)

Tarea de Toma de Decisiones (SA7)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de oportunidad que 600,000 personas sean salvadas y un 66.6% de oportunidad que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SA8)

Tarea de Toma de Decisiones (SA8)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas ciertas o erróneas.

1. Un tren viaja rápidamente en una vía en dirección a cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar estas personas, dos tipos de medicina se están creando.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de oportunidad que nadie morirá y un 66.6% de oportunidad que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

Spanish - Version (SB1)

Tarea de Toma de Decisiones (SB1)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que 600,000 personas sean salvadas y un 66.6% de probabilidad de que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia cinco personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiaría de vía?
   a. Sí
   b. No

Spanish - Version (SB2)

Tarea de Toma de Decisiones (SB2)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que nadie morirá y un 66.6% de probabilidad de que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia 5 personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiaría de vía?
   a. Sí
   b. No

Spanish - Version (SB3)

Tarea de Toma de Decisiones (SB3)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que 600,000 personas sean salvadas y un 66.6% de probabilidad de que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia 5 personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiaría de vía?
   a. Sí
   b. No

Spanish - Version (SB4)

Tarea de Toma de Decisiones (SB4)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que nadie morirá y un 66.6% de probabilidad de que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia 5 personas. El tren tiene un problema y no puede detenerse. Cinco personas morirán si decide quedarse en esta vía. Hay otra vía que usted puede utilizar para redirigir el tren. Al final de esta vía, hay un hombre que morirá si decide cambiar de vía.

   ¿Cambiaría de vía?
   a. Sí
   b. No

Spanish - Version (SB5)

Tarea de Toma de Decisiones (SB5)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que 600,000 personas sean salvadas y un 66.6% de probabilidad de que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

Spanish - Version (SB6)

Tarea de Toma de Decisiones (SB6)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que nadie morirá y un 66.6% de probabilidad de que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 125 dólares y una calculadora por 15 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 10 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

Spanish - Version (SB7)

Tarea de Toma de Decisiones (SB7)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 200,000 personas serán salvadas.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que 600,000 personas sean salvadas y un 66.6% de probabilidad de que nadie sea salvado.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

Spanish - Version (SB8)

Tarea de Toma de Decisiones (SB8)

Por favor, lea cuidadosamente las siguientes situaciones y elija UNA de las dos acciones propuestas. Conteste honestamente; no hay respuestas correctas ni incorrectas.

1. Recientemente, ha surgido una epidemia peligrosa. Sin medicina, 600,000 personas morirán a causa de ella. Para salvar a estas personas, se están creando dos tipos de medicina.

   Si elige la Medicina A, 400,000 personas morirán.

   Si elige la Medicina B, hay un 33.3% de probabilidad de que nadie morirá y un 66.6% de probabilidad de que 600,000 morirán.

   ¿Qué medicina elige?
   a. Medicina A
   b. Medicina B

2. Imagine que usted quiere comprar un abrigo por 15 dólares y una calculadora por 125 dólares. El vendedor le dice que la calculadora que quiere comprar está en oferta por 110 dólares en su otra tienda, localizada a 20 minutos.

   ¿Haría el viaje a la otra tienda?
   a. Sí
   b. No

3. Un tren viaja rápidamente en una vía en dirección hacia cinco personas. El tren tiene un problema y no puede detenerse al menos que un gran peso caiga en la vía. Hay un hombre muy gordo al lado de usted—su única manera de parar el tren es empujarlo hacia la vía, matándolo para salvar a cinco personas.

   ¿Lo empujaría?
   a. Sí
   b. No

Appendix I.

Table 1. Participants Demographic Information

	f	%
Gender		
Female	38	59
Male	26	41
College Major		
Business	30	46.87
Social Sciences	15	23.44
Humanities	16	25
Communication	1	1.56
Natural Sciences	2	3.13
School Year		
Second year	1	1.56
Third Year	19	29.69
Fourth Year	20	31.25
Fifth Year	17	26.56
Sixth Year	5	7.81
Seventh Year	1	1.56
Not specified	1	1.56
Municipality and Country of Birth		
Aibonito, Puerto Rico	1	1.56
Bayamón, Puerto Rico	12	18.75
Caguas, Puerto Rico	5	7.81
Cayey, Puerto Rico	2	3.13
Guayama, Puerto Rico	2	3.13
Guaynabo, Puerto Rico	1	1.56
Manatí, Puerto Rico	2	3.13
Ponce, Puerto Rico	1	1.56
San Juan, Puerto Rico	36	56.25
Vega Baja, Puerto Rico	1	1.56
Not specified	1	1.56
Municipality and Country of Upbringing		
Aibonito, Puerto Rico	1	1.56
Arecibo, Puerto Rico	2	3.13
Bayamón, Puerto Rico	5	7.81
Caguas, Puerto Rico	5	7.81
Carolina, Puerto Rico	6	9.34
Cataño, Puerto Rico	1	1.56
Cayey, Puerto Rico	2	3.13
Corozal, Puerto Rico	1	1.56
Cidra, Puerto Rico	2	3.13
Dorado, Puerto Rico	2	3.13
Guayama, Puerto Rico	1	1.56

Guaynabo, Puerto Rico	7	10.94
Gurabo, Puerto Rico	1	1.56
Loíza, Puerto Rico	1	1.56
Patillas, Puerto Rico	1	1.56
Quebradillas, Puerto Rico	1	1.56
San Juan, Puerto Rico	13	20.31
San Lorenzo, Puerto Rico	1	1.56
Toa Alta, Puerto Rico	1	1.56
Toa Baja, Puerto Rico	3	4.69
Trujillo Alto, Puerto Rico	3	4.69
Vega Alta, Puerto Rico	1	1.56
Vega Baja, Puerto Rico	3	4.69
Municipality of Current Residence		
Bayamón	5	7.81
Caguas	5	7.81
Carolina	5	7.81
Cataño	1	1.56
Cayey	2	3.13
Cupey	1	1.56
Dorado	1	1.56
Guayama	1	1.56
Guaynabo	8	12.5
Gurabo	1	1.56
Loíza	1	1.56
Quebradillas	1	1.56
San Juan	18	28.13
San Lorenzo	1	1.56
Toa Alta	3	4.69
Toa Baja	2	3.13
Trujillo Alto	4	6.25
Vega Alta	1	1.56
Vega Baja	2	3.13
Elementary School		
Private	38	59.38
Public	25	39.01
Both	1	1.56
Middle School		
Private	38	59.38
Public	26	40.62
High School		
Private	32	50
Public	32	50

Appendix J.

Table 2. L2 Language History

	f	%
L2 language acquisition age		
1 to 5 years	38	59.38
6 to 10 years	19	29.69
11 years or more	2	3.13
Not specified	4	6.25
Spoken Languages		
Speak only two Languages	33	51.56
Speak three or more	31	48.44
L2 Language Context		
School	3.59	
Home/Family	2.37	
Work	3.13	
Friends	3.63	
Television	4.36	
Music	4.33	
Reading	4.00	
L2 Self Rating		
Speaking	4.16	
Reading	4.61	
Writing	4.20	
Comprehension	4.67	

Programa de Estudios de Honor
Universidad de Puerto Rico
Recinto de Río Piedras

Honors Program
University of Puerto Rico
Rio Piedras Campus

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Estudiantes egresados del PREH Segundo Semestre 2018-2019

Eunice Pérez-Medina, Ed.D.
Directora

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