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**INSTITUTO
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Department of Social and Organizational Psychology

**The impact of bilingualism on intergroup attitudes: The Role of the Perceived Group Status**

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Master in Psychology of Intercultural Relations

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# Acknowledgments

My sincere and deep gratitude goes to my supervisors, Prof. Margarida Vaz. Garrido and Prof. Rita Guerra for the continuous support in building my Dissertation Thesis. Thank you for your guidance, often with a very high dose of patience, motivation, feedback, and immense knowledge! The completion of this study could not have been possible without your guidance, and for this, I will remain forever grateful.

My appreciation also extends to Doctor Sofia Frade, Science Lab Manager at LAPSO, for the Qualtrics courses she taught, but also for the help offered in creating and implementing the survey and interpreting the data.

A very special word goes to my parents, Anisoara and Sergiu, for their continuous support, love, encouragement, and trust.

Finally, I must thank my husband, Radu, for keeping things going, for unconditional encouragement, and for always showing how proud he is of me.

**Abstract**

The study of intergroup attitudes has a long history in social psychology. Even if there is considerable knowledge on the mechanisms that sustain these attitudes, there has been a substantial change on how they are measured and understood. Recently, it has been suggested that implicit intergroup attitudes are affected by the language in which they are expressed. Recent studies have shown that participants show more intergroup bias on an Implicit Association Test (IAT) when tested in their native language (L1) compared to a second language (L2). However, these studies were conducted with participants of low-status L1 groups. Group status is an important variable in intergroup relations that influences cognitions, emotions, thoughts, feelings, and overall intergroup bias. In the current study, we replicated previous work, examining the role of the testing language in intergroup bias. However, we further investigated this issue by including two groups varying in status. Moreover, we explored whether group perceived status moderated the previously observed effects on intergroup attitudes. A sample of 184 English-Spanish bilinguals completed an IAT in L1 and L2. Results indicated that participants from both groups exhibited implicit intergroup bias. Notably, they showed more bias when taking the IAT in their native language, especially when the entire survey was taken in that language. Regarding explicit attitudes, results showed that Mexican people showed ingroup favoritism, and US Americans displayed outgroup favoritism. Finally, the results indicated that the reduction of implicit intergroup bias observed in L2 was not moderated by perceived group status.

# Resumo

O estudo das atitudes intergrupais tem uma longa história na psicologia social. Embora exista muito conhecimento acerca dos mecanismos que sustentam estas atitudes, houve uma mudança substancial na compreensão e medição das mesmas. Recentemente, foi sugerido que as atitudes intergrupais são afetadas pela língua em que são expressas. Estudos anteriores demostraram que as pessoas mostram maior enviesamento intergrupal quando são testadas na língua nativa (L1) comparado com uma segunda língua (L2). No entanto, estes estudos foram conduzidos com participantes de grupos de baixo estatuto. O estatuto do grupo é uma variável importante nas relações intergrupais que aparenta influenciar cognições, emoções, pensamentos, sentimentos e o preconceito intergrupal de forma geral. No presente estudo, replicámos o trabalho anterior examinando o papel que a língua do teste tem nas atitudes intergrupais. Examinámos este problema usando dois grupos de estatutos diferentes. Além disso, explorámos se o estatuto percebido do grupo modera o efeito da língua observado nos estudos anteriores. Uma amostra de 184 bilíngues de Inglês-Espanhol completaram um IAT em L1 e L2. Os resultados indicaram que os participantes exibiram favoritismo endogrupal quando testados nas duas línguas. Mostraram também atitudes mais favoráveis ao seu próprio grupo (vs. ao exogrupo) quando completaram o IAT na sua língua nativa. Quanto às atitudes explícitas, os resultados indicaram que os participantes Mexicanos mostraram favoritismo endogrupal, enquanto que os Americanos revelaram favoritismo exogrupal. Finalmente, os resultados indicaram que a redução do enviesamento endogrupal implícito observada em L2 não foi moderada pelo estatuto percebido do grupo.

*Palavras-chave*: Linguagem, bilinguismo, atitudes implícitas, atitudes explícitas, preconceito intergrupal, estatuto grupal percebido

Códigos de Classificação APA
    2340 Processos Cognitivos
    2720 Linguística e linguagem e fala
    3000 Psicologia Social

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# CHAPTER 1.

# Introduction

In an increasingly globalized world, speaking more than one language brings numerous advantages (Evans, 2019). According to the last Eurostat, in 2016, 24.28% of the adults in Europe knew at least a foreign language at a proficient level, and 80% of the adult working-age population of Europe knew at least a foreign language. Consistently, the interest in the phenomena of bilingualism as well as in the acquisition of a second language has also grown among researchers. In part, the interest in these phenomena was due to the rapid growth of cultural and linguistic diversity in industrial societies because of the intensification of immigration and refugee settlement programs (Cadge et al., 2010). The growing economic and scientific interdependence in the international arena has also generated an increasing demand for bilingual individual skills that can facilitate intercultural collaboration. Due to the increasing diversity and the growing contact between cultures domestically and internationally, another factor that has fueled this interest in bilingualism is, in many countries, a higher degree of recognition of linguistic rights (Marshall & Preece, 2020). In various countries, minority groups have sought and received institutional support to preserve or revitalize endangered languages by the media and the education system (Olko & Sallabank, 2021).

Language also shapes affective and cognitive processes. Previous studies showed that language influences self-esteem, confidence, anxiety, and motivation (Wang & Wu, 2019), but also that exposure to a wide variety of languages has a profound effect on brain function, improving not only social but also communication and executive functions (Marian & Shook, 2012). Thus, the benefits of bilingualism are far greater than the simple ability to converse or interact with a wide variety of people (Anoniou, 2019). In his theory, also known as the Hypothesis of linguistic relativity, Sapir-Whorf (1928) proposes that the composition of a language influences its speakers' worldview or cognition. Thus, people's opinions are relative to their spoken language.

One such impact of language on perceptions can be seen, for example, on the effect of a native (L1) and second language (L2) on stereotyping. For example, recent studies using the Implicit Association Test (IAT; Greenwald et al., 1998) have shown that implicit intergroup attitudes are more biased when accessed in L1 than in L2. This has been shown with Moroccan bilinguals of Arabic and French (Ogunnaike et al., 2010), American-Hispanic bilinguals of Spanish and English (Ogunnaike et al., 2010), Arab-Jews bilinguals of Arabic and Hebrew

(Danziger & Ward, 2010), and with Welsh-English bilinguals of Welsh and English (Ellis et al., 2019).

While the results converged in showing that implicit intergroup attitudes are affected by test language, the reduction of intergroup bias in L2 was consistently observed with groups with higher group status. For example, in Ogunnaike's paper, when the participants were tested in Arabic (L1), they showed a greater preference for Moroccan (L1) over French (L1). Still, when tested in French (L2), participants showed an equal preference for Moroccan and French. But what would the results have been like if the groups had been reversed? Would the attitudes towards L2 speakers also be more favorable when tested in L2 if those speakers belong to a minority group? For example, would French bilinguals in French (L1) and Arabic (L2) show less intergroup bias towards Moroccans when tested in Arabic?

In the present study, we replicated the previous studies and examined if perceived group status moderates the impact of bilingualism on intergroup bias. To test our predictions, we used two groups, US American and Mexican bilinguals of English and Spanish.

First, we present a brief literature review on bilingualism and the latest studies investigating the impact of bilingualism on intergroup attitudes and used the Implicit Association Test (IAT) (Greenwald et al., 1998). Then we present an experimental study designed to examine the impact of bilingualism on intergroup attitudes and examine the moderator role of perceived group status. Finally, we discuss the main findings, limitations, and future research avenues.

# CHAPTER 2.
# Literature Review

Language is used across all aspects of social life. It is the primary mode by which we obtain insight into the contents of other people's minds, as well as the primary mechanism for cultural understanding. Many phenomena at the heart of social psychology, such as mood adjustment, social cognition, personal identification, social contact, intergroup stigma, attribution, and stereotyping, are influenced by language (Laar & Levin, 2006). Furthermore, for social psychologists, language is often the mechanism by which participants' reactions are elicited and through which they respond: language often plays a role in both stimulation and reaction in social psychological research (Dana & Fisher, 2010).

Apart from their primary communication function, languages are also a repository of rich cultural values that lead to the development of national, cultural, ethnic, and individual identities; they mark the group's membership. The effect of language on attitude formation can be observed from the first years of life (Kinzler et al., 2007). Language may also be regarded as the ultimate reason for conflict and cohesion among groups (Beal et al., 2004)

## 2.1. Bilingualism

Nowadays, the ability to speak several languages has become more of a necessity or, rather, normality. Many people need to speak more than one language for work, study, recreation, starting or maintaining relationships, and so on.

Bilingualism is the capacity of a person or a group of people to communicate efficiently in two languages (Hoffmann, 2014). In many regions of the globe, bilingualism is prevalent and growing, with one out of every three individuals being bilingual or multilingual (Wei, 2000). In a context in which barriers between states have been partially dissolved, many people emigrated from their country to satisfy certain needs, their social or self-realization. Moreover, as part of the continuous globalization, the knowledge of languages other than the mother tongue becomes somewhat necessary.

