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The influence of test language on bilinguals' intergroup attitudes: The moderating effect of group and perceived language status

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CIÊNCIAS SOCIAIS
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Resumo

Medidas explícitas de atitudes intergrupais exploram avaliações deliberadas e, portanto, suscetíveis a variáveis situacionais como a deseabilidade social. Embora as medidas implícitas sejam cada vez mais utilizadas para ultrapassar estas questões, as evidências indicam que podem ser igualmente maleáveis. Estudos recentes conduzidos com bilingues, usando o Teste de Associação Implícita (IAT), mostram que a utilização de uma segunda língua (L2) em comparação com uma língua nativa (L1), reduz o enviesamento implícito do endogrupo. No entanto, estes estudos foram realizados com grupos minoritários. Em contraste, o presente estudo constitui uma comparação transnacional entre um "grupo maioritário" de Americanos ($n = 92$) e um "grupo minoritário" de Mexicanos ($n = 92$). Este estudo reproduz conceptualmente pesquisas anteriores, e explora se o efeito de língua reportado se estende a grupos maioritários e se é influenciado pela percepção do estatuto linguístico de L1 em relação a L2. Examina ainda as atitudes explícitas. Os resultados indicam que ambos os grupos exibem favoritismo implícito do endogrupo e que, este favoritismo é mais baixo quando realizam o IAT em L2 (vs. L1). O estatuto percebido da língua não moderou este efeito. No entanto, a língua em que era apresentado o questionário moderou o efeito. Fazer um IAT em L2 (vs. L1) reduziu o favoritismo endogrupal apenas quando o questionário foi apresentado em L1. Nas atitudes explícitas os participantes Mexicanos exprimiram preferência pelo endogrupo, enquanto os participantes Americanos exprimiram uma surpreendente preferência pelo exogrupo. Os resultados são discutidos com referência a pesquisas anteriores sobre bilinguismo e relações intergrupais.

Palavras chave: Atitudes intergrupais, primeira e segunda língua, bilingues inglês-espanhol, estatuto de grupo, estatuto linguístico

Códigos de Classificação da APA:

2720 Linguistics & Language & Speech

3020 Group & Interpersonal Processes

3040 Social Perception and Cognition

Abstract

Explicit measures of intergroup attitudes tap into deliberately endorsed evaluations and thus are susceptible to situational variables such as social desirability. While implicit measures have been increasingly used to overcome these issues, evidence indicates that they might be similarly malleable. Recent studies with bilinguals using the Implicit Association Test (IAT), show that using a second language (L2) reduces implicit ingroup bias compared to a native language (L1). However, these studies were all conducted with minority groups. In contrast, the current study is a cross-national comparison between a "majority group" of monocultural US Americans ($n = 92$) and a "minority group" of monocultural Mexicans ($n = 92$). This study conceptually replicates previous research and explores whether the reported language effect extends to majority groups and is influenced by the perceived language status of L1 relative to L2. It further examines explicit attitudes. Results indicate that both groups display overall implicit ingroup favoritism. Notably, both groups display lower ingroup favoritism when doing an IAT in L2. Perceived language status did not moderate this effect. However, a secondary finding was that survey language moderated the effect. Taking an IAT in L2 reduced ingroup favoritism more so than taking an IAT in L1 only if the whole survey was in L1. Regarding explicit attitudes, national differences emerged: Mexicans expressed a preference for their ingroup, whereas US Americans surprisingly expressed a preference for the outgroup. Findings are discussed with reference to previous research on bilingualism and intergroup relations.

Keywords: Intergroup attitudes, first and second language, English-Spanish bilinguals, group status, language status

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CHAPTER 1.

Introduction

The crucial function of language in an interpersonal communication context is undeniable. But does language also play a role in the dynamics between social groups, affecting, for example, intergroup relations and perceptions? Earlier social psychological approaches attempting to answer this question have mainly centered on the bidirectional language-ethnic identity link (see Gudykunst & Schmidt, 1987), social aspects of language acquisition in multilingual societies (e.g., Bourhis, 1984; Bourhis & Sachdev, 1984), and status differences between linguistic groups (e.g., Giles et al., 1977).

From a current scholarly perspective, there is considerable agreement that a person's mother tongue can serve as a marker of group identity and cultural belonging (Jaspal & Coyle, 2010a, b; Omoniyi & White, 2006; Panicacci, 2019). Likewise, it has been argued that learning a second language is often related to the acquisition of norms and values of the respective related culture (Arabski & Wojtaszek, 2011). Yet, relatively less research has focused on individuals' evaluation of social categories related to the languages they speak and assessed whether the experimental language context (i.e., language used for questionnaires, instructions, or other materials) or language-related status perceptions (i.e., perceptions about the relative prestige of different languages) influence social beliefs. This is not surprising given that, despite the above-described research efforts in the 20th century, language has so far not been a primary topic of sociopsychological inquiry (Baker et al., 2020). Arguably, the general lack of research focus on the variables mentioned above might be due to the fact that "the role of language in social psychological processes is so fundamental and so pervasive that it is often overlooked and taken for granted" (Holtgraves, 2014, p.2).

The present study examines the role of language in assessing implicit intergroup attitudes. Three studies by Danziger et al. (2010), Ogunnaike et al. (2010), and Ellis et al. (2019) explicitly addressing the contextual factor of test language concluded that the language context of an experiment has the potential to affect social judgments about different groups. For example, these studies demonstrated that bilinguals show lower outgroup bias when using a foreign/second (FL/L2) than a native/first language (NL/L1). Yet, these studies were conducted with minority samples (e.g., Moroccans), that is, with participants from a non-dominant social group. Moreover,

while Ellis et al. (2019) use emotionality as a moderator variable to explain why an L1 might induce a stronger bias, no research has gone further to study possible mechanisms and boundary conditions of the observed effect. Here, we reason that ascribed/assumed group and language status (i.e., perceived national and international prestige of one's L1 and L2) would play a fundamental role in the relation between language and intergroup attitudes.

The aim of the current study is threefold. First, given that reproducibility is a major principle of scientific research (e.g., Open Science Collaboration, 2015; Simons, 2014), we want to replicate previously outlined findings showing that bilinguals change their implicit intergroup attitudes towards members of their first or second language group as a function of test language. Second, we aim to extend upon previous work by examining whether this effect is equally strong for both historically embedded minority and majority group members (Mirowsky & Ross, 1980). Third, we seek to explore the moderating effect of an individual's subjective first and second language status on the relation between language and attitudes.

Given these goals, Chapter 2 introduces the concept of intergroup attitudes and briefly reviews the literature examining the extent to which implicit attitudes are malleable; presents studies exploring the effect of language on intergroup evaluations and its possible underlying cognitive and affective mechanisms; and ends with a brief discussion of theoretical and empirical work on group and language status variables. Chapter 3 presents an empirical study, which is a replication and extension of Ogunnaike et al.'s (2010) and Danziger and Ward's (2010) experiments. Finally, the last chapter presents the main conclusions and outlines the main limitations of the present work, along with some suggestions for future research.

CHAPTER 2.

Literature Review

Intergroup Attitudes

Traditional models of intergroup attitudes entail an affective, behavioral, and cognitive component and rely on the idea that attitudes are formed consciously and deliberately (Eagly & Chaiken, 1993; Rosenberg & Hovland, 1960). Studies have employed various methods to assess these so-called explicit attitudes, which share the common feature of being based on self-report.

In the past decades, there has been a growing awareness among social psychologists concerning the drawbacks of explicit measures in general and explicit measures of intergroup evaluation in particular. In this regard, scholars have specially brought to light the problem of social desirability (e.g., Fisher, 1993; Janus, 2010). Consequently, within the field of attitude research, implicit cognitive processes and evaluations, which are thought to capture the underlying associative structure of an individual's opinion (Strack & Deutsch, 2004), have received a great deal of attention (e.g., Greenwald & Banaji, 1995; Wegner & Bargh, 1998).

Different methodologies have been used to assess these unconscious evaluative responses (i.e., implicit attitudes), such as the Implicit Association Test (IAT; Greenwald et al., 1998), the Go/No-go Association Task (GNAT; Nosek & Banaji, 2001), or the Evaluative Priming task (Fazio et al., 1986), with the most popular and reliable being the IAT. The IAT measures reaction time that people require to classify certain concepts and is based on the assumption that the higher associative strength between two stimuli (e.g., "Black people" and "bad" vs. "Black people" and "good"), the easier and faster it is to provide a response.

Yet, those implicit measures also do not come without limitations. For example, they have been criticized based on methodological issues such as a relatively low temporal stability (Gawronski et al., 2017). Indeed, previous research supports the notion that an individuals' access to cognitive associations might strongly depend on contextual circumstances (e.g., Cooley & Payne, 2017; Gawronski & Sritharan, 2010; Gawronski et al., 2017). Relatedly, a set of variables that are considered most likely to shape attitudes in general and implicit attitudes, in particular, were explored by previous studies. For instance, Blair's (2002) review on the malleability of automatic stereotypes and prejudice revealed that among the variables moderating automatic attitudes are: self-and social motives (e.g., motivation to maintain a positive self-image; Fein &

Spencer, 1997), strategies to counterstereotypes (e.g., mental imagery that makes counterstereotypical associations salient; Blair et al., 2001), focus of attention (e.g., the focus on different dimensions of a target's social group membership such as gender or race; Mitchell et al., 2003), the context within which social category stimuli are presented (e.g., use of background pictures of a city vs. a church for Black and White face primes; Wittenbrink et al., 2001), and characteristics of individual category members (e.g., the subjective familiarity of target stimuli such as forenames; Macrae et al., 2002).

Overall, the findings that a wide variety of variables can influence automatic evaluations are, for example, consistent with Schwarz's (2007) perspective on *attitudes as online constructions*, which posits that attitudes are constructed at the moment instead of being recalled from memory.

In the context of intergroup research, several factors that shape a person's attitudes have also been differentiated, two important ones being an individuals' ingroup identity and cultural norms. Turner (1999) has used the *identification–differentiation hypothesis* to refer to the complex relationship between ingroup identification and intergroup bias. In simple terms, people tend to evaluate ingroup members more positively than outgroup members. The stronger the ingroup identification, the greater the perceived difference between ingroup and outgroup (Allport, 1954; Brewer, 1979; Tajfel & Turner, 1979). Furthermore, attitudes also seem to be developed based on cultural messages about members of different social groups. For example, Han et al. (2010) showed that people's implicit racial attitudes change as a function of the perspective primed by a preceding task. Individuals who were primed with a normative mindset (i.e., "people like/don't like") before completing the IAT showed greater bias towards Black people as opposed to participants primed with a personal mindset (i.e., "I like/don't like"). These results are in line with the previously mentioned notion that the IAT is influenced by situational effects and cultural norms such as society's negative portrayal of Black people (Olson & Fazio, 2004).

The two factors of ingroup identity and cultural norms mentioned above are in turn influenced by several other variables identified by research in social psychology. Each person has multiple social identities (e.g., national, race/ethnicity, gender), and which one is more salient varies depending on the context (Oakes et al., 1991; Turner et al., 1987). As indicated previously, this social identity salience can then affect a variety of intergroup variables. For instance, a link between national identity salience and indicators of affective polarization (e.g., trait evaluations of immigrants and ingroup favorability) has been empirically corroborated with data from three

experiments recently conducted by Wojcieszak and Garrett (2018). More specifically, in Study 1, self-reported immigrant opponents from the US who completed a writing task in which they were asked to reflect on their national identity evaluated immigrants more negatively and exhibited greater ingroup favoritism on a feeling thermometer than those in a control group.

Along similar lines, an individual's cultural norms of reference seem to depend on situational cues. For example, several studies report that biculturals show assimilating or contrasting behavior (Cultural Frame Switching [CFS], Hong et al., 2000) when primed with a cue of one of their cultures, meaning that they either tend to shift towards or away from the norms of the primed culture (Benet-Martínez et al., 2002; Cheng et al., 2006). In this context, a commonly used method of priming "culture" is to administer participants two versions of the very same questionnaire, with the only difference being test language. For instance, some studies use language as a symbolic prime for cultural knowledge structures and orientations such as individualistic and collectivist mindsets (Arieli & Sagiv, 2018; Lee et al., 2010). While, as noted by Oyserman and Lee (2008) regarding this latter set of studies, "what specifically is primed by language is less clear" (p. 321), there is strong consensus among scholars that language is cognitively linked with sociocultural values and norms (Chen & Bond, 2010; Ji et al., 2004). According to Sherif and Sherif's (1953) early Group Norm Theory (GNT), social norms are, in turn, "formed in group situations and subsequently serve as standards for the individual's perception and judgment when he [sic] is not in the group situation." (p. 202). Following this reasoning, it seems plausible to assume that there is also a connection between language and intergroup perceptions.

Intergroup Attitudes and Language

Although some recent social psychological research has been conducted on the effect of language on several aspects of intergroup social cognition, there is a paucity of current and coherent theoretical approaches in the field. The most substantial body of research connecting language to intergroup processes focuses on *intra*linguistic features (i.e., features within the same language) rather than on *inter*language comparisons (i.e., comparisons across different languages).

The Linguistic Intergroup Bias (LIB; Maass et al., 1989) and the Linguistic Expectancy Bias (LEB; Wigboldus et al., 2000) models, which in turn draw on the core assumptions of the Linguistic Category Model (LCM; Semin & Fiedler; 1988), have emerged as good theoretical frameworks to study the role of language in the maintenance of intergroup relations and postulate

that level of abstraction and word ordering contribute to changes and transmission of stereotypes. One well-replicated finding illustrating the LIB is that individuals tend to describe positive behaviors of in-group members with abstract language and positive behaviors of out-group members with concrete language (e.g., the in-group member is described as "helpful" and the out-group member as "helping"; Maass et al., 1996). Conversely, negative behaviors of in-group members are communicated with concrete language and negative behaviors of out-group members with abstract language (e.g., the in-group member is described as "hurting someone" and the out-group member as "aggressive"; Maass et al., 1996). In typical experiments examining the LEB, participants tend to describe expectancy-consistent behaviors with abstract language and expectancy-inconsistent behaviors with concrete language (e.g., Wigboldus et al., 2000). The underlying assumption is that the use of abstract language indicates dispositional behavior, which is likely to be repeated. In contrast, the use of concrete language indicates situational behavior, which is less stable over time. While the study of the LEB is more recent, the LIB has been extensively demonstrated in different intergroup contexts (e.g., sports teams; Tanabe & Oka, 2001; nations; Arcuri et al., 1993; gender; Fiedler et al. 1993) and languages (e.g., English, German, Italian, Japanese). However, the generalizability of the LIB is unknown, and there is evidence suggesting that the effect may be moderated by individual factors such as the need to protect one's social identity. For instance, studies that have looked at the role of perceived group status suggest that low-status group members tend to show a greater LIB than high-status group members (e.g., southern Italians display a greater LIB than northern Italians; Maass et al., 1996), but most probably only when they perceive the existing status structure as illegitimate (Ellemers et al., 1993; Moscatelli et al., 2008; Salès-Wuillemin et al., 2014). Moreover, as noted by Bonefeld and Beißert (2021) in a recent paper that failed to replicate the LIB in a sample of German teachers, the fact that languages differ in a variety of ways (e.g., the proportional use of word types) might influence the applicability of the LIB across different linguistic contexts. While this latter study suggests that the LIB does not consistently apply to different linguistic contexts, very recent work on the LEB with bilinguals (Garrido et al., 2021) revealed the same pattern of LEB-consistent results when participants were tested in Portuguese (i.e., in L1) and in English (i.e., in L2).

Whereas psycholinguistics are more likely to look at interlanguage differences in terms of semantic, phonetic, and grammatical properties, social psychologists place considerable emphasis study of attitudes towards different languages and linguistic communities. Historically,

sociolinguistic aspects of contact between languages have been investigated since Giles and colleagues' (1977) introduction of the Ethnolinguistic Vitality (EV) concept, which describes variables related to the strength and distinctiveness of a group's language and ethnicity in comparison to other groups. The framework posits that the three socio-structural factors of status (e.g., economic and language status), demography (e.g., the numeric concentration of group members in different parts of a territory), and institutional support (e.g., formal language support through education) define the vitality of a linguistic group. When contact between two groups occurs, one language develops into the majority language with high prestige, while the other becomes the minority language with low prestige (Giles & Johnson, 1987). Moreover, languages that are spoken by minorities generally evoke less favorable associations than a language spoken by a majority, which can generate stereotypes (Alvarez, 2017).

As research into the EV theory progressed, it became increasingly apparent that to understand the role of socio-structural variables in intergroup relations fully, it is also necessary to look at how groups *perceive* the status, demography, and institutional support of their language. Accordingly, Bourhis et al. (1981) introduced the concept of Subjective Ethnolinguistic Vitality (SEV), which represents an individual's perceptions of a group's vitality. While the notions of EV and SEV are similar in several ways, they are not interchangeable, and sometimes there is a mismatch between objective and subjective assessment of EV (e.g., Giles et al., 1985; Harwood et al., 1994, see also Noels et al., 2014). To measure SEV, the Subjective Ethnolinguistic Vitality Questionnaire (SEVQ; Bourhis et al., 1981), which captures individuals' perceptions regarding the three socio-cultural variables mentioned above, has been traditionally used. Although scholars acknowledge that the original questionnaire has conceptual and methodological limitations, it is generally agreed that the concept of SEV and its related measures have the potential to add a new perspective to the investigation of social attitudes in relation to language (Yagmur & Ehala, 2011; see also Smith et al., 2017).

It has further long been known that language is inherently linked to an individuals' social identity and group membership perception (Giles & Johnson, 1987; Grosjean, 1982; but see also Jaspal, 2009). An emerging stream of research in this vein concerns the use of language as a social marker. For instance, considerable evidence shows that even infants and pre-school children display a preference for native over foreign-accented speakers (e.g., Kinzler et al., 2007; Kinzler et al., 2011). Similar studies with adults demonstrate that individuals perceive English native

speakers as more positive (e.g., intelligent, capable) than individuals who speak English as a second language, bolstering the view that language-related intergroup differences can lead to stereotyping and discrimination (Weyant, 2007). In fact, as argued by Collins and Clément (2012) in their review paper, not only are language and prejudice closely related, but "the study of prejudice without a consideration of language is incomplete" (p. 376). Surprisingly, only a limited set of studies has explored whether attitudes towards specific social groups change depending on the test administration's language.

Ogunnaike et al. (2010) proposed that language might indeed be a critical contextual factor to consider in social attitude experiments. To test this hypothesis, the authors adopted a within-subject design in which participants took two name IATs in two different languages. This study showed that Arabic-French bilinguals from Morocco manifested more positive attitudes toward Moroccan names as opposed to French names when assessed in Arabic. However, when assessed in French, they showed an equal preference for both names. In other words, they had a greater ingroup bias in their native or official language of the country they live in than their second language or language of education. In Study 2, parallel findings were obtained with mostly Hispanic Spanish-English bilinguals, who exhibited a stronger pro-Hispanic attitude when assessed in Spanish as opposed to English. The authors concluded that the "associations residing within the language itself" (p. 1001) accounted for the results even more so than a general preference towards one or the other language or overall language proficiency, opening several avenues for additional investigation regarding the boundary conditions and underlying mechanisms of this effect. Furthermore, to explain these results, they draw on approaches viewing *attitudes as online constructions* such as those described above, recognizing the importance of situational influence (e.g., experimental setting and context).

Danziger and Ward (2010) obtained similar findings with Arabic-Hebrew bilinguals, who showed more positive associations towards Arabic names when tested in Arabic than Hebrew. Yet, when completing an instrument-weapon IAT in Arabic and Hebrew, the participants' greater positive associations towards instruments were not influenced by language. These results led the authors to conclude that it is not the NL context per se that affects attitudes but rather the "accessibility of socially relevant associations" (p. 2) induced by the respective language.

The most recent study on the relationship between attitudes and test language was conducted by Ellis and colleagues (2019), who investigated the link between a native language and intergroup

attitudes with Welsh-English bilinguals. Additionally, the authors expanded the previous studies by adding a mood manipulation. After watching neutral films, participants taking an IAT in Welsh - the participants' L1 (vs. English, their L2) - exhibited implicit preferences for the ingroup (i.e., Welsh). When taking the test in English a week apart, the bilinguals showed a weaker overall ingroup preference than in Welsh. This pattern regarding the effect of language on attitudes confirms the previous findings of Danziger and Ward (2010) and Ogunnaike et al. (2010). Importantly, while in L1, the in-group bias pattern did not change when the participants' mood was manipulated via positive or negative films, in L2, the bias was influenced by the induced positive or negative mood. Specifically, Welsh participants taking the test during an English (L2) experimental session showed greater ingroup preference in the positive or negative condition compared to the neutral condition, suggesting that the implicit bias as assessed via an IAT in the L2 of bilinguals is malleable and affected by transient mood state. An argument put forward by the authors is that using an L2 (vs. L1) is by default less automatic and intuitive (thus mitigates the bias) and becomes heuristic (thus exacerbates the bias) only as a consequence of low or elevated mood. It is further noteworthy to mention that the participants' global affect assessing if they were in an actual positive or negative mood in the Welsh session was comparable to the score in the English session. It thus was not affected by test language but changed as a function of mood manipulation in the expected direction in both experimental sessions. Moreover, both positive and negative moods affected the bias in L2 in a similar fashion. This finding is consistent with prior studies revealing that positive and specific negative emotions are related to social judgments. For example, Park and Banaji (2000) carried out several experiments exploring the effect of different mood states on the tendency to engage in social judgment heuristics. Amongst other things, their findings revealed that induced positive mood triggers heuristic stereotypical thinking (e.g., likelihood of judging someone a criminal). Another study by Dasgupta and colleagues (2009) focused on the effect of two specific negative emotions that have been the subject of past scientific interest in intergroup contexts, namely anger and disgust. Their experiments converged to show that these negative emotions only enhanced implicit bias towards target groups in which the emotion is typically applicable (e.g., induced disgust enhances bias towards gays and lesbians, and induced anger enhances bias towards Arabs).

Cognitive and Affective Processing in L1 and L2

While only a few studies have dealt with the effect of L2 on social judgments, there is a wide array of research demonstrating that using an L2 may influence how people make choices - the so-called Foreign Language Effect (FLE; Keysar et al., 2012). For example, studies have uncovered that using an L2 vs. L1 leads to more analytic thinking (e.g., accept favorable bets) in decision-making (Costa, Foucart, Arnon et al., 2014; Keysar et al., 2012) and more utilitarian responses (e.g., sacrifice one life to save five) in moral judgments (Cipolletti et al., 2016; Costa, Foucart, Hayakawa et al., 2014; Hayakawa et al., 2017). Circi et al. (2021) recently conducted the first meta-analytic review of all available studies on the FLE in the moral decision-making and the risk-judgment domain, concluding that an L2 context robustly leads people to be more inclined "to accept harms in order to maximize outcomes" and "to reducing risk aversion" (p. 9). Although the exact mechanism underlying the FLE is not yet fully understood, several explanatory hypotheses have been proposed, the most important being related to emotions, internalized social norms, and cognitive processes. Notably, most explanations put forward are not mutually exclusive but rather closely interlinked.

The Role of Emotions

Whereas the above-discussed study by Ellis and colleagues (2019) focuses on the *moderating* role of emotions analyzing how language and mood might interact in affecting intergroup bias, research in the FLE context chiefly focuses on the *mediating* role of emotional processes analyzing to what extent emotionality can account for the relation between language and decision biases. Indeed, a widely accepted explanation for the FLE is offered by the *reduced emotionality account*, which posits that an L2 context decreases the emotional response that specific situations may trigger. This decrease in emotional response may then affect individual decisions, reducing biases that arise due to emotional factors (Geipel et al., 2016; Keysar et al., 2012). While some authors do not find support for this account (e.g., Morawetz et al., 2017), a cumulative body of empirical studies showed that L1 robustly induces stronger emotional reactions than a FL (for a review, see Caldwell-Harris, 2014, 2015). For example, physiological and behavioral evidence shows that the same phrases or words - especially childhood reprimands and taboo words - have a stronger emotional impact when presented in L1 than in L2 (Garrido & Prada, 2018; Harris et al., 2003). Moreover, studies on memory processes in bilinguals indicate a superior performance on recall

tasks in L1 compared to L2, but only for emotional words (Anooshian & Hertel, 1994; Marmolejo et al., 2009). Similarly, memory performance for words encoded in emotional contexts has also been shown to be higher in L1 than in L2 (Saraiva et al., 2021). Yet, it is still uncertain whether the reduction in emotionality is induced by factors related to the use or age of acquisition of a second language in itself or because of the social environment in which it was acquired. According to Costa (2020), for example, the "social use of language" (p. 283) is a crucial factor in explaining emotional differences.

The Role of Internalized Social Norms

Since the hypothesis that emotion reduction mediates the effect of an L2 on moral decision making is not always supported by experimental data (e.g., Geipel et al., 2015b), another possible explanation might be that an FL context does not make autobiographical memory (including knowledge of sociocultural norms) salient in the same way as an L1 (Geipel et al., 2015b). Previous evidence showed that retrieval of autobiographical memories is enhanced when the language used in retrieval matches the language in which the memories were originally formed (e.g., Marian & Neisser, 2000; Matsumoto & Stanny, 2006). Along the same lines, a study by Mariana and Kaushanskaya (2007) demonstrated that access to general knowledge could be facilitated when the language of encoding corresponds to the language of recall. Regarding the FLE, participants might be more prone to violate norms (e.g., not harming others) in order to minimize overall harm (e.g., saving five lives and sacrificing one) when tested in an FL. Accordingly, research shows that people manifest less sensitivity to norms when presented with moral dilemmas in an FL compared to an L1 (Bialek et al., 2019).