Bilingualism is currently a characteristic of the largest world's population and is a general aspect in multinational countries, wherever national minorities practice the language of the host majority. In contemporary society advantages of bilingual over monolingual are indisputable. Studies show that the full-fledged familiarity of two and more cultures and languages offers the person success both in their professional and personal lives, bilingualism becoming a model of mutual understanding, kindness, and respect for other cultures and languages (May, 2005).

Bilingualism is a common existence of the individual or society of two languages: native – the primary (L1) and nonnative – secondary or acquired (L2). When certain individuals know two languages, it is individual bilingualism; if it is a greater number of people who know two languages, it is mass bilingualism (Ermakova, 2012). Originally, there were two different opinions about the phenomenon of bilingualism. Supporters of one position claimed that any knowledge is useful, and others believed that bilingualism negatively influenced the development of the thinking capability of the person (Abrosimova & Khabirova, 2016). Now bilingualism is admitted as a positive aspect. There is a theory that the person who knows two languages learns the third one easier (Pavlenko, 2015)

From a psychological point of view, there is receptive, reproductive, productive bilingualism. Receptive develops the understanding of communication in L2. Reproductive requires the capability to reproduce precisely, or by yourself the heard and/or reading the knowledge, and productive bilingualism allows building the speech in L2 (Gibson et al., 2014). Psychologists assume that native language (L1) is directly connected with thinking. They suggest it expresses the thought, becomes a product of thought, and serves as the evidence of the statement about "unconscious and intuitive practical possession of secondary language" (Abrosimova & Khabirova, 2016).

From a cognitive point of view, bilingualism is often associated with creativity, which arises from divergent thinking, and a strong executive function, leading to a higher capacity for problem-solving. These advantages give bilingualism an image of an indispensable human resource. Several studies have revealed an increased emotional and interpersonal intelligence in people who know more than one language due precisely to this uninterrupted, unconditional communication. Also, as an element of the psychic system, the word is the binder through which cognitive processes acquire meaning. So, language, as a set of words, is the one that, from a certain perspective, influences the cognitive processes and realization of people's thoughts (Boroditsky, 2000; Boroditsky, 2001). Through the Theory of Linguistic Determinism, Benjamin Lee Whorf argued that thought is determined by the person's language. Each language separately denotes a specific way of perceiving and analyzing the environment, as well as of formulating behaviors and responses to the requirements of this environment (Boroditsky, 2000).

However, we must not forget that language is a mechanism of communication, helping to perform its functions. Through the communication process, people are connected, involving their entire psychological system - from thoughts and reasoning to emotions and feelings, attitudes, so the whole personality.

## 2.2. The impact of bilingualism on intergroup attitudes

A few studies have already shown that the way one interprets, processes, and evaluates knowledge about one's native and nonnative cultures is influenced by the language one uses.

In a seminal paper, Ogunnaike et al., (2010) investigated whether intergroup attitudes were affected by the language in which they are being expressed. Two experiments on bilingual participants were conducted to investigate these issues. In the first experiment, they tested the attitudes of bilingual Moroccan participants towards Moroccan and French people in their L1 (Arabic) and L2 (French). The main metric of concern was the IAT (Greenwald et al., 1998), a commonly adopted indicator of implicit attitudes resting on the basic idea that similar concepts are easier to categorize jointly than separate and unrelated concepts. Participants had to complete two similar IATs, one in Arabic and the other in French. The presentation and instructions for the completion of the IAT were shown in the respective task's language. Specifically, they had to categorize proper names as Arabic or French, and a set of words as good or bad, and then into these categories combined (e.g., French or good; French or bad). At the end of the experiment, they were asked to self-report their level of fluency in each language, how many years they spent in environments where L1 and L2 were spoken, and their attitudes towards the country, the people, and the language.

The study hypothesized that participants would show more favorable attitudes towards Arabic names if evaluated in Arabic rather than in French. Because the language effects hypothesized can emerge in written language contexts or audio contexts, they had different stimulus modalities between different subjects, giving half of the participants an IAT with visual stimuli, and the other half of participants received an IAT with auditory stimuli. The results showed that participants presented more favorable attitudes towards Moroccans than French when the test was conducted in Arabic. When the test was in French, participants demonstrated equal preferences for both groups, Moroccan and French. As a result, when tested in different languages, the same participants displayed significantly different implicit attitudes.

Similar to the first experiment, the second experiment was performed on Spanish-English bilinguals from the United States, in Spanish (L1) and in English (L2). Participants showed a preference for Spanish names in the case of the test being conducted in Spanish. Like the previous experiment, participants showed neither preference towards Hispanics nor Americans when the test was in English.

Regarding self-reports results, L1 was preferred over the L2, and L1-speaking people were preferred over L2- speaking people. No significant differences were observed between presenting the stimuli visually versus auditorily.

The findings support the concept that social attitudes towards the same groups can differ within the same person based on the language of the test while only minutes separate each administration. In both studies, this impact was not the product of the differential language abilities or the preferences for one or the other language or their speakers as measured by the participant's self-reports. The reported findings indicate that studies using the IAT (and other specific measures) must consider test language. The administration of an IAT in English to subjects in South Africa or India or bilinguals in the United States or Europe can lead to results that do not carry any universal significance.

A similar study was conducted by Danziger and Ward (2010) to examine how attitudes from Arab-Israelis bilingual participants towards Arabs and Jews varied as a function of test language. The study was conducted with Arab-Israelis bilingual undergraduates from Hebrew-speaking universities and schools. Based on Sapir Whorf's theory of linguistic relativity (1957), the researchers hypothesized that participants would have more positive attitudes towards Arabs and less positive towards Jewish when tested in Arabic (L1) than when tested in Hebrew (L2).

Like in previous research, this study also utilized the IAT. The study was conducted in sessions with an Arab-Israeli female experimenter in Hebrew and Arabic languages. In the first session, they were all assessed in Arabic, and in the second session in Hebrew.

Moreover, aside from the Arab-Jew IAT, the study also included the weapon-tool IAT (Greenwald et al., 1998). The IAT weapon-tool was used to check that any influence of language on the strength of associations in Arab-Jewish IAT was not an overall result of language superiority but more unique to heterogeneous ethnic groups. The authors hypothesized that language would not change the relative intensity because weapons have more negative associations than musical instruments in the Arab and Jewish contexts.

Notably, the IAT-D score was smaller when participants were tested in Hebrew than in Arabic. In other words, the attitudes of Arab Israeli participants were more favorable towards Arabs than Jews when the test was in Arabic (L1). The positive bias toward Arab over Jewish names was reduced when the test was taken in Hebrew. The preference for tools over weapons was unaffected by the language, suggesting that the associations were not necessarily reduced by the non-native language. The findings support the idea that language and culture are

inextricably related, and that bilingual people can perceive their social environment in different ways depending on the language.

In a recent study, Ellis et al., (2019) wanted to show whether the observed language-driven difference in cultural prejudice would depend on mood. Based on previous research (e.g., Danziger & Ward, 2010; Ogunnaike et al., 2010), the authors predicted that cultural bias would be stronger in L1 than in L2. They also advanced an emotion-related hypothesis predicting a higher cultural bias following a high positive or negative mood state in L1 but not in L2. This prediction came from the fact that the native language is more susceptible to emotional resonance (e.g., Costa et al., 2014; Dewaele, 2004; Keysar et al., 2012).

This was a within-subjects experiment conducted with bilingual participants, fluent in Welsh (L1) and English (L2). Two similar versions of IAT were utilized, one in Welsh and the other in English. The mood was induced by short audio-video stimuli without cultural, social, or linguistic connotations (Allen & Coan, 2007; Egidi & Nusbaum, 2012; Hewig et al., 2005).

As per results, when the IAT was taken in Welsh, participants exhibited a more significant ingroup bias than when taken in English. The general intensity of the intergroup prejudice was not influenced by mood, but a significant language and mood interaction was observed. In L1, the participants showed a stronger bias, which was not defined by mood. In L2, the mood affected the bias, such that both the positive and negative mood conditions provoked a stronger bias than the neutral condition.

Their conclusions suggest that L1 supports an inherent intergroup bias, which is impervious to variations in the bilingual's mood state. In L2, bilinguals are culturally unbiased unless they are in a heightened mood state.

The previously mentioned studies shaped how we will tailor this research. However, they present a series of drawbacks that we will try to address in the present study.

The first was that there was no symmetry between the two groups' statuses, and the experiments were only conducted with low-status groups. Research has shown an effect of status asymmetry in discrimination attributions. For example, Moroccan people´s cultural bias towards French was reduced when tested in French but would it be the same for French participants tested in Arabic? This may lead to interesting results considering that people are more likely to discriminate when a person is from a lower status group than when the person is from a higher status group (Levin et al., 2002).

Furthermore, we want to introduce an exploratory moderator to see to what extent the perceived status of the ingroup relative to the outgroup moderates the impact of language on

intergroup attitudes between two groups, majority, and minority, that are supposed to perceive their group status differently.

## 2.3. Perceived Group Status

Perceived group status reflects people's perception of the consensual differences in status that exist in society and not their own opinion of group status (Levin, 2004). People generally have more favorable attitudes toward ingroup members than outgroup members (Tajfel & Turner, 1979). People nevertheless exhibit a systematic preference for ingroup individuals even when they do not develop unfavorable views toward outgroup members (i.e., ingroup favoritism vs. an outgroup derogation effect; Brewer, 2017; Greenwald & Pettigrew, 2014). People act more generously in reward allocations when the target is a member of the ingroup rather than the outgroup (Buttelman & Böhm, 2014). They are more willing to collaborate and give support (Balliet et al., 2014).