The Role of Cognitive Processes

Beyond emotional and sociocultural factors, other variables of potential importance in explaining the FLE are related to cognitive processes. Hadjichristidis, Geipel, and Surian (2019), for example, recently corroborated the hypothesis that using an L2 reduces superstitious beliefs, interpreting the results in terms of suppression of intuitive, "autopilot thinking" (or System 1 thinking; Kahnemann, 2011) when using a non-native language. Other authors have similarly suggested that an FL context activates rational decision patterns (or System 2 thinking), possibly by enhancing emotional distance and decreasing cognitive fluency, that is, the ease with which the mind

processes novel information (Segalowitz, 2010). On the other hand, scholars argued that cognitive effort might be heightened when being presented with information in a FL rather than in a L1 (Hasegawa et al., 2002). This increase in working load, in turn, enhances the impact of cognitive biases (e.g., Whitney et al., 2008). In sum, since the two cognitive variables considered individually give rise to opposing hypotheses regarding the effect of an FL in the decision-making domain, it seems complicated to draw robust predictions based on this explanation (Costa, Foucart, Arnon, et al., 2014).

The Role of Culture and Language Proficiency

One important critique that has been made to the literature on the FLE is that it failed to recognize the close link between language and culture. For instance, a study by Čavar and Tytus' (2018) conducted with German-Croatian successive bilinguals living in Germany explores some limits of the FLE. In particular, it investigated the role of two potentially important variables in the relation between language and moral decision-making: participants' language proficiency and their state of acculturation. Language proficiency in this study was measured by a brief language test and state of acculturation by frequency of acculturation behaviors (e.g., watching TV or talking in the target language) with questions adapted from Celenk and Van de Vijver (2011). Their study demonstrated that a higher L2 (i.e., German) proficiency is linked to a more deontological intuitive response (vs. utilitarian response) to a moral dilemma presented in L2 and thus to a lower FLE. One potential explanation put forward by the authors is that the more an L2 evolves into a native-like language over time, or, put differently, the less "foreign" it becomes, the smaller the differentiation between L1 and L2 appears to be. Consequently, this results in a reduction or even elimination of the FLE. This finding is consistent with well-established theoretical approaches stressing the role of language dominance and proficiency in language-related cognitive and emotional processes in general (e.g., Dewaele, 2004; Pavlenko, 2012) and prior work on the FLE examining the role of L2 proficiency in particular (e.g., Geipel et al. 2015a). What is more novel are the results that German-Croatian participants' response patterns to the moral dilemmas were also determined by an interplay between an individuals' degree of acculturation and the type of presented dilemma (i.e., standard or manipulated by increasing the emotional load of scenarios).

A more recent related study investigating the boundaries of the FLE in samples of Swedish native participants (Dylman & Champoux-Larsson, 2020) found, for example, that bilinguals with

English as an L2 did not show an FLE, while bilinguals with French as an L2 did, despite their significant proficiency difference between the L1 and the respective L2. To explain these asymmetric patterns, the authors argue that English is culturally more influential, present, and emotionally loaded in Sweden than French. Just as Čavar and Tytus (2018) assumed that their participants experienced increased emotionality in L2 due to a high level of proficiency and acculturation, Dylman and Champoux-Larsson (2020) describe English as an L2 that has, in fact, high cultural status for Swedes. Although their participants had no immersion experience in a country where English is spoken, English in Sweden has a strong presence both in formal (e.g., schools) and informal (e.g., media) domains.

Notably, research on the FLE has mainly focused on intrapersonal-level decisions, neglecting the social dynamics that may relate to specific languages. As noted by Hadjichristidis et al. (2017) and Hadjichristidis, Geipel, and Keysar (2019), the role of language nativeness in an interpersonal context, inquiring about intergroup outcomes, has been previously assessed only to a limited extent. The authors further speculate that intuitive associations such as gender and racial stereotypes might be decreased in foreign language contexts.

Summary on Language and Biases

Taken together, research on the effect of using an FL on various automatic judgments consistently suggests that people tend to show different degrees of biases depending on the language they are tested in. In the context of intergroup bias, the use of an L2 (vs. L1) has been shown to increase favorable implicit attitudes towards the linguistic group associated with the respective L2, or, in other words, to decrease ingroup bias. In the context of decision-making bias, using an L2 has been shown to trigger an analytic thinking style and thus reduce the influence of various cognitive biases such as risk aversion.

A sizable body of studies has identified several factors that may account for the language effect in this latter domain. Although findings are mixed, the dominant account is that an FL attenuates emotionality and consequently biases. Among other explanatory variables are the underpinning cognitive mechanisms of FL processing and the internalization of social norms. Whereas some accounts suggest that biases are reduced in an L2 vs. L1 context due to low cognitive fluency, others seem to indicate that using an L2 requires more cognitive resources and consequently strengthens biases. At the core of explanation related to norms is the idea that people most likely

acquire social norms in their NL, and an FL would make individuals less sensitive and prone to stick to those norms. There is also more recent work that acknowledges the role of the language-culture link in the FLE. Research in this vein argues that it is sensible to take an individual's cultural identity and language proficiency level into account and distinguish between languages with a particular cultural status (e.g., English in Sweden) and those with a weaker cultural influence (e.g., French in Sweden) when exploring the effects of language on decision-making.

However, returning to the intergroup context, besides Ellis and colleagues' (2019) study, which introduced the mood variable, no further research has attempted to furnish a more complex understanding of the specific language effect on implicit attitudes and disentangle the relationship between test language and attitudes. Considering all the above, it becomes clear that there could be many explanations for why and how language can affect intergroup perceptions, just as there are various explanations for the language effect on intrapersonal-level decisions. Relatedly, while it has been shown that the FLE is weaker for individuals who have a connection to the culture of their L2 language, are highly proficient in their L2, or are tested in an L2 that has a high vs. low cultural influence, less is known about when and for whom the relationship between language and intergroup attitudes emerges. Given the intergroup context, it appears logical that factors related to culture, specifically the culture(s) and communities associated with the respective test language(s), also play a role in this regard.

As mentioned previously, Ogunnaike et al. (2010) proposed several possible explanations along these lines for their results. For example, they stated that using a specific language would make participants members of the respective linguistic ingroup while completing the task. The underlying argument is that language serves as a prime for the participants' social identity, specifically the national identity. As elaborated above, this explanation makes sense from a social identity perspective since there is both empirical evidence and theoretical foundation on the positive link between in-group identity salience and in-group favoritism. In other words, it is reasonable to assume that feeling like a group member of the test language might decrease implicit bias towards the related linguistic outgroup. Furthermore, of most direct relevance to the current research, the authors briefly consider potential moderators, speculating that the participants' degree of identification with and the relative prestige of the respective language(s) might affect the strength of the language-attitudes link.

Group status and Language status

Indeed, there are good reasons to believe that depending on the linguistic group participants are part of and the linguistic group they get "primed" with, the strength of the observed effect might differ. For instance, still from a social identity perspective, a crucial and well-established factor influencing the robustness of ingroup bias is group status. Even though ingroup favoritism is common, lower ingroup favoritism, if not even outgroup favoritism, is sometimes exhibited by members of minority groups, especially on implicit measures (Jost et al., 2004). For example, Nosek et al. (2002) have uncovered that White Americans' ingroup preferences manifest both implicitly and explicitly, while Black Americans do not show implicit ingroup preferences. Along the same lines, Jost and colleagues (2002) demonstrated that students of a "high" status university exhibited significant levels of ingroup favoritism as measured via the IAT, while students of a "low" status university did not. Another study by Uhlmann et al. (2002) showed that Hispanic-Americans did not have a preference for Hispanics over Whites as measured via the IAT. Furthermore, a set of experiments with different minority groups (Jews, Asians, Overweight, Poor) by Rudman et al. (2002) showed a positive link between ingroup bias and perceived status on implicit measures. To explain these results, the described studies theoretically draw on System Justification Theory (SJT; Jost & Banaji, 1994), which posits that people tend to justify the status quo and its social inequalities. Accordingly, a core assumption of the theory is that members of non-dominant groups internalize existing cultural stereotypes in such a way that they even have negative evaluations towards their own minority/disadvantaged group. More precisely, the SJT predicts that individuals of low-status groups tend to display outgroup favoritism on open-ended and implicit measures (Hypothesis 6b; Jost & Hunyady, 2003) and that perceived system legitimacy and system justification beliefs can moderate this pattern, such that outgroup favoritism is more evident for individuals who believe that the status quo is legitimate and justified (Hypothesis 7 and 8; Jost & Hunyady, 2003). This prediction is consistent with the idea mentioned earlier in connection with the LIB that the effect of group status is also determined by an individual's perception of the existing status structure.

Interestingly, when looking at the sample populations of the IAT studies analyzing the effect of language on implicit attitudes, all their participants belonged to a minority group (i.e., Arab-Israelis, Moroccans, Hispanic-US Americans, Welsh). Relatedly, their respective L1 (i.e., Arabic, Spanish, Welsh) has a lower perceived status compared to their L2 (i.e., Hebrew, French, English).

For example, a study in the Lebanese context by Shaaban and Ghaith (2002) revealed that French is viewed as more vital than Arabic as a status symbol by university students. Similarly, Gao et al. (1994) showed that Mexican-US Americans perceive the English language and Anglo people as more vital in economic, political, and social power than the Spanish language and Hispanics. A more recent study by Barker et al. (2001) leads to similar conclusions and outlines that despite an increase in the Hispanic population in the USA, the socioeconomic power and the language vitality of Spanish in the US-American context are relatively low. Moreover, Arabs in Israel have a long history as a minority compared to the Hebrew majority (Smootha, 1990). Likewise, the status of Welsh has been steadily decreasing over the past century. Although Welsh is an official language of Wales, it is largely considered a minority language compared to English (May, 2000).

Linking this notion of differentiating between minority and majority members and languages with the findings of the three studies on the language-attitude link leads to the following conclusions: Both the results of the IAT in L1 and L2 and results of self-report measures contradict the SJT because participants do not show out-group favoritism. That is, when individuals of low-status groups took an IAT in their low-status L1, they exhibited in-group preference. When they took an IAT in their high-status L2, they showed equal preferences for both their in-group and out-group or just a slight tendency towards out-group preference.

As Ogunnaike et al. (2010) discussed, their findings might be explained by the very fact that participants become a member of the linguistic group related to the respective language of the IAT, regardless of other factors linked to the specific languages. For example, in their second study, conducted with Hispanic Spanish-English bilinguals living in the US, the English language might work as a prime for the participants' American identity, leading to more positive associations with Anglo-American names. In fact, the US American-Hispanic participants only showed a weak in-group bias (i.e., positive bias towards Hispanic names) in Spanish and no preference for either Hispanics or US Americans in English, with a trend towards a positive bias towards US Americans. However, the generalization of these results is cautioned in that Hispanics represent a particular minority group in the USA with a long history of immigration. Relatedly, they often identify with both their heritage and receiving culture (e.g., Miramontez et al., 2008; Schwartz et al., 2015) and have a bicultural identity (BI; Benet-Martínez & Haritatos, 2005). From a cognitive perspective, this is interpreted as indeed having access to two "cultural profiles" and developing more than one "set of cultural schemas" (Thomas et al., 2010). Following this reasoning, it is plausible to assume

that language might serve as a prime of social (national) identity, a perspective also in line with the notion of CFS described above. Critically, this explanation might not apply in the same manner to a population of monocultural individuals who have no strong personal connection with the culture of their second language and thus might not have developed a second "cultural profile."

Present research

Taking the above considerations into account, the results reported by Ogunnaike and colleagues (2010), Danziger and Ward (2010), and Ellis and colleagues (2019) seem to converge in suggesting that members of *low-status* language groups have a greater ingroup bias when tested in their native language than when tested in their second language. When taking an IAT in a high-status language, their attitudes shifted towards a more positive association with the high-status group. Yet, it remains unclear whether the same result pattern would be observed with participants belonging to a *high-status* language group. For instance, would White US American Spanish-English bilinguals living in the US similarly shift towards more positive associations with Hispanic names when "primed" with the Hispanic culture via the Spanish language?

It is evident from the preceding review that objective and subjective group and language status play an essential role in forming attitudes. They might as well be critical factors to consider regarding the observed language effect of previous IAT studies. Furthermore, another variable that was not considered by most of the studies so far is the participants' cultural identification and relation to their first and second language. While Ellis et al. (2019) included only participants who identify as culturally Welsh, in Ogunnaike et al.'s (2010) study, it is unclear whether the participants identify as US American, Hispanic, or both. Moreover, most participants of the studies mentioned above seemed to be early (see Houwer, 2012) or compound bilinguals (see Ervins & Osgood, 1954), meaning that they probably acquired both their languages by immersion and/or contact with natives, rather than in school or academic context. For instance, Ellis and colleagues' (2019) participants acquired their L1 as early as four years old. Yet, for example, the general premise of the FLE research stream is that the L2 is not acquired naturalistically in the first place (Pavlenko, 2012). Following this rationale and given the work on the boundaries of the FLE reviewed above, it seems sensible to make a stricter distinction between the L1 and L2 in terms of age and context of acquisition as well as proficiency.