Ingroup favoritism is more prevalent among members of high-status groups (Bettencourt et al., 2001) that speak more positively about their groups to outsiders (Dukerich et al., 2002; Tyler & Blader, 2002), while members of low-status groups do not. Members of high-status groups may engage in unfair intergroup behavior to serve their group, such as disparaging low-status groups (Hogg & Abrams, 1988; Sherif et al., 1961).

Perceived status is an important variable in intergroup relations. It seems to influence ingroup bias, cognitions, emotions, thought, feelings, and behavior (Manstead, 2018). Group status influences how competent we perceive a person; higher status people are seen as more competent (Fiske et al., 2002). Higher status groups are more likely to have a social dominance tendency. According to the Social Dominance Theory (Pratto et al., 1994 & Pratto, 1999), the higher a group's status, the greater its level of social domination. In addition, researchers discovered that people with higher status tended to trust others more in first meetings than those with lower status. For example, Lount and Pettit (2012) reported that persons with higher social standing perceived others as more benevolent, leading them to trust more. Members of high-status groups strive to maintain their privileged status, and members of low-status groups strive to better their disadvantaged status (Ellemers, Doosje, van Knippenberg, & Wilke, 1992; Tajfel, 1978; Tajfel & Turner, 1979).

The examination of perceived group status as a moderator of the language effect is exploratory. Still, it could be speculated that the reduction of implicit prejudice expected in L2 would be less likely when participants perceive their group with a higher status relative to the outgroup.

**2.4. Present research**

Extending previous research, we will examine if the perceived social status of groups can moderate the impact of language (L1, L2) on intergroup attitudes.

    We will try to answer this question by examining the impact of manipulating the language, among bilinguals, on intergroup attitudes by considering the group perceived status. We will focus on two bilingual groups: Americans from the United States, with English as L1 but fluent in Spanish (L2), and Mexicans from Mexico, with Spanish as L1 but fluent in English (L2). We will replicate the previous studies (Ogunnaike, Dunham & Banaji, 2010; Danziger & Ward, 2010; Elis et al., 2019) with the two groups and examine the moderating role of perceived group status.

**2.5. Hypotheses**

H1: Participants will present a higher implicit ingroup bias when tested in their native language (L1) than in a non-native language (L2).

H2: The reduction of this bias would not be observed, or at least to the same extent, for high-status groups (i.e., US Americans).

H3: Finally, we also explored if the reduction of implicit prejudice expected in L2 would be less likely when participants perceive their national ingroup as having a relatively higher status than the outgroup.

# CHAPTER 3.

# Method

## 3.1. Design

The present work consists of an experimental study designed to examine the impact of test language on intergroup attitudes. The study's design is a 2 language (Spanish or English) x 2 nationality (Mexican or U.S. American). The language was used as a within factor and nationality as a between-subject factor. The IAT-D score (Greenwald et al., 2003) was the main dependent variable.

## 3.2. Participants

Participants were recruited through the Prolific platform to ensure that they met the language and nationality requirements. The conditions for participation were that the participant must be at least 18 years old, be a citizen of the United States or Mexico, and be bilingual (to speak both English and Spanish). A total of 184 participants were included in the final sample after excluding the participants who did not pass the attention check questions or did not complete the entire questionnaire. The final sample included 92 US American participants with ages between 18 and 70 years old ($M = 26.27$, $SD = 9.21$; 19 males, 72 females, 1 participant preferred not to answer) and 92 Mexican participants with ages between 18 and 51 years old ($M = 24.36$, $SD = 4.95$; 47 males and 45 females).

## 3.3. Materials and Measures

The survey was conducted online using a computer with a keyboard through the Qualtrics survey platform. The questionnaire had two versions: One in English (except the second IAT that was in Spanish), and one in Spanish (except the second IAT, which was in English). Participants were randomly assigned to one of the survey versions.

    The questionnaire included demographics about age, the country in which the participants were born, sex assigned at birth, highest academic degree received, current employment status, the ethnic or racial group they identify with, and degree of identification with their group (USA or Mexico). Language information included items about fluency and proficiency, time spent in each language environment, how they learned L2 (formal instruction or informal interacting), contact frequency, and contact quality with native speakers.

    The main outcome variables assessed were the implicit attitudes by using 2 IATs, one in L1 and one in L2, and the explicit attitudes by using the Feeling Thermometer and the General

Evaluation Scale adapted from Wright et al., (1997). The moderator perceived social status was assessed with one item (Levin et al., 2004). For control purposes, we also assessed mood with PANAS (Watson et al., 1988) and used two items for testing the attention and one item for honesty check at the end of the survey.

### Stereotyping

The outcome variables of stereotyping were evaluated using an IAT (Greenwald et al., 1998), a Feeling Thermometer for the country, people, and language, and the General Evaluation Scale (Wright et al., 1997). The combination of these measures allowed us to evaluate both implicit and explicit attitudes.

#### The Implicit Association Task

The IAT (Greenwald et al., 1998) measures the immediate association between the target pairs (e.g., nationality) and category dimension (e.g., good, bad). Thus, participants are shown a stimulus in the middle of the screen, and they must categorize the stimulus within the target, the category, or both. Based on the principles of learning theory and associative representation, the IAT rests on the hypothesis that it is easier for someone to practice the same behavioral response (pressing a key) for two strongly associated concepts than for weakly associated concepts (Greenwald et al., 1998). Participants are shown a stimulus on the screen, such as a word or an image, and must identify it using targets. When sorting in a way that is consistent with one's associations, the task is completed faster conceptually (Fazio et al., 1995). The IAT procedure obliges respondents to identity stimulus items and categorize them into one of four superordinate categories. The strength of the association is measured by comparing the categorization speed of a member of the superordinate category in two different sorting conditions. For example, because in studies by Nosek et al., (2005), concepts "Old" and "Bad" tend to be stronger associated than the concepts "Old" and "Good", respondents can identify and categorize items faster under conditions in which items in the "Old" and "Bad" categories share the same answer (i.e., the key) compared to the condition in which the items from the category "Old" and "Good" share the same answer. An IAT test usually involves running four trial blocks, as follows: Compatible with Target A on the right and positive, Incompatible with Target A on the right and negative, Compatible with Target A on the left and positive, and Incompatible with Target A on the left and negative. Between these combined blocks, there are two additional blocks (3 and 6) to practice when the position of the category changes. This gives participants the chance to learn the new positioning and maintain speed (Greenwald et al., 1998). Between each block, there is a pause in which the instructions are presented. In case

of a mistake, a red "X" appears on the screen, and the participant must press the other key to continue.

The present research used a survey IAT software developed with the Shiny Web Applet available through the open-source Iatgen website (Carpenter et al., 2019). For the English version, the category of positive attributes was named "good" and included the stimuli: *paradise, happy, nice, magnificent, pleasant, beautiful,* and *joyful*. The category of negative attributes was named "bad" and included the stimuli: *hate, pain, anger, sadness, terrible, grief,* and *evil*. For the Spanish version, the category of positive attributes was named "bueno", and included the stimuli: *paraíso, feliz, simpatico, magnífico, agradable, hermoso,* and *alegre*. The category of negative attributes was named "malo" and included the stimuli: *odio, dolor, ira, tristeza, terrible, pena,* and *malvado*. In both versions, Target A's name was US American (or US Americano in Spanish), containing specific American names: *Michael, Mary, Peter, Susan, John, Jennifer,* and *Emily*. Target B's name was Mexican (or Mexicano in Spanish), containing Mexican names: *Miguel, Maria, Pedro, Juan, Carlos, Isabel,* and *Antonia*. The stimuli were taken, translated, and adapted from Ogunnaike et al., (2010). Both versions of IAT were saved with the QSF extension on a computer and then uploaded to Qualtrics. After they were uploaded in Qualtrics, we modified the instructions to suit the current situation, and for the Spanish version, they were translated and checked by a Spanish native speaker.

The survey software IAT delivers four different combinations. One combination is randomly provided to each participant. The combination consists of the beginning of the IAT with the first block as either left Mexican-bad / right US American-good, left Mexican-good / right US American-bad, left US American-good / right Mexican-bad, left US American-bad / right Mexican-good. Thus, either incompatible or compatible trials and these permutations are crucial for computing the difference score (D score). Each of the participants randomly received one of these versions in English and Spanish.

### Explicit attitudes

To measure explicit attitudes, we used the Feeling Thermometer, the General Evaluation Scale from Wright et al., (1997), and the Stereotype Content Model (SCM) (Fiske et al., 2002).

*Feeling Thermometer*

Participants were asked to indicate, using a slider (1-100), how warm they feel towards the groups, countries, and languages. A score of 1 indicates they feel very cold and unfavorable, while a score of 100 indicates they feel very warm and favorable. The order of the questions was counterbalanced. Some participants were first asked about US American people, the

United States, English language, and some of the participants were first asked about Mexican people, Mexico, Spanish language. Because the reliability for the Feeling Thermometer about people, country, and language was good both for the ingroup ($\alpha = 0.825$) and the outgroup ($\alpha = 0.820$), we computed an aggregated index (people, country, and language) for each target group.