In sum, the question arises if both objectively ascribed minority and majority group members change attitudes towards the respective outgroup as a function of language context. Furthermore, the present research aimed to explore whether an individual's native and second language's national and international prestige might influence the relationship between language and attitudes. We specifically aimed to replicate the previous IAT studies conducted with Moroccans, Welsh, Arabs, and Hispanic-(US) Americans in a sample of monocultural Mexicans and monocultural US Americans. Therefore, this study differs from previous ones in that it includes two distinct national groups with possibly different perceived social and linguistic statuses. As such, the design adopted here allowed to examine if the observed malleability of attitudes is an effect of language per se or if it further depends on a) the ascribed status of a participant's national ingroup, as suggested by SJT, and b) the perceived status of a participant's native language, as suggested by research within the ELV framework. Importantly, in the absence of a sound theoretical rationale and comparable research on the matter, and given the exploratory nature of this study, we will examine the role of these variables in the relation between language and attitudes separately. We will use nationality (i.e., being US American or Mexican) as a proxy for ascribed group status and subjective perceptions of the respective participant's L1 and L2 vitality as defined by the SEV framework as a proxy for perceived language status.

Hypotheses

First, in line with the results of the three key studies we are drawing upon, we hypothesized that both US Americans and Mexicans would exhibit ingroup favoritism on explicit and implicit measures (*H1a*). The following hypothesis draws on previously outlined studies and theoretical views suggesting that differences between dominant and non-dominant group members regarding ingroup-outgroup bias tend to be especially pronounced on implicit measures. Hence, we hypothesized a main effect of nationality on implicit measures, such that US Americans will exhibit greater overall ingroup-favoritism on implicit measures than Mexicans (*H1b*).

Regarding test language, we expected to replicate previous findings showing that a native (vs. a foreign) language strengthens favorable attitudes towards the linguistic ingroup (*H2a*). However, in light of findings showing that patterns of intergroup attitudes may differ for minority and majority group members, we also expected this effect to be moderated by assumed/ascribed group status (*H2b*). More specifically, we hypothesized that Mexicans would exhibit more positive

implicit attitudes towards Mexicans and less positive attitudes towards US Americans when tested in Spanish than when tested in English. Yet, with a majority sample (US Americans), we expected the effect to be weakened by the assumed/ascribed group status. Even if, for the duration of the task, the participants are made members of the linguistic group connected to the test language (i.e., "feeling" Mexican when tested in Spanish), this would not necessarily imply that their bias towards Mexicans would significantly decrease. Therefore, we hypothesized that US American participants would exhibit overall implicit ingroup favoritism, which would not be affected by test language in an equally strong manner as for Mexicans.

Furthermore, we explored whether perceived language status moderates the relation between language and attitudes (*H3*). While the link between perceived language status and implicit attitudes has so far not been explicitly investigated, we intuitively expect that a higher perceived language status of L1 compared to L2 will enhance overall ingroup bias and weaken the effect of language on implicit attitudes.

CHAPTER 3.

Methods

Design

We used a 2 (IAT Language: L1, L2) x 2 (Nationality: Mexican, US American) mixed ANOVA with IAT Language as a within-subject factor and Nationality as a between-subject factor. The main dependent variables were implicit attitudes towards the participant's ingroup and outgroup. The secondary dependent variables were explicit attitudes towards the participant's ingroup and outgroup, with only Nationality as an independent variable. Participants were further assigned to an English or Spanish version of the questionnaire.

Participants

Participants were recruited using the Prolific platform (www.prolific.co, see Palan & Schitter, 2018), which allowed sampling individuals from the USA and Mexico. Participants took part in the experiment if they identified as White monocultural individuals from the USA who were raised monolingually in English and speak Spanish as a second language or Hispanic monocultural individuals from Mexico who were raised monolingually in Spanish and speak English as a second language.

The sample size was determined based on a priori power analysis for a repeated-measures, between-within interaction ANOVA (G*Power, Faul et al., 2007; Faul et al., 2009), which indicated a required sample size of 176 using as reference a medium effect size ($\eta_p^2 = .06$; Cohen, 1988) and a power $1-\beta = 0.80$.

Thirty-nine of the Prolific participants (of which 11 Mexicans and 28 US Americans) were not included in the final analysis (and not paid) due to one of the following reasons: a) they answered at least one of the attention check questions incorrectly, (b) they withdrew their submission after completing the study, (c) they closed the survey before full completion, (d) they exceeded the time limit automatically set by Prolific. Still, the final analysis sample was slightly larger than pre-established. It was composed of 184 participants (117 females, 66 males, one "prefer not to answer"), with ages ranging from 18–70 years old ($M = 25.32$, $SD = 7.44$).

All US American participants reported being US American citizens, born in the USA, and currently living in the US. All US Americans reported identifying as "Caucasian/White/European

American" except one who identified as "Gringa". Further, 88% reported identifying as monocultural US American.

All but one Mexican participant reported being Mexican citizens and being born in Mexico. All were currently living in Mexico. Seventy-four participants reported that they ethnically identified as "Hispanic/Latino/Latino Americano/Mexican Latino", seven identified as "White/White Mexican/White Latino/White Hispanic/Caucasian", three as "Mixed", five as "Mexican/monocultural Mexican", one "Don't know", one "Nothing specific", one "Amozoc". Further, 89.11% reported identifying as monocultural Mexican.

As to their educational background, 30.98% held a middle or high school degree, almost half of the participants (46.74%) reported having an undergraduate or bachelor's degree, another 22.28% reported holding a graduate or master's degree. The majority of the participants stated they were students (47.80%) or employed (44.60%), 4.90% indicated they were unemployed, 1.10% retired, and 1.60% identified as "Other". Table 3.1 shows demographic differences between Mexican and US American participants.

Table 3.1

Descriptive statistics, results of independent sample t-test or Pearson Chi-Square test for comparison between demographic data of Mexican and US American participants

	Mexicans	US Americans	Statistics
Age (<i>M, SD</i>)	24.36 (4.95)	26.27 (9.21)	$t(182) = -1.76, p = .081$
Gender (n, %)			$X^2(2, N = 184) = 19.11, p < .001$
Male	47 (51.10)	19 (20.70)	
Female	45 (48.90)	72 (78.30)	
Prefer not to answer	-	1 (1.10)	
Education (n, %)			$X^2(2, N = 184) = 5.72, p = .057$
Middle/Highschool	36 (39.10)	21 (22.80)	
University (undergrad)	38 (41.30)	48 (52.20)	
University (grad)	18 (19.60)	23 (25.00)	

Note. $N = 184$. Mexicans ($n = 92$), US Americans ($n = 92$). Age values are shown as Mean and Standard Deviation (in years). Gender and Education are shown as number of participants with percentages in parentheses.

These analyses revealed that the groups differed in gender distribution such that the US American sample consisted of proportionately more females than the Mexican sample. No differences were found regarding age and education. As to their language background, the overall self-reported L2 ability aggregating both samples was above the scale midpoint ($M_{\text{self evaluation}} = 5.92$, $SD = 0.75$), $t(183) = 34.98$, $p < .001$ (t-test against scale midpoint = 4). All Mexican participants reported being Spanish native speakers with English as an L2, and all US American participants reported being English native speakers with Spanish as an L2. The overall self-reported mean age of beginning to learn their second language (i.e., English or Spanish) was 9.51 ($SD = 4.21$)¹. Most participants reported having learned their second language mainly through formal classroom instruction ($n = 130$). The remaining participants reported having learned it through informal classroom instruction ($n = 28$) or "Other" methods ($n = 26$), which most individuals specified as a mixture of formal and informal learning. The mean reported spent time in a country where the L2 was spoken was 1.5 years ($SD = 6.14$), in a school/working environment where the L2 was spoken was 6.4 years ($SD = 5.93$), and in the own family where the L2 was spoken 0.87 years ($SD = 3.45$)¹. Eighteen participants reported knowledge of at least one additional language. French was reported by eight participants to be among these languages, German by four, and finally Korean, Italian, Japanese, Portuguese, Sign Language, Swedish and Japanese by one participant each.

Table 3.2 shows differences in self-reported variables regarding L2 acquisition between Mexican and US American participants. Mexican participants reported a significantly higher L2 proficiency, a lower age of beginning of L2 acquisition, and a higher number of total years of learning L2 than US American participants. No differences emerged in the way of learning the L2 or in average years spent in a family or school/work environment where the L2 is used. However, US American participants reported having spent more average years in a country where Spanish is spoken than Mexican participants reported to have spent in a country where English is spoken.

¹unrelated or meaningless responses were excluded from the analysis

Table 3.2

Descriptive statistics, results of independent sample t-test or Pearson Chi-Square test for comparison between L2 acquisition data of Mexicans and US American participants

	Mexicans	US Americans	Statistics
L2 proficiency (<i>M, SD</i>)	6.29 (0.57)	5.57 (0.73)	$t(182) = 7.46, p < .001$
L2 beginning (<i>M, SD</i>)	7.64 (3.38)	11.40 (4.14)	$t(181)^1 = -6.72, p < .001$
L2 total years (<i>M, SD</i>)	13.59 (6.22)	11.32 (8.01)	$t(182) = 2.15, p < .05$
L2 acquisition (n, %)			$X^2(2, N = 184) = 1.99, p = .370$
formal	64 (69.6)	66 (71.70)	
informal	12 (13.00)	16 (17.40)	
other	16 (17.4)	10 (10.90)	
L2 time (<i>M, SD</i>)			
country	0.44 (1.17)	2.52 (8.51)	$t(182) = -2.33, p < .05$
family	1.30 (4.47)	0.45 (1.92)	$t(182) = 1.68, p = .095$
school/work	7.48 (6.70)	5.23 (4.84)	$t(181)^1 = 2.57, p = .011$

Note. $N = 184$. Mexicans ($n = 92$), US Americans ($n = 92$). All variables were self-reported. L2 proficiency values (Response scale: 1 = *not proficient*, 7 = *fully proficient*), age of beginning to learn L2 learning, total years of L2 learning, and time (in years) spent in an L2 environment (country, family, school/work) are shown as Mean and Standard Deviation. Way of L2 acquisition is shown as number of participants with percentages in parentheses.

Materials and Measures

All the materials were produced in English and adapted from the original English scales. They were then translated into Spanish by a native Mexican speaker for the Spanish version, except the Spanish translation for the Language Status questions, which was taken from Viladot and Esteban's (2001) paper.

Demographics

The following demographic data were assessed with self-report questions: Age, country of birth, country of residence, birth sex, race/ethnicity, education, employment status. Moreover, identification with own country was measured by asking participants if they identified as a

monocultural Mexican/ US American and how much they identified with Mexico/the USA respectively on a 7-point scale (ranging from 1 = *not at all* to 7 = *very much*).

The Implicit Association Test

The study included two Mexican - US American IATs, with the only difference being the test language (i.e., language of instruction and stimuli of the IAT). We developed an English and a Spanish version of the IAT (Greenwald et al., 1998; Ogunnaike et al., 2010) using the IAT gen software, a method for which empirical validity has been shown (Carpenter et al., 2019; <https://iatgen.wordpress.com/materials/>). Target and Category stimuli (see Appendix for an example) were adopted and adjusted from the original study (Ogunnaike et al., 2010, Experiment 2). They include seven common American names (Michael, Mary, Peter, Susan, John, Jennifer, and Emily)² and seven common Hispanic names (Miguel, Maria, Pedro, Juan, Carlos, Isabel, and Antonia)³ as well as seven "good" English words (paradise, happy, nice, magnificent, pleasant, beautiful and joyful) and seven "bad" English words (hate, pain, anger, sadness, terrible, grief, and evil) and their Spanish equivalents (paraíso, feliz, simpático, magnífico, agradable, hermoso, alegre and odio, dolor, enojo, tristeza, terrible, dolor, malvado). The good and bad words are a translation from the French stimuli used in Ogunnaike et al.'s Experiment 1 (2010). Regarding block numbers and permutations, we followed Carpenter and colleagues' (2019) scheme. Each block within the IAT represented one survey question in Qualtrics, and the four IAT permutations were constructed separately and randomly assigned.