*General Evaluation Scale*

Two questions in the General Evaluation Scale were adapted from Wright et al., (1997). In the first question, participants were asked to describe how they feel about US American people in general, and in the second, to indicate how they feel about Mexican people in general. The order of the questions was counterbalanced. The answer was provided in seven bipolar items (cold/warm, negative/positive, hostile/friendly suspicious/trusting, contempt/respect, disgust/admiration, and incompetent/competent), ranging from 1 (negative anchor) to 7 (positive anchor). Because the reliability for the General Evaluation Scale was good both, for the ingroup ($\alpha = 0.91$) and the outgroup ($\alpha = 0.93$), we computed an aggregated index for each group.

*Warmth and competence*

Eight questions from the Stereotype Content Model (SCM) (Fiske et al., 2002) were adapted and used. First, participants were asked to indicate how confident/competent/sincere/warm/ are US American people in general, as viewed by society. Then, participants were asked how confident/competent/sincere/warm/ are Mexican people in general, as viewed by society. The order of the questions was counterbalanced, some participants were first asked about US American people, and some were first asked about Mexican people. For the answers, we used a 7-point scale, ranging from 1 - *not at all* to 7 - *extremely*.

**Perceived Group Status**

The moderator, perceived social status, was assessed with one item (Levin et al., 2004). Participants were told that many people believe that different groups enjoy different amounts of social status in this society. They may not believe this for themselves, but if they were to evaluate each of the following groups as most people see them, how would they do it? Two separate social ladders for US American people and Mexican people were created, with "low status" at the base and "high status" at the top ranging from 1 (low anchor) to 7 (high anchor). The order in which the social ladders were presented was counterbalanced, some participants were first asked about US American people, and some were first asked about Mexican people.

### Language Question

*Language History*

We used the LHQ or language History Questionnaire (Li et al., 2006), examining 41 already published language questionnaires and identifying the most frequently asked questions to determine the language level. From these, we adapted to our research three items asking participants to indicate the age when they began acquiring L2, became fluent in L2, and the total number of years learning L2.

*Language and Emotions Questionnaire*

LEQ or the Language and Emotions Questionnaire (Dewaele & Pavlenko, 2001; 2003) contains 35 questions. In the current study, we adapted two of these questions regarding L2. Mexican participants were asked: "Please list on a scale from 1 (*not proficient*) to 7 (*fully proficient*), how do you rate yourself in speaking, comprehension, reading, and writing in English?", and "Please list the amount of time you have spent in each language environment (total number of years): in a country where English is spoken; in your own family where English is spoken; in a school/working environment where English is spoken". US American participants were asked about Spanish.

*The Language Experience and Proficiency Questionnaire*

LEAP-Q or the Language Experience and Proficiency Questionnaire (Marian et al., 2007) contains nine items to clarify or classify which languages participants speak and at what level. Mexican participants were asked to indicate how did they learn L2 up to this point, and they had to choose between 3 options: mainly through formal classroom instruction (e.g., school, language courses); mainly through informal interactions (e.g., with family, traveling/living abroad); or other and they needed to specify.

### Contact

Questions regarding the contact with people in L2 were included and adapted from Laurence et al., (2017) to examine the quantity and quality of intergroup contact. Mexican participants were asked two questions: "On a scale from 1 (*never*) to 7 (*always*), please indicate how often, if at all, do you mix with people who speak English natively in your social circles/workplace?" and "On a scale from 1 (*I don't enjoy it at all*) to 7 (*I enjoy it a great deal*), please indicate how much, if at all, do you enjoy mixing socially with people who speak English natively?". US American participants were asked about Spanish.

*Emotional state*

For control purposes, we also assessed mood with PANAS (Watson et al., 1988). To this end, we asked participants to indicate on a 5-point scale ranging from 1 (*very slightly*) to 5 (*extremely*), to what extent did they feel at the moment *(upset, hostile, alert, ashamed, inspired, nervous, determined, attentive, afraid, active)*.

*Attention and honesty check*

The questionnaire included two items for testing participants' attention, one before the IATs and one before the language acquisition questions (We want to test your attention. Please mark the response option "Strongly agree "; Oppenheimer et al., 2009).

At the end of the survey, an item for honesty check asked participants if they paid attention and answered honestly. Response options were: "Yes, keep my data", or "No, delete my data".

## 3.4. Procedure

Participants were randomly assigned to one of the two conditions: the English version of the survey or the Spanish one. First, they were presented with an informed consent stating the general goal of the study, that we are interested in their opinions about themselves and other people, that there were no right or wrong answers, and that they would be asked to complete a categorization task, and then answer to multiple-choice questions. Participants were also informed that to participate in the study, they should be at least 18 years old, that participation was voluntary, anonymous, and confidential. Finally, they were informed that the study should last less than 30 minutes and that during the completion of the questionnaire, they should have no other distractions or interruptions. All answers to the questions were forced, and if the participants were not at least 18 years old, they could not continue. For the questionnaire to follow a natural course and directly proportional to the theoretical model, it was divided into several blocks, as follows:

Block 1- Informed Consent

Block 2 - Incorrect device. Even if the participants were informed through the Prolific platform that they should complete the survey from a computer with a keyboard, as a precautionary method, we chose to include this block immediately after Informed Consent. If the survey software detected that a participant was attempting to take the survey from an incompatible device, the questionnaire would end and immediately ask them to open the survey from a computer with a keyboard.

Block 3 - Demographic information (7 questions)

Block 4 - Attention check 1

Block 5 - First IAT. The first version of the IAT was in the language in which the rest of the questionnaire was presented. Participants were randomly assigned to one of the four following versions: Compatible First [Target A on the Right with Pos]; Incompatible First [Target A on the Right with Neg]; Compatible First [Target A on the Left with Pos]; Incompatible First [Target A on the Left with Neg]

Block 6 - Second IAT. Participants received the second IAT in the other language, having the possibility to receive, randomly, one of the four previous versions.

Block 7 - Explicit attitudes: Feeling Thermometer, General Evaluation Scale, and Items from the Stereotype Content Model in a total of 12 questions (6 items about Mexico, Mexican people, and Spanish, and 6 items about the USA, US American people, and English).

Block 8 - Perceived group status consisting of two questions, one about the US American people and one about the Mexican people.

Block 9 – Language vitality (2 Questions)

Block 10 - Attention check 2

Block 11 - Second language acquisition and history (5 Questions)

Block 12 – Contact (2 questions)

Block 13 - Emotional state (1 Question)

Block 14 - Final honesty check

# CHAPTER 4.
# Results

We will not report the results regarding the Stereotype Content Model (Fiske et al., 2002), the intergroup contact (Laurence et al., 2017), and the emotional state assessed with PANAS (Watson et al., 1988).

## 4.1. IAT data analysis

### *Cleaning the Data in R*

In the first stage, we cleaned the collected data from the IAT tests. This procedure was done in the R program. Five US-American participants were eliminated from the analysis of the IAT scores because they completed the test too fast or too slowly.

The enhanced scoring method was used to analyze data from congruent and incongruent blocks (Greenwald et al., 2003). The 'IAT effect' consisted of a proxy D score, referred to as the 'IAT-D,' which was generated using the following methods: 1) Exclusion of participants if response latencies were less than 300 ms in more than 10% of trials; 2) Calculation of the "inclusive" standard deviation for response latencies in Blocks 3 and 6 ('practice' important blocks) and Blocks 4 and 7 ('test' critical blocks); 3) Mean response latencies were calculated for each congruent/incongruent block (Blocks 3, 4, 6, and 7); 4) Mean differences between the 'practice' and 'test' blocks were calculated (MeanBlock 6 – MeanBlock 3, and MeanBlock 7 – MeanBlock 4); 5) Mean difference scores were then divided by the "inclusive" standard deviation; 6) From the equal-weight average of these scores, the IAT-D score is calculated.

Following step 1, response latencies for each participant per block were cut to within 2 SD (Danziger & Ward, 2010). Because incongruent responses are subtracted from congruent ones, a higher IAT-D score implies a more favorable implicit attitude toward the cultural in-group and a less favorable implicit attitude toward the cultural out-group. The IAT-D score also reflects the extent of the effect: scores of .15, .35, and .60, for example, suggest minor, medium, and large effects, respectively (Rudman, 2011).

### *Intergroup Bias*

First, we compared the IAT-D scores against zero (no intergroup bias) using one-sample t-tests. The results showed that all the D-scores differed significantly from 0 across IAT language, nationality, and version. These findings indicated, as expected, that participants showed intergroup bias in all conditions (See Table 4.1.1).

**Table 4.1.1**

*IAT-D scores*

| | IAT Language | Survey Language | IAT-D M | IAT-D SD | Statistics |
|---|---|---|---|---|---|
| US Americans | L1 | L1 | 0.42 | 0.40 | $t(43) = 6.92, p < .001, d = 1.04$ |
| | L1 | L2 | 0.28 | 0.31 | $t(44) = 6.13, p < .001, d = 0.91$ |
| | L2 | L1 | 0.22 | 0.35 | $t(43) = 9.12, p < .001, d = 0.64$ |
| | L2 | L2 | 0.29 | 0.32 | $t(44) = 6.06, p < .001, d = 0.90$ |
| Mexicans | L1 | L1 | 0.37 | 0.36 | $t(45) = -7.31, p < .001, d = 1.08$ |
| | L1 | L2 | 0.21 | 0.36 | $t(45) = -3.92, p < .001, d = 0.58$ |
| | L2 | L1 | 0.17 | 0.40 | $t(45) = -2.97, p < .05, d = 0.44$ |
| | L2 | L2 | 0.22 | 0.30 | $t(45) = -4.90, p < .001, d = 0.72$ |

### *Mixed Model ANOVAS*

A repeated-measures ANOVA was conducted to check the language effect using the IAT-D scores in L1 and L2 as within-factors, Nationality, and Version as between-factors (see Table 3.2). The results revealed a main effect of the IAT language, $F (1,175) = 8.276, p = .005,$ $\eta^2=.045$. Replicating previous findings, the main effect of the IAT language revealed that participants showed more bias when taking the IAT in L1 ($M = 0.318, SE = 0.026$) than in L2 ($M = 0.228, SE= 0.026$).

Regarding nationality, although the means were higher for US American participants ($M = 0.304, SE = 0.030$) than for the Mexican participants ($M = 0.243, SE = 0.029$), this difference was not significant $F (1, 175) = 2.116, p =.148, \eta^2=.012$.

Likewise, although the mean IAT language effect was higher when the version of the survey was in L1 ($M = 0.296, SE = 0.030$), than in L2 ($M = 0.250, SE = 0.029$), this difference was not significant, $F (1, 175) =1.210, p=.273, \eta^2=.007$.

The IAT language x Nationality interaction was not significant, $F (1, 175) = 0.001, p =.973, \eta^2=.000$, indicating that the IAT language effect was the same for both national groups. However, the interaction between the IAT language and version was significant, $F (1, 175) = 10.607, p < .001, \eta^2=.057$. Pairwise comparisons between IAT language (L1 vs. L2) in each version indicated that participants showed more bias in L1 ($M = 0.392, SE = 0.038$), than in L2 ($M = 0.200, SE = 0.037$), $p < .001$, when the entire survey was in L1. When the survey was in L2 this difference between IAT-language was not significant (in L1: $M = 0.244, SE = 0.037$; in L2: $M = 0.256, SE = 0.036$), $p =.787$.

Overall, these results confirm the implicit intergroup bias previously observed in the literature. They also confirm that this intergroup bias is higher when the IAT is taken in L1 than in L2. Moreover, this language effect holds across the two national groups, Mexican and US American participants, that is, across groups with different statuses. Finally, the interaction between IAT language and version indicated that the language effect only appeared when people took the entire survey in L1 but not when they did everything in L2.

## 4.2. Explicit measures

### Feeling Thermometer

A repeated-measures ANOVA was conducted using the Feeling Thermometer scores for ingroup and outgroup as a within-factor, Nationality, and Version as between-factors. The dependent variable was the composite scores for Feeling Thermometer L1 people, country, and language and Feeling Thermometer L2 people, country, and language.

As expected, mean scores for the ingroup people, country, and language ($M = 77.78$, $SE = 1.15$) were higher than the scores for the outgroup people, country and language ($M = 75.81$, $SE = 1.25$), however this difference was not statistically significant, $F(1, 180) = 1.954$, $p = .164$, $\eta^2 = .011$. There was a significant interaction between the Feeling Thermometer scores and Nationality, $F(1,180) = 107.341$, $p < .001$, $\eta^2 = .374$. In line with the hypothesized for ingroup bias on explicit measures (H2), pairwise comparisons revealed that Mexican participants showed stronger liking for their ingroup people, country, and language ($M = 86.56$, $SE = 1.63$, $p < .001$) vs. outgroup people, country, and language ($M = 69.92$, $SE = 1.77$, $p < .001$). Contrary to our prediction, US American participants showed a stronger liking for the outgroup people, country, and language ($M = 81.70$, $SE = 1.77$, $p < .001$) than ingroup people, country, and language ($M = 69.01$, $SE = 1.63$, $p < .001$).

In L1 participants evaluated the ingroup with a higher score ($M = 78.54$, $SE = 1.63$, $p = .514$) than the outgroup ($M = 76.13$, $SE = 1.77$, $p = .794$). The same was observed in L2, the participants scored higher the ingroup ($M = 77.03$, $SE = 1.63$, $p = .514$) than the outgroup ($M = 75.48$, $SE = 1.77$, $p = .794$). However, the interaction between version and the Feeling Thermometer score was not significant, $F(1,180) = 0.091$, $p = .763$, $\eta^2 = .001$. There were no other main effects or interactions.

### General Evaluation Scale

A repeated-measures ANOVA was conducted with the General Evaluation Scale ingroup and outgroup scores as within-factor and Nationality and Version as between-factors. The

dependent variables were the composite scores for General Evaluation L1 people and General Evaluation L2 people.

The results revealed a main effect of target group, $F (1, 180) = 4.754$, $p < .05$, $\eta^2 = .026$, indicating more positive evaluations for the outgroup ($M = 5.06$, $SE = 0.08$) than for the ingroup ($M = 4.86$, $SE = 0.07$).

We could also observe an interaction between General Evaluation and Nationality, $F (1, 180) = 209.701$, $p < .001$, $\eta^2 = .538$. Mexican participants showed explicit ingroup favoritism (for ingroup: $M = 5.33$, $SE = 0.11$ and for outgroup: $M = 4.19$, $SE = 0.10$, $p < .001$). In contrast, US American participants showed explicit outgroup favoritism (for ingroup: $M = 4.39$, $SE = 0.11$; for the outgroup: $M = 5.93$, $SE = 0.10$, $p < .001$).

In L1 participants evaluated the ingroup with a lower score ($M = 4.85$, $SE = 0.11$) than the outgroup ($M = 4.96$, $SE = 0.10$), the same pattern was observed in L2. Participants scored the ingroup lower ($M = 4.87$, $SE = 0.11$) than the outgroup ($M = 5.16$, $SE = 0.10$). However, the interaction between the General Evaluation Scale and Version was not significant, $F (1,180) = 0.900$, $p = .344$, $\eta^2 = .005$.

To further explore the different patterns of ingroup favoritism and outgroup favoritism displayed by Mexicans and US Americans, in the Feeling Thermometer and in the General Evaluation Scale, we conducted a One-Way ANOVA using Nationality as a between factor, and participants' identification with their country as a dependent variable. The main effect of nationality was significant, $F (1, 182) = 21.188$, $p < .001$, $\eta^2 = .104$. Mexican participants showed higher identification with their national group ($M = 6.11$, $SE = 1.06$) than US Americans ($M = 5.20$, $SE = 1.58$).

To explore the potential association of the explicit measures with the language effect observed in the implicit measure, we computed a difference score that represented each participant's relative preference for L1 over L2 people, country, and language obtained with the Feeling Thermometer and the same for the General Evaluation Scale. The associations between these factors and the D$_{lang}$ effect were investigated. If the correlation is positive, this suggests that these preferences are driving the language effect.

The correlation between Feeling Thermometer relative scores and the D$_{lang}$ was not significant ($r = .02$, $p = .803$). This was also the case when examining this association on L1 IAT ($r = .04$, $p = .618$), and on L2 IAT ($r = .01$, $p = .847$) separately. Then we further examined this association by language and nationality. When answering the explicit measure in L1, the correlation was not significant for Mexican participants ($r = -.04$, $p = .714$) but was moderate

and significant for US Americans t ($r = 258$, $p < .05$). In L2, neither correlation approached significance: for Mexicans ($r = .02$, $p = .829$) and for US Americans ($r = .15$, $p = .155$).

Likewise, the association between the General Evaluation Scale relative scores the D$_{lang}$ was not significant ($r = .03$, $p = .662$). This was also the case when examining this association on L1 IAT ($r = .03$, $p = .688$), and on L2 IAT ($r = -.02$, $p = .843$) separately. When examining this association by language and nationality the observed correlations were not significant in L1 for Mexican participants ($r = .04$, $p = .717$), but were significant for US Americans ($r = .22$, $p < .05$). In L2 the correlations were not significant for Mexican ($r = .05$, $p = .652$) and for US American ($r = .10$, $p = .353$).

## 4.3. Perceived status

To examine if the two national groups perceived their ingroup status as different from the outgroup status, we conducted a repeated measure ANOVA, using ingroup perceived status and outgroup perceived status as within-subject variables and nationality and version as between factors. The results revealed an overall main effect of the perceived status, $F$ (1, 180) $=8.770$, $p = .003$, $\eta^2 = .046$, indicating a difference in the perception of the ingroup ($M = 4.522$, $SE = 0.075$) and outgroup ($M = 4.821$, $SE = 0.073$) status. The results also revealed an interaction between perceived group status and nationality $F$ (1, 180) $= 407.714$, $p < .001$, $\eta^2 = .694$ indicating that Mexican participants rated the outgroup (US Americans) as having a higher status ($M = 5.91$, $SE = 0.10$) than Mexicans ($M = 3.58$, $SE = 0.11$). US American participants rated their own group has having a higher status ($M = 5.47$, $SE = 0.11$) and Mexicans as having a lower status ($M = 3.73$, $SE = 0.10$).