Explicit Attitudes

As in Ogunnaike et al.'s (2010) study, participants completed a feeling thermometer. They were asked to indicate how warm they felt on a scale from 0 (*very cold and unfavorable*) to 100 (*very warm and favorable*) towards Mexican people, Mexico, and the Spanish language, as well as towards US American people, the United States, and the English language. The General Evaluation Scale (Wright et al., 1997, Cronbach's $\alpha = .90$) was additionally used to measure general evaluations of the two respective in- or outgroups (i.e., Mexicans and US Americans). Participants

² We replaced the name Monica from the original study by Susan, which represents a more common first name in the USA (see Social Security Administration, n.d.)

³ We replaced the name Isabella from the original study by Isabel, which represents a more common Hispanic name, as suggested by different native speakers (personal communication, July 19, 2021)

were asked to rate their feelings towards Mexicans and US Americans on six bipolar adjective pairs (negative/positive, cold/warm, suspicious/trusting, hostile/friendly, contempt/respect, disgust/admiration) by using a scale from 1 (negative anchor) to 7 (positive anchor). Participants also responded to four questions taken from the abbreviated Stereotype Content Model (SCM) questionnaire (Fiske et al., 2002, see p. 894) with two questions measuring how competent they perceive Mexicans and US Americans to be ("As viewed by society, how confident/competent are Mexicans [US Americans] in general?", 1 - *not at all* to 7 - *extremely*) and two measuring how warm they perceive US Americans and Mexicans to be ("As viewed by society, how sincere/warm are Mexicans [US Americans] in general?", 1 - *not at all* to 7 - *extremely*).

Perceived group status

To assess perceived group status, we used a question from Major et al. (2002) with the following instruction: "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?". Participants rated the perceived status of Mexicans [US Americans] on a scale from 1 –*high status* to 7 – *low status*.

Language Status

To assess perceived language status, we used the Subjective Ethnolinguistic Vitality Questionnaire (SEVQ; Bourhis et al., 1981). Of the questionnaire's 22 original items, the two related to language status (corresponding to questions two and three) were selected and adjusted to the status of English and Spanish in the Mexican and the US context, respectively (question two) and in an international context (question three). Response scales ranged from 1 to 7: "How highly regarded are the following languages in Mexico (the USA)?", "How highly regarded are the following languages internationally?", 1 - *not at all* to 7 - *very highly*.

Language History and Proficiency

Participants were asked if English (Spanish) was their (only) native language and which languages they spoke fluently. They were also asked about their learning history with an item adapted from Li and colleagues' language History Questionnaire (LHQ; 2006): "Please list the age when you: began acquiring English (Spanish), became fluent in English (Spanish), total years learning English (Spanish)". We further adapted an item from the Language and Emotions Questionnaire

(BEQ; Dewaele & Pavlenko, 2001-2003), with which participants were asked about their proficiency in English (Spanish): "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 (Spanish)?" . Participants also responded to one question adapted from The Language Experience and Proficiency Questionnaire (LEAP-Q; Marian et al., 2007) concerning time spent in an environment where their respective second language is spoken ("Please list the amount of time you have spent in each language environment: in a country where English [Spanish] is spoken; in your family where English [Spanish] is spoken; in a school/working environment where English [Spanish] is spoken"). Lastly, a question capturing factors influencing participant's language learning process ("On a scale from 1 - *not important* to 7 - *very important*, please indicate how much the following factors contributed to you learning English [Spanish]: Mainly through formal classroom instruction [e.g., school, language course]; Mainly through informal interacting [e.g., with family, traveling/living abroad]; Other) was adapted from the LHQ.

Contact

To measure quantity and quality of intergroup contact with native people from the participant's respective second language, two items from Laurence et al. (2017) were adapted: "On a scale from 1 - *never* to 7 - *always*, please indicate how *often*, if at all, do you mix with people who speak English (Spanish) 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 (Spanish) languages natively?"

Emotions

Finally, participants completed the short version of the Positive (PA) and Negative Affect (NA) Schedule (PANAS; Thompson, 2007), requiring them to rate on a scale from 1 - *very slightly* to 5 - *extremely* to what extent they felt upset (NA); hostile (NA); alert (PA); ashamed (NA); inspired (PA); nervous (NA); determined (PA); attentive (PA); afraid (NA); and active (PA).

Procedure

The study was implemented using the Qualtrics survey platform (<http://www.qualtrics.com/>). Data collection took place in mid-August 2021. The study was conducted in line with the ethical guidelines of Iscte, and participants' informed consent was obtained. Participants had to complete

the survey using a computer with a keyboard. Each participant was assigned to and could only participate in one of two language versions of the study (English or Spanish). The overall mean participation time was 23.63 minutes ($SD = 15.47$). All individuals were compensated with £2.03 for completion.

The study consisted of several parts (see Appendix B for the whole questionnaire in English and Spanish). First, informed consent (see Appendix A) was displayed, explaining the procedure, voluntary participation, and confidentiality. Participants then responded to basic demographics and took the two Mexican – US American IATs. In one version (English version/L1 version for US American participants/L2 version for Mexican participants), everything was in English except the second IAT, which was in Spanish. In the other version (Spanish version/L1 version for Mexican participants/L2 version for US American participants), everything was in Spanish except the second IAT, which was in English. Participants responded to one of four permutations of the IAT in each language (US American first on the right paired with good/ US American first on the right paired with bad/ US American first on the left paired with good/ US American first on the left paired with bad) (see Tables 3.3 and Table 3.4).

Table 3.3

Sequence of Blocks in the Mexican - US American IAT 1 (Compatible first, US American starts right, English IAT)

Block	N trials	Function	Items assigned to left key	Items assigned to right key
1	20	Practice	Mexican	US American
2	20	Practice	bad	good
3	20	Practice	Mexican, bad	US American, good
4	40	Test	Mexican, bad	US American, good
5	40	Practice	good	bad
6	20	Practice	Mexican, good	US American, bad
7	40	Test	Mexican, good	US American, bad

Note. Based on Carpenter et al. (2019).

Table 3.4

Sequence of Blocks in the Mexican - US American IAT 1 (Compatible first, US American starts right, Spanish IAT)

Block	N trials	Function	Items assigned to left key	Items assigned to right key
1	20	Practice	Mexicano	Estadounidense
2	20	Practice	malo	bueno
3	20	Practice	Mexicano, malo	Estadounidense, bueno
4	40	Test	Mexicano, malo	Estadounidense, bueno
5	40	Practice	bueno	malo
6	20	Practice	Mexicano, bueno	Estadounidense, malo
7	40	Test	Mexicano, bueno	Estadounidense, malo

Note. Based on Carpenter et al. (2019).

For participants assigned to the English version, explicit attitudes towards US American people, the USA, and the English language were then assessed with the Feeling Thermometer, the General Evaluation scale, and four questions from the SCM. Participants were also asked about the perceived group status of US American people and the perceived language status of English on a national (i.e., in their respective countries) and international level. Next, explicit attitudes towards Mexican people, Mexico, the Spanish language, the perceived group status of Mexican people and the perceived status of Spanish internationally and in the participant's respective countries were assessed.

Participants assigned to the Spanish version first answered all questions about Mexican people, Mexico, the Spanish language, the perceived group status of Mexican people and the perceived status of Spanish on an international and national level. Then, attitudes towards US American people, the USA, the English language, the perceived group status of US American people and the perceived status of English on an international and national level were assessed. As such, we separately assessed evaluations toward the in-group and out-group. We also counterbalanced the sequence of in-group and out-group-related evaluations to control for order effects (see, for example, Schwarz, 2014, for a description and discussion of such effects). For instance, US American participants assigned to the English version evaluated first US Americans and then Mexicans. In contrast, those assigned to the Spanish version evaluated first Mexicans and then US Americans. Although in the case of the SEVQ, participants are usually required to assess both

languages together, and thus the relative status of one language compared to the other is made salient, scholars outlined that they can be separately assessed if it fits the research purpose (Noels et al., 2014).

After being asked about their language proficiency and learning history, participants' current emotional state was measured. Two attention check questions ("We want to test your attention. Please mark the response option *Strongly agree*") were embedded within the survey. At the end of the study, one question assessed if participants paid attention and answered honestly.

Data analysis

Analysis was conducted with R 3.6.3 (R Core Team, 2020) / R Studio 1.4.1106 (R Studio team, 2021) and IBM SPSS version 26. For the IAT Data analysis, the *iatgen* R-package (Carpenter et al., 2019) was used. Our participants were forced to correct errors before moving to the next trial and therefore no error penalty was set. The R-script which we adapted can be found at <https://osf.io/ac7xu/>. It is based on Greenwald and colleagues' (2003, p. 214) improved scoring algorithm (see also Lane et al., 2007, p. 92). For example, for the US American IAT 1 illustrated in Table 3.3 and Table 3.4, the following steps were applied to Block 3, 4, 6, and 7: 1) trials > 10 000 ms were deleted; 2) participants with a response latency < 300 ms in more than 10 % of trials were deleted; 3) an inclusive standard deviation for all trials of Block 3 and 6 as well as of Block 4 and 7 was calculated; 4) mean response time for each of the Blocks was calculated; 5) the difference of mean response time between Block 6 and 3 ($M_{\text{Block6}} - M_{\text{Block3}}$) and between Block 7 and 4 ($M_{\text{Block7}} - M_{\text{Block4}}$) were calculated, resulting in two "difference scores"; 6) the "difference scores" were divided by the corresponding standard deviation that resulted from Step 3 (e.g., the difference score between Block 6 and 3 was divided by the inclusive standard deviation for all trials of Block 3 and 6, and; 7) the *D* score was calculated from the equal-weight average of the resulting quotients. Because "congruent" answers (i.e., Mexican paired with bad words and US American paired with good words) are subtracted from "incongruent" (Mexican paired with good words and US American paired with bad words) answers in Step 5, a higher *D* value indicates a faster overall response time for congruent answers and thus a favorable implicit bias towards US American names. Likewise, a negative *D* score indicates a favorable implicit bias towards Mexican names. Further, *D* score values of 0.15, 0.35, and 0.60 indicate small, medium, and large effects, respectively (Rudman, 2011). IAT reliabilities were calculated based on a variation of Cronbach's

alpha (see Schnabel et al., 2008) and ranged from $\alpha = .66$ to $\alpha = .81$ (see Appendix C, Table C.2). These numbers can be classified as psychometrically satisfactory and are in line with reported average IAT-reliabilities in the literature (e.g., Hofmann et al., 2005; Levesque et al., 2007).

Following the IAT data cleaning procedure described above, less than 0.03 % of total trials were dropped out due to exceeding 10.000 ms. None of the Mexican participants was excluded due to the exclusion criteria listed above. Two participants were excluded for L1 IAT/L1 Version. One of those was excluded because of overly fast responses in the English IAT in the English version. The other was because their web browser encountered an error during the survey. Two participants were excluded from analysis for L2 IAT/ L1 Version because of overly fast responses in the Spanish IAT in Version L1, and one from analysis for IAT L1 and IAT L2/Version L2 because of overly fast responses in both IATs in the Spanish version. All five US-American participants were excluded from the following ANOVA analysis because of resulting missing values.

CHAPTER 4.

Results

Reliabilities of self-report scales can be found in Appendix C (Table C.1). Following results will not be discussed, as they would lead away from the primary focus of this study. Still, they can be partly found in Appendix C: Warmth and Competence evaluation (Table C.3), Perceived Group status (Table C.4), Intergroup Contact (Table C.5), PANAS scores (Table C.6).

Implicit Association Test

In a first step, we analyzed the mean D-scores for Mexican and US American participants in all IATs to examine if both groups showed significant intergroup bias. In a second step, we computed a mixed three-way ANOVA with IAT Language as within and Nationality and Survey Language as between factors to examine if one group displays stronger implicit ingroup favoritism than the other and if the IAT language affects participants of both groups in an equal manner (i.e., if the IAT Language effect is comparable across the two samples). We further analyzed whether the participant's D-scores depend on the Survey Language and on the interaction between Survey Language and IAT Language. In a third step, we examined the moderating role of perceived language status of the L1 relative to L2 in the IAT Language effect.

Intergroup Bias (t-tests)

One-sample t-tests indicated that all D scores were significantly different from zero regardless of IAT Language, Nationality, and Survey Version (see Table 4.1 and Table 4.2). D-scores values ranged from 0.17 to 0.42, indicating a weak to moderate in-group bias.

Specifically, for Mexican participants, responses were significantly faster under the Mexican+good/US American+bad response pairing than the US American+good/Mexican+bad pairing, regardless of IAT Language and Survey Version (see Table 4.1). Thus, results indicate an overall implicit preference for the Mexican ingroup relative to the US American outgroup.

Table 4.1*IAT- D scores for Mexican participants as a function of IAT Language and Survey Version*

	IAT D Score (<i>SD</i>)	Statistics
L1 Version		
L1 IAT	-0.37 (0.34)	$t(45) = -7.31, p < .001, d = -1.08$
L2 IAT	-0.17 (0.40)	$t(45) = -2.97, p < .001, d = -0.44$
L2 Version		
L1 IAT	-0.21 (0.36)	$t(45) = -3.92, p < .001, d = -0.58$
L2 IAT	-0.22 (0.30)	$t(45) = -4.89, p < .001, d = -0.72$

Note. Negative D-scores indicate implicit in-group preference. One-sample t-tests against 0.
t = sample value of the t test statistic, *d* = Cohen's *d*.