For further analysis, we created a composite score containing the difference between ingroup perceived status and outgroup perceived status. After this, we examined if perceived group status difference moderates the impact of Nationality (controlling for Version) on the language effect (IAT-D score L1 – IAT-D score L2, i.e., Dlang) using PROCESS macro (model 1, Hayes). The results showed no main effect of nationality ($\beta = .024$, $t = -0.280$, $p = .780$), no main effect of the perceived status difference ($\beta = -.016$, $t = -0.513$, $p = .609$), no significant main effect of version ($\beta = -0.120$, $t = 0.002$, $p = .609$), and no interaction effect between nationality and perceived status ($\beta = 0.075$, $t = 1.217$, $p = .225$) (See Table 4.3.1).

**Table 4.3.1**

*Relative status moderation model*

|  | *Coeff.* | *SE* | *t* | *p* |
|---|---|---|---|---|
| Constant | 0.351 | 0.106 | 3.326 | .001 |
| Nationality | 0.024 | 0.085 | -0.280 | .780 |
| Group Status | -0.016 | 0.031 | -0.513 | .609 |
| Int | 0.075 | 0.061 | 1.217 | .225 |
| Version | -0.120 | 0.062 | 0.002 | .002 |

These results suggest that the differences observed in implicit attitudes in L1 and L2 are not moderated by perceived group status.

# CHAPTER 5.

## Discussion

Social psychology has long been studying attitudes and intergroup relations. Much of this research, including some of the first in the subject of intergroup interactions, has focused on the significance of attitudes toward members of socially undervalued groups in the treatment of such groups and their members. The present research examined whether language and bilingualism have an impact on intergroup attitudes.

Language is the fundamental tool for expression and communication, hence speaking, writing, and reading are essential in everyday life. Understanding how people use language — what words and phrases they choose and mix instinctively – can help us better understand ourselves and why we act the way we do. Language allows us to communicate with the rest of the world, identify our identity, convey our history and culture, learn, defend our human rights, and engage in all parts of society. Language is used to preserve a community's history, customs, and traditions, as well as memory, different modes of thinking, meaning, and expression, and to shape its future. Language is crucial in the areas of human rights protection, good governance, peacebuilding, reconciliation, and sustainable development. Apart from their primary communication function, languages are also a reservoir of rich cultural values that lead to the development of national, cultural, ethnic, and individual identities; they serve to identify members of a group. From the earliest years of life, language impacts attitude formation (Kinzler et al., 2007) and can also be seen as the ultimate cause of social conflict and cohesion (Beal et al., 2004). Furthermore, for social psychologists, language is frequently the method by which participants' reactions are evoked and by which they respond: in social psychological research, language often plays a role in both stimulation and reaction (Dana & Fisher, 2010).

A few studies have suggested that the way one interprets, processes, and evaluates knowledge about one's native and nonnative cultures is influenced by the language one uses. Recent studies using the IAT (Greenwald et al., 1998) have shown that implicit intergroup attitudes are more biased when accessed in L1 than in L2. This has been shown with Moroccan bilinguals of Arabic and French (Ogunnaike et al., 2010), American-Hispanic bilinguals of Spanish and English (Ogunnaike et al., 2010), Arab-Jews bilinguals of Arabic and Hebrew (Danziger & Ward, 2010), and with Welsh-English bilinguals of Welsh and English (Ellis et al., 2019). These findings support the concept that social attitudes towards the same groups can differ within the same person based on the language of the test while only minutes separate each administration (Whorf, 1957). However, while the results converged in showing that test

language affects implicit intergroup attitudes, the reduction of intergroup bias in L2 was always observed towards groups with higher status.

Research has already shown an effect of status asymmetry in discrimination attitudes. For example, Moroccan's cultural bias towards French was reduced when tested in French but would it be the same for French participants tested in Arabic? We considered that this might lead to interesting results considering that research shows that high-status groups are more likely to show ingroup bias than lower-status groups (Levin et al., 2002).

Our goal was to conceptually replicate the effects observed in the previous three studies (Ogunnaike et al., 2010; Danziger & Ward, 2010; Ellis et al., 2019). Specifically, we examined if the reduction of intergroup bias in L2 would also be observed in a high-status group. Finally, we explored the moderating role of Perceived Group Status in this effect. Based on the previous studies, our main hypotheses were that participants would show higher implicit bias in L1 than in L2 (H1). However, the reduction of this bias would not be observed, or at least to the same extent, for groups with a higher status (H2). Finally, perceived group status could moderate the language effect, namely reducing it when the national ingroup is perceived as having a higher status than the outgroup (H3).

The results confirmed implicit intergroup bias across both Mexican and US-American participants. Ingroup favoritism is more common among members of high-status groups (Bettencourt et al., 2001), and they talk more warmly about their groups to outsiders (Dukerich et al., 2002; Tyler & Blader, 2002), members of low-status groups do not. To serve their own group, members of high-status groups may engage in unfair intergroup conduct, such as criticizing low-status groups (Hogg & Abrams, 1988; Sherif et al., 1961). While one could have expected intergroup bias to be higher for the group with higher status than for the group with lower group status (that was descriptively the case), this difference was not significant.

Notably, the language used in the IAT test significantly impacted this bias. When tested in L2, the intergroup bias was reduced (although only when the entire survey was taken in L1). These results confirm previous findings and are consistent with our first hypothesis. However, this language effect was independent of participants' nationality. In other words, the reduction in implicit intergroup bias in L2 was observed in both Mexican and US American participants. Thus, contrary to what we expected (H2), the allegedly higher status group (US Americans) also presented a reduced implicit bias when tested in L2 (a language of the lower status group). The main effect of the survey version was not significant. However, there was a significant interaction between the IAT D-score and version. When the entire survey was administered in L1, implicit intergroup bias was reduced from L1 to L2. When the entire survey was

administered in L2, this language effect was not observed. We can only speculate that taking the entire survey in L2 primed the L2 context. However, this might have reduced the overall bias, and that was not the case. Still, taking the survey in L2 might not activate to the same extent the positive ingroup features of the L1 group. Thus, taking the implicit test in L1 or L2 in this condition may yield the same results. However, these findings contrast with previous studies (Danziger & Ward, 2010; Ogunnaike et al., 2010; Ellis et al., 2019), where the language effect was observed in surveys conducted in L2.

The results from the explicit measures indicated that Mexican participants showed the expected ingroup favoritism, while US Americans showed unexpected outgroup favoritism. This pattern was highly consistent across both explicit measures, the Feeling Thermometer, and the General Evaluation Scale. The most apparent explanation for this surprising finding is that US Americans' responses were driven by social desirability (Holden, 2009). That is, they responded to explicit measures in a way that would be viewed favorably by others. Another possibility stems from the samples being different in terms of gender. The US American sample had more women than men, while the number of men and women in the Mexican sample was approximately the same. For example, Janne and Gary (2003) conducted a study to examine the social desirability bias in the context of ethical decision-making by accountants, showing that females have a higher social desirability bias than males. Also, in the US American context, the non-discrimination norms might be more salient than in the Mexican context.

In their paper, Danziger and Ward (2010) mentioned that the impact of language on explicit and implicit attitudes, as well as the relationships between the two types of attitudes, would be a fascinating area for further research. We pursued this idea by correlating the explicit and implicit measures. Overall, these correlations were not significant.

Perceived group status constitutes an important variable in intergroup relations that seems to influence ingroup bias, cognitions, emotions, thoughts, feelings, and behavior (Manstead, 2018). Thus, it was sensible to expect that the language effect (i.e., the reduction of implicit intergroup bias in L2) would not be observed when the group status of L2 speakers is low. However, perceived group status does not moderate the results.

These results have several theoretical and practical implications. First, they support the hypothesis that, despite just a few minutes separating each administration, social views toward the same groups can differ within the same individual depending on the language in which the test is delivered. This effect was not due to differences in language skills as measured by participant self-report nor to differences ingroup status. Second, the findings suggest that

linguistic contexts other than the native (though music, literature, entertainment, or actual contact) may reduce at least, implicit bias.

## 5.1. Limitations and Future Research

The results of this study are interesting but do not provide definite conclusions. As part of the limitations, we should refer to the lack of an objective measure of language proficiency. Second, we used a sample of highly educated participants, that are likely to abide by a salient non-discriminatory norm (at least the US American ones). Finally, we collected measures of contact with L2 people and language, as well as the emotion that we did not analyze. These could have provided some insight into the processes driving the language effect.

Future research could address questions about the specific mechanisms by which this linguistic effect operates. One possible avenue could be to analyze the emotions and the contact. Another possible way to deepen this topic in the future would be to use another type of intergroup attitude IAT by using target stimuli other than names or good/bad words but pictures.

# Conclusion

The present study replicated previous findings showing that implicit intergroup bias is reduced when measured in a second language. Moreover, we further showed that this reduction of implicit intergroup bias in L2 could also be observed in high-status groups, and perceived group status did not impact it. Our findings contribute to the existing knowledge on the role of bilingualism in shaping intergroup attitudes.

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# Appendix A - Informed Consent (English)

Thank you for participating in this study! To participate, you must be at least 18 years old and have a computer with a keyboard.

In this study, we are interested in your opinions about yourself and other people. There are no right or wrong answers. After some demographic questions, you will be asked to complete a categorization task and then to answer some multiple-choice questions. The study should take less than 25 minutes to complete. Participation in the study is strictly voluntary, anonymous, and confidential. Please make sure you pay full attention, do not listen to music, open pages in the browser, etc., to ensure that there will be no interruptions throughout the questionnaire, and that you will complete it as fast as possible. Data will be used for scientific purposes only. Completing the survey presumes that you have understood and accepted the conditions of the present study, by consenting to participate.

If you accept participating, please click the option below and move to the next page

○ I declare that I have understood the objectives of what was proposed and explained to me, and I accept to participate in it.

# Appendix B - Questionnaire and Word format (English)

Demographics

1.      How old are you?

2.      In which country were you born?

3.      In what country do you currently reside?

a.      USA

b.      México

c.      Other (specify):

4.      What was your assigned sex at birth?

a.      Male

b.      Female

c.      Other

d.      Prefer not to answer

5.      With which ethnic/racial group you identify with?

6.      Do you identify as a monocultural Mexican [US American]?

a.      Yes

b.      No

7.      On a scale from 1 (= not at all) to 7 (= very much) how much do you identify with Mexico [the USA]?

8.      What is the highest level of school you have completed or the highest degree you have received?

a.      Elementary School

b.      Middle School

c.      High School

d.      College Degree (undergraduate)

e.      College Degree (graduate)

f.      Don't know

9.      What is your current employment status?

a.      Student

b.      Unemployed

c.      Employed (if chosen, please indicate what your profession is):

d.      Retired

e.      Other

Attention check

10.　　We want to test your attention. Please mark the response option "Strongly agree ".

11.　　IATs

11.1 English IAT (Sample Stimuli)



11.2 Spanish IAT (Sample Stimuli)

Explicit attitudes US Americans, USA and English

12.      Please indicate how warm you feel towards the following group, country, and language. A score of 0 indicates you feel very cold and unfavorable, while a score of 100 indicates you feel very warm and favorable.

a.      US American people

b.      United States

c.      English language

13.      Please describe how you feel about US American people in general:

a.      1 (cold) to 7 (warm)

b.      1 (negative) to 7 (positive)

c.      1 (hostile) to 7 (friendly)

d.      1 (suspicious) to 7 (trusting)

e.      1 (disgust) to 7 (admiration)

14.      As viewed by society, how competent are US American people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)

15.      As viewed by society, how confident are US American people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)

16.      As viewed by society, how warm are US American people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)

17.      As viewed by society, how sincere are US American people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)


Perceived group status US Americans

18.      There are many people who believe that different groups enjoy different amounts of social status in this society. You may not believe this for yourself, but if you had to rate the following group as most people sees it, how would you do so?

US American people

7 – High status

6

5

4

3

2

1 – Low Status

Language status English

In the following part of the questionnaire, we are interested in what you think about the English language. You may feel that you do not have sufficient information to give a response; however, it is your impression we are interested in.

19.     How highly regarded is the English language in Mexico [the USA]?

1 (not at all)    2        3        4        4        6        7 (very highly)

20.     How highly regarded is the English language internationally?

1 (not at all)    2        3        4        4        6        7 (very highly)


Explicit attitudes Mexicans, Mexico and Spanish

21.     Please indicate how warm you feel towards the following group, country, and language. A score of 0 indicates very cold and unfavorable, while a score of 100 indicates very warm and favorable.

a.      Mexican people

b.      Mexico

c.      Spanish language

22.     Please describe how you feel about Mexican people in general:

a.      1 (cold) to 7 (warm)

b.      1 (negative) to 7 (positive)

c.      1 (hostile) to 7 (friendly)

d.      1 (suspicious) to 7 (trusting)

e.      1 (disgust) to 7 (admiration)

23.     As viewed by society, how competent are the Mexican people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)

24.     As viewed by society, how confident are the Mexican people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)

25.     As viewed by society, how warm are the Mexican people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)

26.     As viewed by society, how sincere are the Mexican people in general?

1 (not at all)    2        3        4        4        6        7 (extremely)


Perceived group status Mexicans

27.     There are many people who believe that different groups enjoy different amounts of social status in this society. You may not believe this for yourself, but if you had to rate the following group as most people sees it, how would you do so?

Mexican people

7 – High status

6

5

4

3

2

1 – Low Status


Language status Spanish

In the following part of the questionnaire, we are interested in what you think about the Spanish language. You may feel that you do not have sufficient information to give a response; however, it is your impression we are interested in.

28.     How highly regarded is the Spanish language in Mexico USA?

1 (not at all)    2        3        4        4        6        7 (very highly)

29.     How highly regarded is the Spanish language internationally?

1 (not at all)    2        3        4        4        6        7 (very highly)


Attention check

30.     We want to test your attention. Please mark the response option "Strongly agree".


Language history

Finally, we have some questions about your second language acquisition.

31.     Is English your native language?

a.      Yes

b.      No

c.      Yes, but I also have other, specify:

32.     Which languages do you speak fluently?

33.     Please list the age when you:

a.      began acquiring English [Spanish]:

b.      became fluent in English [Spanish]:

c.      total years learning English [Spanish]:

34.    Please list on a scale from 1 (= not proficient) to 7 (= fully proficient), how do you rate yourself in Spanish?

a.    Speaking:

b.    Comprehension:

c.    Reading:

d.    Writing:

35.    Please list the amount of time you have spent in each language environment in the total number of years:

a.    in a country where English [Spanish] is spoken:

b.    in your own family where English [Spanish] is spoken:

c.    in a school/working environment where English [Spanish] is spoken:

36.    How did you learn English [Spanish] up to this point?

a.    Mainly through formal classroom instruction (e.g., school, language courses…)

b.    Mainly through interacting with people (e.g., with family, traveling/living abroad…)

c.    Other (specify):

37.    On a scale from 1 (= never) to 7 (= always), please indicate how often, if at all, do you mix with people who speak Spanish natively in your social circles/workplace?

38.    On a scale from 1 (= I don't enjoy it at all) to 7 (= I enjoy it a great deal) please indicate how much, if at all, do you enjoy mixing socially with people who speak Spanish natively?


Emotions

39.    Finally, on a scale from (1 = very slightly) to (5 = extremely), please indicate to what extent you feel this way right now.

a.    upset

b.    hostile

c.    alert

d.    ashamed

e.    inspired

f.    nervous

g.    determined

h.    attentive

i.    afraid

j.    active

Realistically, we know some Prolific respondents do not always pay close attention to the questions they are answering. This affects the quality of our data. Please select one of the following honestly. Your answer is confidential. It will not affect whether or not you receive payment and will not affect any rating given to you for your work. Did you pay attention and answered honestly?

- Yes, keep my data
- No, delete my data

Thank you for participating! If you have any questions or comments, please contact Alexandra Antonov (alexandra_antonov@iscte-iul.pt) or Martina Gallus (martina_gallus@iscte-iul.pt).

# Appendix C - Informed Consent (Spanish)

¡Gracias por participar en este estudio! Para participar, debe tener al menos 18 años y disponer de una computadora con teclado.

En este estudio, estamos interesados en sus opiniones sobre usted y otras personas. No hay respuestas correctas o incorrectas. Después de algunas preguntas demográficas, se le pedirá que complete una tarea de categorización y luego que responda algunas preguntas de opción múltiple. El estudio debería tardar menos de 25 minutos en completarse. La participación en el estudio es estrictamente **voluntaria**, **anónima** y **confidencial**. Por favor, asegúrese de prestar toda su atención, no escuchar música, abrir páginas en el navegador, etc., para asegurarse de que no haya interrupciones durante todo el cuestionario y que lo complete lo más rápido posible. Los datos se utilizarán únicamente con fines científicos. Completar la encuesta supone que ha entendido y aceptado las condiciones del presente estudio, al dar su consentimiento para participar. Si acepta participar, haga clic en la opción a continuación y pase a la página siguiente

○ Declaro que he entendido los objetivos de lo propuesto y explicado, y acepto participar en lo mismo.

# Appendix D- Questionnaire and Word format (Spanish)

Demographics

1.  ¿Cuántos años tiene?

2.  ¿En que país nació?

3.  ¿En qué país reside actualmente?

a.  México

b.  Estados Unidos

c.  Otro, especificar:

4.  ¿Cuál fue su sexo asignado al nacer?

a.  Masculino

b.  Femenino

c.  Indeterminado

d.  Prefiero no contestar

5.  ¿Con qué grupo étnico / racial se identifica?