Likewise, responses were significantly faster for American participants under the US American+good/Mexican+bad response pairing than the US American+bad/Mexican+good pairing (see Table 4.2). Thus, results indicate an overall implicit preference for the US-American ingroup relative to the Mexican outgroup. Taken together, these results confirm our hypothesis (*H1a*) and show that all IAT D-scores of both Mexican and US American participants indicate a significant implicit preference for the respective in-group.

Table 4.2*IAT- D scores for US American participants as a function of IAT Language and Survey Version*

	IAT D Score (<i>SD</i>)	Statistics
L1 Version		
L1 IAT	0.42 (0.40)	$t(43) = 6.92, p < .001, d = 1.04$
L2 IAT	0.22 (0.35)	$t(43) = 4.25, p < .001, d = 0.64$
L2 Version		
L1 IAT	0.28 (0.31)	$t(44) = 6.13, p < .001, d = 0.91$
L2 IAT	0.29 (0.32)	$t(44) = 6.06, p < .001, d = 0.90$

Note. Positive D-scores indicate implicit in-group preference. One-sample t-tests against 0.
t = sample value of the t test statistic, *d* = Cohen's *d*.

Intergroup Bias (ANOVA)

For ease of interpretation of comparison, D-scores of Mexican participants were multiplied by -1 prior to analysis.

A 2 x 2 x 2 mixed ANOVA was performed to examine the effect of IAT Language, Nationality, and Survey Language on implicit attitudes.

As expected, there was a statistically significant main effect of IAT Language on IAT D scores, $F(1, 175) = 8.28, p < .01, \eta_p^2 = .045$. Notably, in line with our expectations (*H2a*), pairwise mean comparisons of participants' D scores indicated that ingroup bias was higher in L1 ($M = 0.32, SE = 0.03$) than in L2 IAT ($M = 0.23, SE = 0.03$), $p < .05$. These results replicated past findings showing that IAT D-scores are generally higher when the IAT is administered in L1 vs. L2.

The main effect of Nationality indicated that while the overall mean IAT D-scores of the two groups differed in the expected direction, with US American participants ($M = 0.30, SE = 0.03$) displaying a descriptively higher overall D-score than Mexican participants ($M = 0.24, SE = 0.03$), this effect was not significant, $F(1, 175) = 2.12, p = .148, \eta_p^2 = .012$. Thus, contrary to our expectation (*H1b*), the strength of implicit in-group bias did not significantly differ across groups.

The interaction between Nationality and IAT Language was also not significant, $F(1, 175) = 0.001, p = .973, \eta_p^2 = .000$, with the difference between the IAT in L1 ($M = 0.29, SE = 0.04$) and L2 ($M = 0.20, SE = 0.04$) for Mexican participants being comparable to the difference between the IAT in L1 ($M = 0.35, SE = 0.04$) and L2 ($M = 0.26, SE = 0.04$) for US American participants. Thus, contrary to our expectation (*H2b*), the strength of the IAT language effect did not significantly differ across groups.

The main effect of Survey Version was also not significant, $F(1, 175) = 1.21, p = .273, \eta_p^2 = .007$. However, the overall trend of the mean IAT D-scores of the two Versions suggests that participants displayed a greater bias in the L1 version ($M = 0.30, SE = 0.03$) than the L2 version ($M = 0.25, SE = 0.03$). Moreover, there was a statistically significant two-way interaction between IAT Language and Survey Language, $F(1, 175) = 10.61, p = .001, \eta_p^2 = .057$. Post-hoc comparisons indicated that in Survey Version L1, D-scores were significantly higher in the L1 ($M = 0.39, SE = 0.04$) than in the L2 IAT ($M = 0.20, SE = 0.04$), $p < .001$. In contrast, in Survey Version L2, D-scores did not differ significantly between the L1 ($M = 0.24, SE = 0.04$) and the L2 IAT ($M = 0.26, SE = 0.04$), $p = .787$. Thus, the IAT Language affected implicit attitudes only in the L1, but not in the L2 Survey version.

The remaining differences (i.e., the interaction between Nationality and Version and the three-way interaction) were not significant, p 's > .700. Figure 4.1 shows participants' D-scores as a function of IAT Language, Nationality, and Survey Language.

Taken together, these results confirm the effect of the IAT Language on IAT D scores. They further show that the effect is not moderated by ascribed group status (as operationalized by nationality). However, we found that it is moderated by the Language of the overall survey the IATs are embedded in.

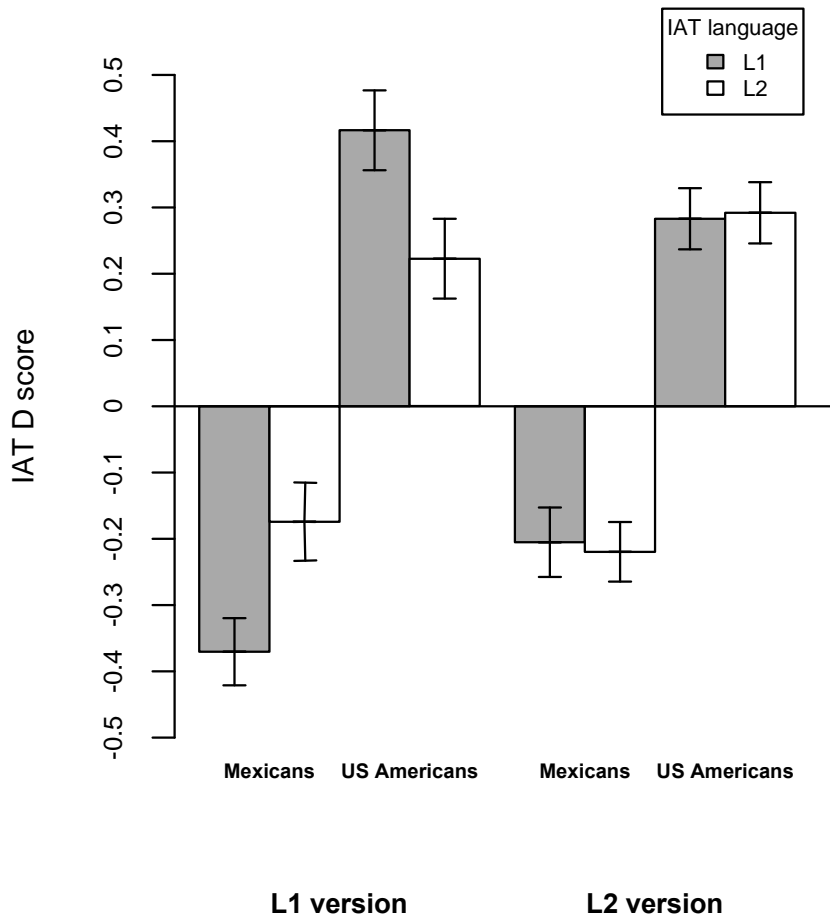


Figure 4.1 IAT-D scores by IAT Language, Nationality, and Survey Version. Negative values indicate a stronger bias for positive pairings with Mexican over US American names. Error bars represent standard errors of responses within each condition.

Language Proficiency

To determine the potential role of language proficiency in the IAT language effect, we first computed a new variable averaging participants' self-reported speaking, comprehension, reading, and writing skills in their L2 (Cronbach's $\alpha = .79$). We also computed a difference score by subtracting each participant's IAT D-score on the L2 IAT from their D-score on the L1 IAT. This resulted in a variable capturing the IAT language effect (from now on, D_{lang}). We then computed a regression analysis with self-reported L2 proficiency as an independent variable and D_{lang} as the dependent variable. The analysis yielded no significant results, $\beta = -.08$, $p = .301$. Thus, consistent with Ogunnaike et al.'s findings and argumentation (2010), our analysis suggests that L2 proficiency does not influence the IAT language effect.

Explicit Attitudes

To examine if both groups show ingroup favoritism on explicit measures if one group displays stronger explicit ingroup favoritism than the other, and whether the participants' explicit attitudes depend on the language of the survey, we conducted a comparable analysis to the one conducted for implicit attitudes. In the first analysis reported below, the explicit attitude variable will be operationalized via the Feeling Thermometer scores, in the second via the scores of the General Evaluation Scale.

Feeling Thermometer

Two new composite variables were created for each subject by calculating the average of the three Feeling Thermometer items for L1 people, country, and language (Cronbach's $\alpha = .83$) and for L2 people, country, and language (Cronbach's $\alpha = .82$).

We used a 2 (target group of evaluation: ingroup, outgroup) x 2 (Nationality: Mexican, US American) x 2 (Survey Version: L1, L2) mixed ANOVA with target group of evaluation as a within-subject factor and Nationality and Survey Version as between-subject factors. The dependent variables were the composite scores reported above.

As expected, mean scores for the ingroup people, country and language ($M = 77.78$, $SE = 1.15$) were higher than those for the outgroup people, country and language ($M = 75.81$, $SE = 1.25$), but this difference was not significant, $F(1, 180) = 1.95$, $p = .164$, $\eta_p^2 = .011$. However, the interaction between Nationality and target group was significant, $F(1, 180) = 107.34$, $p < .001$, $\eta_p^2 = .374$. In

line with the hypothesized for ingroup bias on explicit measures (*H1a*), post-hoc comparisons revealed that Mexican participants reported stronger liking for their ingroup people, country and language ($M = 86.56, SE = 1.63$) than their outgroup people, country and language ($M = 69.92, SE = 1.77$), $p < .001$. Surprisingly, and contrary to our prediction about explicit ingroup preference (*H1a*), post-hoc comparisons revealed that US American participants reported stronger liking for their outgroup people, country and language ($M = 81.70, SE = 1.77$), than for their ingroup people, country and language ($M = 69.01, SE = 1.63$), $p < .001$.

The remaining effects were not significant, p 's $> .100$, suggesting that Survey Language did not play a role in participants' explicit attitudes. Table 4.3 shows the mean scores for the single items of the feeling thermometer as a function of Nationality and target people, country, and language.

Table 4.3

Feeling thermometer score as a function of Nationality and Target of Evaluation

	Mexicans		US Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
L1 people	84.68	15.00	65.91	18.39
L1 country	82.13	20.75	60.70	19.95
L1	92.86	13.06	80.42	20.03
L2 people	63.68	23.56	82.17	15.24
L2 country	59.01	26.25	74.99	14.26
L2	87.05	18.32	87.92	14.26

Note. Response scale: 0 = very cold and unfavorable, 100 = very warm and favorable.

To determine the potential role of explicit attitudes in the IAT language effect, we computed a difference score by subtracting each participant's L1 people, country, and language mean score from their L2 people, country, and language mean score. This resulted in a variable with positive difference scores indicating a preference for the L1 people, country, and language and negative difference scores indicating preference for the L2 people, country, and language. We then computed a regression analysis with the composed relative preference score as an independent

variable and D_{lang} as the dependent variable. The analysis yielded no significant results, $\beta = -.19$, $p = .803$. Thus, consistent with Ogunnaike et al.'s findings and argumentation (2010), these results suggest that individuals' explicit attitudes as measured via the Feeling Thermometer do not predict the IAT language effect. Exploratory correlations further showed no significant association between participants' Feeling Thermometer relative scores and their D-scores on the L1 ($r = .04$, $p = .618$) or the L2 ($r = .01$, $p = .847$) IAT.

General Evaluation Scale

Two new composite variables were created for each participant by calculating the average of the six General Evaluation Scale items for the ingroup (Cronbach's $\alpha = .91$) and for the outgroup (Cronbach's $\alpha = .93$). We used the same ANOVA design described above, but with composite scores of the GES as the dependent variable (subtracting mean outgroup evaluation from mean ingroup evaluation).

A significant main effect of target group was observed, $F(1, 180) = 4.75$, $p < .05$, $\eta_p^2 = .026$ with the out-group being evaluated more positively ($M = 5.06$, $SE = 0.08$) than the ingroup ($M = 4.86$, $SE = 0.07$). In line with the above findings, the interaction between Nationality and target group was also significant, $F(1, 180) = 209.70$, $p < .001$, $\eta_p^2 = .538$. Again, post-hoc comparisons revealed that Mexican participants reported stronger liking for their ingroup people ($M = 5.33$, $SE = 0.11$) than their outgroup people ($M = 4.19$, $SE = 0.10$), $p < .001$. Likewise, contrary to our prediction about explicit ingroup preference (*H1a*), post-hoc comparisons revealed that US American participants reported stronger liking for their outgroup people ($M = 5.93$, $SE = 0.11$) than for their ingroup people ($M = 4.39$, $SE = 0.10$), $p < .001$. The remaining effects and interactions were not significant, p 's $> .300$, confirming the above findings that Survey Language did not play a role in participants' explicit attitudes.