6.  ¿Se identifica como una persona monocultural mexicana [estadounidense]?

a.  sí

b.  no

7.  En una escala de 1 (= nada) a 7 (= mucho), ¿cuánto se identifica con México [los Estados Unidos]?

8.  ¿Cuál es el nivel más alto de estudios que ha completado o el título más alto que ha recibido?
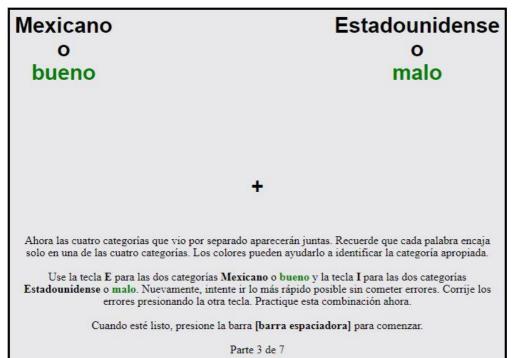
a.  Escuela primaria

b.  Escuela secundaria

c.  Escuela preparatoria

d.  Licenciatura

e.  Maestría

f.  No sé

9.  ¿Cuál es su situación laboral actual?

a.  Estudiante

b.  Desempleado

c.  Empleado (si lo elige, indique cuál es su profesión):

d.  Retirado

e.  Otro

Attention check

10.	Queremos poner a prueba su atención. Marque la opción de respuesta "Totalmente de acuerdo".

11.	IATs

11.1 Spanish IAT (Sample Stimuli)



| Mexicano | Estadounidense |
|---|---|
| o | o |
| bueno | malo |

+

Ahora las cuatro categorías que vio por separado aparecerán juntas. Recuerde que cada palabra encaja solo en una de las cuatro categorías. Los colores pueden ayudarlo a identificar la categoría apropiada.

Use la tecla **E** para las dos categorías **Mexicano** o **bueno** y la tecla **I** para las dos categorías **Estadounidense** o **malo**. Nuevamente, intente ir lo más rápido posible sin cometer errores. Corrije los errores presionando la otra tecla. Practique esta combinación ahora.

Cuando esté listo, presione la barra **[barra espaciadora]** para comenzar.

Parte 3 de 7

11.2 English IAT (Sample Stimuli)



| Mexican | US American |
|---|---|
| or | or |
| good | bad |

+

Now the four categories you saw separately will appear together. Remember, each word fits in only one of the four categories. The colors may help you identify the appropriate category.

Use the **E** key for the two categories **Mexican** or **good** and the **I** key for the two categories **US American** or **bad**. Again, try to go as fast as possible without making mistakes. Correct errors by hitting the other key. Practice this combination now.

When you are ready, please press the **[Space] bar** bar to begin.

Part 3 of 7

Explicit attitudes Mexicans, Mexico and Spanish

12.     Indique qué tan favorable se siente hacia el siguiente grupo, país e idioma. Una puntuación de 0 indica un sentimiento frío y desfavorable, mientras que una puntuación de 100 indica un sentimiento cálido y favorable.

a.      Mexicanos

b.      Mexico

c.      Español

13.     Por favor, describa cómo se siente con respecto a los Mexicanos en general:

a.       1 (frío/a) to 7 (cálido/a)

b.      1 (negativo/a) to 7 (positivo/a)

c.      1 (hostil) to 7 (amistoso/a)

d.      1 (sospechoso/a) to 7 (confiado/a)

e.      1 (desprecio) to 7 (respeto)

f.      1 (asco) to 7 (admiración)

14.     Desde el punto de vista de la sociedad, ¿qué tan confiados son los Mexicanos en general?

1 (para nada)  2       3       4       4       6       7 (extremadamente)

15.     Desde el punto de vista de la sociedad, ¿qué tan competentes son los Mexicanos en general?

1 (para nada)  2       3       4       4       6       7 (extremadamente)

16.     Desde el punto de vista de la sociedad, ¿qué tan sinceros son los Mexicanos en general?

1 (para nada)  2       3       4       4       6       7 (extremadamente)

17.     Desde el punto de vista de la sociedad, ¿qué tan cálidos son los Mexicanos en general?

1 (para nada)  2       3       4       4       6       7 (extremadamente)


Perceived group status Mexicans

18.     Hay muchas personas que creen que diferentes grupos disfrutan de diferentes niveles de estatus social en esta sociedad. Puede que usted no lo crea, pero si tuviera que calificar como ve la mayoría de la gente al siguiente grupo, ¿cómo lo haría?

Mexicanos

7 – Estatutuos alto

6

5

4

3

2

1 – Estatutos bajo


Language status Spanish

Nos interesa su opinión del Inglés. Puede sentir que no tenga suficiente información para dar una respuesta; sin embargo, es su impresión lo que nos interesa.

19. ¿Qué consideración cree que tiene el Español en México [los Estados Unidos]?

1 (muy baja)   2   3   4   4   6   7 (muy alta)

20. ¿Qué consideración cree que tiene el Español internacionalmente

1 (muy baja)   2   3   4   4   6   7 (muy alta)


Explicit attitudes US Americans, USA and English

21. Indique qué tan favorable se siente hacia el siguiente grupo, país e idioma. Una puntuación de 0 indica un sentimiento frío y desfavorable, mientras que una puntuación de 100 indica un sentimiento cálido y favorable.

a. Estdounidenses

b. Estados Unidos

c. Inglés

22. Por favor, describa cómo se siente con respecto a los Estadounidenses en general:

g.   1 (frío/a) to 7 (cálido/a)

h.   1 (negativo/a) to 7 (positivo/a)

i.   1 (hostil) to 7 (amistoso/a)

j.   1 (sospechoso/a) to 7 (confiado/a)

k.   1 (desprecio) to 7 (respeto)

l.   1 (asco) to 7 (admiración)

23. Desde el punto de vista de la sociedad, ¿qué tan confiados son los Estadounidenses en general?

1 (para nada)   2   3   4   4   6   7 (extremadamente)

24. Desde el punto de vista de la sociedad, ¿qué tan competentes son los Estadounidenses en general?

1 (para nada)   2   3   4   4   6   7 (extremadamente)

25.     Desde el punto de vista de la sociedad, ¿qué tan sinceros son los Estadounidenses en general?

1 (para nada)  2      3      4      4      6      7 (extremadamente)

26.     Desde el punto de vista de la sociedad, ¿qué tan cálidos son los Estadounidenses en general?

1 (para nada)  2      3      4      4      6      7 (extremadamente)


Perceived group status US Americans

27.     Hay muchas personas que creen que diferentes grupos disfrutan de diferentes niveles de estatus social en esta sociedad. Puede que usted no lo crea, pero si tuviera que calificar como ve la mayoría de la gente al siguiente grupo, ¿cómo lo haría?

Estadounidenses

7 – Estatutuos alto

6

5

4

3

2

1 – Estatutos bajo


Language status English

Nos interesa su opinión del Inglés. Puede sentir que no tenga suficiente información para dar una respuesta; sin embargo, es su impresión lo que nos interesa.

28.     ¿Qué consideración cree que tiene el Inglés en México [los Estados Unidos]?

i.     (muy baja)      2      3      4      4      6      7 (muy alta)

29.     ¿Qué consideración cree que tiene el Inglés internacionalmente?

1 (muy baja)  2      3      4      4      6      7 (muy alta)


Attention check

30.     Queremos poner a prueba su atención. Marque la opción de respuesta "Totalmente de acuerdo".

Language history

Finalmente, tenemos algunas preguntas sobre la adquisición de un segundo idioma.

31.     ¿Es su lengua materna el español?

a.     sí

b.     no

c.     sí, pero también tengo otra(s), especificar:

32.     ¿Qué idiomas habla con fluidez?

33.     Indique la edad en la que:

a.      comenzó a adquirir el inglés:

b.      comenzó a dominar el inglés:

c.      años totales aprendiendo inglés:

34.     Enumere en una escala de 1 (= no soy competente) a 7 (= soy totalmente competente), ¿cómo se calificaría en Inglés?

a.      Hablar:

b.      Comprension:

c.      Leer:

d.      Escritura:

35.     Indique la cantidad de tiempo que ha pasado en cada entorno lingüístico en el número total de años:

a.      en un país donde se habla inglés:

b.      en su propia familia donde se habla inglés:

c.      en un ambiente escolar / laboral donde se habla inglés:

36.     ¿Cómo aprendió Inglés hasta ahora?

a.      Principalmente a través de la instrucción formal en el aula (p.ej., escuela, cursos de idiomas...)

b.      Principalmente a través de la interacción informal (p. ej., con la familia, viajar / vivir en el extranjero...)

c.       Otro (especificar):

37.     En una escala de 1 (= nunca) a 7 (= siempre), indique con qué frecuencia se relaciona con personas que hablan inglés como idioma nativo en sus círculos sociales / lugar de trabajo (si es que se relaciona)?

38.     En una escala de 1 (= no lo disfruto en absoluto) a 7 (= lo disfruto mucho) por favor indique ¿que tanto le gusta mezclarse socialmente con personas que hablan inglés como idioma nativo (si es que lo disfruta)?

Emotions

39.	Finalmente, en una escala de (1 = muy levemente) a (5 = extremadamente), indique hasta qué punto se siente así en este momento.

a.	molesto/a

b.	hostil

c.	allerta

d.	avergonzado/a

a.	 inspirado/a

b.	nervioso/a

c.	determinado/a

d.	atento/a

e.	temeroso/a

f.	activo/a


Siendo realistas, sabemos que algunos respondedores de Prolific no siempre prestan mucha atención a las preguntas que están respondiendo. Esto afecta la calidad de nuestros datos. Seleccione uno de los siguientes con sinceridad. Su respuesta es confidencial. No afectará si recibe o no el pago y no afectará ninguna calificación que se le otorgue por su trabajo. ¿Ha tenido cuidado y ha respondido con honestidad?


•	Si, guarda mis datos

•	No, borra mis datos


Thank you for participating! If you have any questions or comments, please contact Alexandra Antonov (alexandra_antonov@iscte-iul.pt) or Martina Gallus (martina_gallus@iscte-iul.pt).