Taken together, these results indicate that Mexican participants show ingroup favoritism on explicit measures (in line with *H1a*), while US American participants show outgroup preference on explicit measures (contradicting *H1a*).

To determine the potential role of explicit attitudes as measured via the General Evaluation Scale in the IAT language effect, we computed a difference score by subtracting each participant's mean outgroup evaluation score from their mean ingroup evaluation score on the General Evaluation Scale. This resulted in a variable capturing their relative positive evaluations for the

ingroup relative to the outgroup. We then computed a regression analysis with this relative score as an independent variable and D_{lang} as the dependent variable. The analysis yielded no significant results, $\beta = -.03, p = .662$, confirming the previous finding that explicit attitudes did not affect the effect of language on implicit attitudes. Exploratory correlations further showed no significant association between participants' General Evaluation relative scores and their D-scores on the L1 ($r = .03, p = .688$) or L2 ($r = -.02, p = .843$) IAT.

Ingroup Identification

The data regarding identification with own country further show that Mexican participants identified significantly more with Mexico ($M = 6.11, SD = 1.06$) than US American participants did with the US ($M = 5.20, SD = 1.58$), $t(182) = 4.60, p < .001$. In turn, identification with own country was linked to ingroup favoritism as measured via the Feeling Thermometer relative score ($r = .44, p < .001$) and the General Evaluation relative score ($r = .45, p < .001$). However, it was not related to participants D-scores on the L1 ($r = .06, p = .445$) or the L2 ($r = .13, p = .078$) IAT, nor to D_{lang} ($r = -.07, p = .356$).

Moderation of Perceived Language Status

To analyze the perceived language status, we first created two composite variables: (1) Perceived language status of the L1, averaging participants' responses on the questions about the perceived status of their L1 on an international and national level, $r_s(182) = .27, p < .01$, and (2) Perceived language status of the L2, averaging participants' responses on the questions about the perceived status of their L2 on an international and national level, $r_s(182) = .44, p < .001$. In a preliminary analysis, we compared the mean scores of these composite variables against the scale midpoint (i.e., one-sample t-tests, test value: 4) for the Mexican and the US American samples. This analysis showed that ratings regarding the national and international status of Mexicans' and US Americans' L1 and L2 were significantly higher than the scale's midpoint (see Table 4.4), indicating that participants regarded both English and Spanish as languages that enjoy a rather high status.

Table 4.4*Perceived language status scores as a function of Nationality and Target Language*

	<i>M (SD)</i>	Statistics
Mexicans		
L1 status	5.48 (1.12)	$t(91) = 16.95, p < .001$
L2 status	6.09 (0.77)	$t(91) = 32.14, p < .001$
US Americans		
L1 status	6.10 (0.92)	$t(91) = 27.09, p < .001$
L2 status	4.58 (1.00)	$t(91) = 10.33, p < .001$

Note. One-sample t-tests against 4.

Response scale: 1 = *Not (highly regarded) at all* and 7 = *very highly (regarded)*.

To test the moderating role of perceived language status on the association between IAT Language and IAT D scores, we computed a difference score by subtracting participants' mean perceived L2 language status score from their mean perceived L1 language status score. This resulted in a variable capturing the perceived language status of L1 relative to L2, with positive values indicating a higher perceived status for L1 than L2. Notably, the resulting score significantly differed between US–American ($M_{difference} = 1.52, SD = 1.26$) and Mexican participants ($M_{difference} = -0.61, SD = 1.29$), $t(182) = -11.31, p < .001$, indicating that the perceived relative language status difference between L1 and L2 was larger for US American than for Mexican participants.

Version 4.0 of the SPSS macro PROCESS (Hayes, 2017) was used to test the moderating effect of perceived language status on D_{lang} . Model 1 was used with 5,000 bootstrapped samples and a 95% CI. Nationality was used as the independent variable, D_{lang} as the dependent variable, Survey Version as a Covariate, and Perceived Language Status of L1 relative to L2 as the moderator. The overall moderation model was significant, $F(4, 174) = 2.83, p < .05$, but explained only 6.1% of the variation in D_{lang} ($R^2 = 0.06$). We did not find any main effect of Perceived Language Status, $B = 0.02, t(174) = 0.82, p = .413$ or Nationality, $B = -0.05, t(174) = -0.58, p = .560$, on D_{lang} . The interaction between the Perceived Language Status and Nationality was also not significant, $B = -0.002, t(174) = 0.05, p = .962$. The main effect of Survey Version found above was confirmed, $B = -0.18, t(174) = -2.73, p < .05$.

A model with Survey Version as the independent variable and Nationality as a Covariate yielded similar results, $F(4, 174) = 2.82, p < .05$, with the model explaining 6.1 % of the variation in D_{lang} ($R^2 = 0.06$). This model also did not yield any significant main effect of Perceived Language Status, $B = 0.02, t(174) = 0.77, p = .444$ or Nationality, $B = - 0.05, t(174) = -0.57, p = .569$, or any interaction between Perceived Language Status and Survey Version, $B = - 0.00, t(174) = 0.0005, p = .999$.

These results suggest that, contrary to what we expected (*H3*), differences in perceived language status do not moderate the IAT language effect on IAT D scores.

CHAPTER 5.

Discussion

In response to growing evidence that self-report assessments can be affected by extraneous sources of variability (e.g., social desirability; Fisher, 1993), focus within the attitude research area has increasingly shifted from explicit to implicit measures. Yet empirical evidence reveals that implicit measures might be susceptible to context effects as much as explicit measures (for a review, see Gawronski & Bodenhausen, 2006). Consequently, theoretical claims have been made about the presumed malleability of different types of attitudes (e.g., Schwarz, 2007). The primary focus of this study was to gain a better understanding of the role of the contextual effect of test language in the assessment of implicit intergroup attitudes by examining cross-national differences.

Whereas there is ample empirical evidence and theoretical argument for the notion that various intralinguistic features (i.e., features within the same language such as level of abstraction) have the potential to affect intergroup evaluations (Maass et al., 1989; Semin & Fiedler, 1988), less attention has been traditionally given on the role of interlinguistic differences (i.e., comparisons of the effect of different languages such as a native vs. foreign language) in the formation of intergroup evaluations. This is surprising, mainly because a person's mother tongue can function as a strong marker of social group membership in adults and even in infants (Collins & Clément, 2012; Kinzler et al., 2007; Jaspal, 2009).

Our work was based on three previous studies by Danziger and Ward (2010), Ellis et al. (2019), and Ogunnaike et al. (2010), which explored the effect of test language on implicit in-group preferences in different bilingual groups. Their results converged in showing that bilinguals exhibit less outgroup bias when taking an IAT in L2 than L1, which has been interpreted as a likely result of the fact that "using a specific language activates shared cultural beliefs of and encourages identification with, the social group associated with it" (Collins & Clément, p.384).

The aim of the present work was threefold. First, it was designed to replicate the general findings of the three studies (*H2a*) showing that a first/native language (L1) enhances implicit intergroup preferences as measured via the IAT compared to a second/foreign language (L2). Second and most importantly, we aimed to test whether the previously found IAT language effect would similarly apply to a group that enjoys a higher status than those tested in previous experiments (i.e., Hebrews, Hispanics, Moroccans, Welsh). To the best of our knowledge, this

study represents the first attempt to explore the IAT language effect in a typical majority group, namely White US Americans. In fact, our design allowed us to compare implicit intergroup attitudes of a majority group (US Americans) and a minority group (Mexicans) in general and the effect of their respective NL and FL on these attitudes in particular. We expected both minority and majority group members to display in-group favoritism on explicit and implicit measures (*H1a*). Moreover, it was anticipated that majority group members would exhibit a higher baseline implicit in-group favoritism than minority group members (*H1b*), which would not be decreased, or at least to the same extent when using an L2 vs. an L1 in the same manner as for minority groups (*H2b*). The third goal was to explore the moderating role of the perceived relative language status of L1 relative to L2 on the relationship between language and implicit attitudes. Although this was exploratory, we expected that higher perceived status of L1 relative to L2 would attenuate the effect of language on implicit attitudes (*H3*).

Implicit Intergroup Bias

There are several key findings of the present research. First, in line with *H1a*, both majority and minority groups showed a significant ingroup bias on implicit measures, regardless of test language. Although the D-scores of US American participants were descriptively higher than those of Mexicans across conditions, this difference was not significant. Therefore, we cannot fully confirm our hypothesis (*H1b*). Whereas some past research on SJT suggests that members of low-status groups exhibit outgroup favoritism on implicit measures (e.g., Chileans implicitly prefer Caucasians to Hispanics; Uhlmann et al., 2002), the present research showed that monocultural Mexican participants implicitly preferred their ingroup over their outgroup across different conditions. While contradicting SJT predictions, these result patterns are partially in line with the findings of the three key studies on the IAT language effect (Danziger & Ward, 2010; Ellis et al., 2019; Ogunnaike et al., 2010). More specifically, all participants of previous studies exhibited overall ingroup favoritism for their ingroup when tested in their L1, with the strength of this preference differing across groups and conditions.

Taken together, although the literature points out the role of majority/minority status in the formation of attitudes, our results do not indicate significant differences in implicit attitudes between Mexican and US American participants.

IAT Language Effect

We conducted a conceptual replication of previous studies to test our prediction regarding the effect of language on implicit attitudes (*H2a*). In sum, our results confirm the expected pattern and show that the IAT language effect is a robust and reliable phenomenon. More specifically, we showed that regardless of nationality and participants' native and second language, an individual's ingroup bias towards the own national group is higher when an IAT was administered in L1 than in L2. However, when comparing our results to those of Ogunnaike and colleagues (2010), we did not find that the participants displayed an equal preference for both ingroup and outgroup when taking the IAT in L2. Conversely, we found that the ingroup bias was decreased in the L2 IATs but was still significantly different from 0.

As argued in the Introduction, a plausible explanation for the IAT Language effect we replicated here is that an L1 context might prime participants' national identity, or at least more so than an L2, strengthening ingroup-bias. In fact, following ideas of ethnolinguistic identity theories (e.g., Giles & Johnson, 1987) language can be seen as the "most salient way we have of establishing and advertising our social identities" (Lippi-Green, 1997, p. 5). Multilingual individuals further report having "a different sense of identity in the different languages" they speak (Burck, 2004, p. 320; see also Baker & Jones, 1998; Urciuoli, 1996). In sum, a likely explanation for the main effect reported in this and previous studies is the link between language and identity in general and the strong link between a native language and national identity in particular.

Our findings further correspond to theoretical approaches viewing implicit attitudes as a malleable concept, or as "evaluative judgments formed on the spot" (Schwarz, 2007, p. 639), and more broadly to socially situated cognition theories viewing culture as a context-specific meaning system (e.g., Oyserman, 2011).

Essentially, our study was also motivated by the observation that the IAT language effect was so far demonstrated only in minority samples. Similar to the argumentation regarding intergroup bias in general, we expected that the effect would be different in magnitude in a majority sample compared to a minority sample. Consequently, we proposed that the effect would be moderated by nationality (*H2b*). However, contrary to these expectations, the IAT language effect was equally large in a Mexican and a US American sample. This latter finding, while contradicting our hypothesis, makes a novel contribution to the literature. It is the first demonstration that the IAT

language effect can be extended to a high-status group and to two groups of bilinguals that speak the same two languages but have a different L1–L2 combination and nationality.

Although experimental language context was not a variable of primary interest in this study, we did find an unexpected interaction between IAT Language and Survey Language. IAT Language affected implicit attitudes of participants who took the whole survey in their L1, but not those who took the survey in L2. That is, when monocultural Mexicans and US Americans were immersed from the beginning in a Spanish and English context, respectively, their IAT D-scores differed significantly in the expected direction (i.e., higher implicit bias in L1 than L2). Yet, when they were immersed from the beginning in an L2 context, their implicit attitudes were not affected by the test language of the IAT. The average scores aggregating both IATs of the respective versions differed descriptively (such that the scores of the L1 Survey Version were higher than those of the L2 Survey Version), but not significantly.

These results are particularly striking considering that Ogunnaike and colleagues (2010) did not take the language context of the whole experiment into account. In fact, their participants were presented with a consent form and additional questions in French (Study 1) and English (Study 2), that is, in their second language. However, our aim was a conceptual and not an exact or methodological replication (see Dennis & Valacich, 2015). Accordingly, we decided to adapt the methods and counterbalance the language context of the survey the IATs were embedded in, with half of the participants taking the whole survey in their L1 and half of the participants in L2.

Based on Ogunnaike et al. (2010), we further counterbalanced language order of the IAT (L1 vs. L2), with participants taking the whole survey in L1 (L2) doing the first IAT in L1 (L2). Accordingly, our design does not allow us to detect whether the implicit bias of participants taking a survey in their native language would be lower in an L2 IAT than an L1 IAT also if they took the L2 IAT first (because the first IAT was always in the same language as the entire survey). However, Ogunnaike et al. (2010) found no main effect of IAT language order or interaction of IAT language order and IAT language on participants' D-scores.

Importantly, we cannot directly compare our results to those of Ellis et al. (2019) and Danziger and Ward (2010) since they had participants come to the lab for two separate sessions (one entirely in L1 and one in L2).

In line with the above argumentation regarding the IAT language effect and psychosocial approaches on language and identity (e.g., Jaspel, 2009), it is likely that the participants' NL

context primed their national identity. This, in turn, reinforced their implicit ingroup preference (e.g., Xiao & Van Bavel, 2019). However, from this perspective, we should have also observed a main effect of experimental language context (i.e., Survey Version) such that the mean D-scores of both IATs taken in Version L1 would be significantly higher than the mean scores of the IATs taken in Version L2. Still, it could be argued that when the whole experiment was set in a native-language context, the initial national identity prime strengthened the bias in an L1 compared to L2. In contrast, when the entire experiment was set in a second-language context, it could be speculated that the FL context did not prime any cultural associations in the first place.

Another hypothesis that could partially explain our findings is that a general NL context might trigger specific memories encoded in the same language (e.g., Marian & Kaushanskaya, 2007; Marian & Neisser, 2000), including simple linguistic associations to which individuals are exposed throughout their lives. Indeed, there is some empirical evidence that frequency of co-occurrence of specific word combinations in natural language (e.g., "fat"+"stupid" or, applied to our case, "John"+"happy") can predict implicit bias scores (Lynott, 2012), supportive of the notion that "the IAT may reflect shallow, linguistic associations rather than deeper conceptual processing" (Lynott, 2012, p.1). The above argumentation regarding social identity might also hold for retrieval of linguistic associations. More specifically, it could be argued that when the whole experiment was set in a native-language context, these associations were retrieved more quickly in an L1 than an L2. In contrast, when the entire experiment was set in a second-language context, it might be that the FL context did not reflect the environment in which such associations are learned and encoded in the first place.

A further point to consider is the cognitive aspect of bilingual language processing outlined in the introduction, which might interact with the cognitive mechanism underlying the IAT effects (e.g., Klauer et al., 2010; Rivers & Hahn, 2019). Based on research pointing to the heightened use of mental resources when using a foreign language (e.g., Morishima, 2013), it could be argued that it is cognitively harder for participants to take a survey in their L2 vs. L1. This cognitive effort might then impact both the IAT effect and the IAT language effect. More specifically, a possible explanation for the interaction found in this study could be that in Survey Version L2, participants' overall level of executive attention was higher and more stable across the whole study, including the IATs.

A stream of research also attests to the importance of cognitive variables associated with switching between languages in bilinguals, with neuronal studies indicating that the cognitive cost might be higher for the L1-to-L2 direction than the L2-to-L1 direction (e.g., Alvarez et al., 2003; Proverbio et al., 2006). It thus could be that in Survey Version L1, the switching from IAT L1 to IAT L2 required more cognitive resources. In contrast, In Survey Version 2, the switching from IAT L2 to IAT L1 required fewer cognitive resources. While one might intuitively expect that fewer resources lead to more stereotypical thinking, an empirical experiment by Yzerbyt et al. (1999) shows the opposite: Participants distracted by a secondary task tended to change their stereotypical perceptions about a deviant group. In contrast, participants who were not distracted tended to maintain their stereotypical beliefs. Applied to our findings, the heightened cognitive costs might have reduced in-group bias, but only when the switching was from an IAT in L1 to an IAT in L2 (i.e., in Survey Version L1). Overall, findings regarding the cognitive language processes and the role of executive functions in IAT performance are complex and not so clear-cut. Still, we speculate that cognitive factors might be considered to explain the observed interaction effect between IAT Language and Survey language.

Lastly, as extensively outlined in the Introduction, emotions might be a potential variable of importance in explaining our results. An L1 context, as compared to an L2 context, might, for example, be linked to a stronger positive or negative emotional state (e.g., Caldwell-Harris, 2014), which might, in turn, affect the IAT language effect (e.g., Ellis et al., 2019). The relation between specific (induced) mood and intergroup bias has also been explored in previous research, with mixed results depending on the type and valence of emotions and the target of evaluation (e.g., Dasgupta et al., 2009; Park & Banaji, 2000). While our study indeed incorporated a measure to assess participants' emotional state at the end of the survey, its analysis was not the primary object of this work. Building on the present study and Ellis et al.'s findings (2019), future research will benefit from a more in-depth analysis of the role of emotions in the IAT language effect.

Explicit Attitudes

Regarding explicit measures, our findings revealed a cross-national difference between Mexican and US American participants. Specifically, in line with our hypothesis (*H1a*), Mexican participants tended to endorse their preference for the ingroup (Mexicans) over the out-group (US Americans) explicitly. However, contrary to expected (*H1a*), US American participants did not

favor their ingroup. Instead, their self-reported attitudes as measured via a feeling thermometer and a semantic scale demonstrated significant outgroup preference.

The results for Mexican participants are consistent with previous findings suggesting that low-status members show explicit ingroup favoritism (Rudman et al., 2002). This may have occurred because participants genuinely endorsed positive ingroup attitudes, or because of self-protective motivations (e.g., Maass et al., 1996), or both. Our data further suggest that Mexican participants identified stronger with their country than US Americans, which could be a potential mechanism for Mexican participants' explicit ingroup favoritism. The relation between the strength of ingroup identification (although not necessarily based on country-defined ingroup) and attitudes towards ingroup and outgroup has been extensively documented within the social identity theory literature (e.g., Grant, 1992; Perreault & Bourhis, 1998).

One potential explanation for the unexpected results of US American participants could be that they consciously and deliberately endorsed positive attitudes toward Mexicans, Mexico, and Spanish. It is conceivable that our specific population of second-language learners was more willing to make positive evaluations about outgroup people associated with the language they learned than the general US population. The same goes for the country and language itself. In this regard, it could be that US Americans' bilingualism might play a part. For instance, one argument put forward in the literature is that learning a second language might be related to positive attitudes toward social groups associated with that language (e.g., Rubinfeld et al., 2007; Wright & Bougie, 2007). In a related vein, a recent study by Mephram and Martinovic (2018) reveals that multilingualism is linked indirectly to acceptance of multiple outgroups (not only those related to the respective L2) as measured via a feeling thermometer, and this is mediated by cognitive flexibility and deprovincialization. Another particular mechanism to account for the effect of US American participants' bilingualism on attitudes may be through intergroup contact (e.g., Servidio, 2021). From this perspective, it would also be possible to explain the discrepancy between implicit and explicit attitudes, to the extent that later ones "are more malleable, are positively influenced by recent favorable intergroup contact", whereas "implicit attitudes are much less affected by these experiences" (Dovidio et al., 2017, p.7). While our study indeed incorporated a measure to assess the quantity and quality of intergroup contact, its analysis was not the primary object of this work. Building on the present study and findings within the intergroup contact and bilingualism literature, future research will benefit from a more in-depth analysis of the role of intergroup

contact in the formation of intergroup attitudes in general and in the IAT language effect in particular.

There is, however, an alternative explanation for the unexpected findings, namely social desirability bias (Grimm, 2010). It cannot be ruled out that US Americans may have responded according to social norms rather than basing their answer on their actual personal preferences. In this regard, GNT (Sherif & Sherif, 1953) predicts that even if they might have answered according to their presumably individual preferences, those attitudes always mirror socially accepted norms of their group.

Taken together, the results for US American participants regarding the discrepancy between explicit and implicit attitudes seem in accordance with ideas of SJT that "members of high-status groups will be more likely to exhibit ingroup favoritism on implicit measures than on explicit measures" (Jost et al., 2004, p. 893).

Moreover, our results concerning the overall lack of significant correlation between implicit and explicit measures are in line with reviews documenting that, while IAT and self-report are often related, the strength and direction of their relationship depends on a variety of different factors and can be non – existent (Hofmann et al., 2005; Nosek, 2007). Lastly, we found no link between explicit attitudes and the IAT Language effect. This confirms Ogunnaike et al.'s (2010) finding, indicating that overall preferences of one group, country, and language over the other are not underlying the effect.

Perceived Language Status

To address considerations raised by previous studies, more specifically, to test whether "perception of the relative status of the languages relate to the [observed] effects " (Ogunnaike et al., 2010, p. 1003), we examined the moderating role of the perceived language status of an individual's L1 relative to their L2 by theoretically drawing on the EV framework. However, our hypothesis (*H3*) was not supported, suggesting that relative status perceptions regarding one language or the other do not affect the observed IAT language effect.

To elaborate on these findings, we suggest that differences between English and Spanish in terms of perceived status might have been too small to detect and consequently affect our result. While our data point to the direction that both US American and Mexican participants perceive English as more highly regarded than Spanish, both languages were evaluated as enjoying a

relatively high status. However, at the core of EV theory is the premise that one language represents the majority language; the other language is the minority language. Only if this asymmetry arises, "the language of the majority develops more favorable associations than those attached to the language spoken by any of the minorities" (Alvarez et al., 2017, p.2), which in turn can produce stereotypes.

Moreover, it could be that the questions we used might not have been entirely appropriate or sufficient to assess perceived language status. As indicated in the above quotation, the SEVQ scale was initially developed in the 1980s to measure status asymmetries that arise in a specific context, namely when two ethnolinguistic groups contact one another in multicultural societies such as Canada. More recent studies within the EV framework tend to adapt the scale, for example, by adding new questions to the original questionnaire. As an illustration, in a study conducted in the Polish context, Olko et al. (2020) asked their participants not only about the current recognition of the language in question but also about how they believe state of the art would be in 20 years.

In sum, our findings regarding the overall high average ratings for the perceived status of the two languages mirror the fact that English and Spanish are among the most spoken languages worldwide (Statista, 2021). In fact, English is the most taught second language in many countries (e.g., European countries; European Commission, 2012), and Spanish is the most taught second language in the US (Rhodes & Pufahl, 2014).

Limitations and Future Research Directions

Some limitations of the present study have already been indicated above in discussing our results. These include the lacking analyses of the role of perceived group status, intergroup contact and emotion variables, and the uncertain validity of the SEVQ.

An additional limitation concerns the use of self-report measures to assess language proficiency. While self-report measures are widely used in bilingualism research (Li et al., 2006) and show good reliability and validity (Marian et al., 2007), their correlations with objective measures are not perfect (Gollan et al., 2012). An alternative to self-report measures is provided by objective language tests such as the LexTALE test of L2 proficiency (Lemhoefer & Broersma, 2012) or assessment tests that are available online (e.g., <https://www.cambridgeenglish.org/test-your-english/>). However, the use of self-report in the present study also had an advantage. It

facilitated a direct comparison of scores across the two samples, which might have been more challenging to achieve with two different language tests for English and Spanish.

Another potential limitation is the fact that we did not analyze block order effects in the IAT analysis. It has been repeatedly shown that IAT effects are usually larger when participants are assigned to the compatible block first condition (Greenwald et al., 2003; Hofmann et al., 2005). Although we counterbalanced the order of compatible and incompatible blocks across participants and participants were assigned to the very same version of the IAT in both languages, we did not include this counterbalancing factor in our statistical analyses. However, Ogunnaike et al. (2010) found no main effect of block order or interaction of block order and IAT language on participants' D-scores. Thus, the lacking analysis of this variable in our study can be considered a minor limitation.

Moreover, we wondered whether demographic variables might have influenced our findings. Specifically, the study population in our sample was highly educated and relatively young. Hence, generalization to other bilingual populations is cautioned. Notably, while gender was equally distributed in the Mexican sample, the US American sample mainly consisted of females (> 78%). Considering research indicating that the IAT is susceptible to gender effect in some cases (e.g., Geer & Robertson, 2005; Rudman & Goodwin, 2004), the unequal distribution of males and females in the US American sample could have influenced our findings regarding implicit measures.

While the present study represents the first attempt to demonstrate the IAT language effect in a typical high-status group, it may be fruitful to analyze whether our results also hold for other majority samples. Of particular interest in this regard would be comparing the IAT effect of two groups with the same language combinations of previous studies (i.e., French-Arab, English-Welsh, Hower-Arab) but different statuses. For instance, research might first attempt to replicate the effect with Moroccans and explore if it equally applies to a sample of French-Arabic monocultural bilinguals from France.

Moreover, the current study targeted the area of intergroup relations, with a particular focus on the distinction between majority and minority groups (e.g., Mirowsky & Ross, 1980). The methodological operationalization of objective group status was merely based on nationality, with the expectation that belonging to a national group or the other would affect out-group attitudes. Yet upon review of social psychological studies on intergroup relations, it becomes evident that

specific mechanisms and boundary conditions underlie the effect of group status on intergroup attitudes, which the present study did not address. For instance, as mentioned in the Introduction, perceived legitimacy of the status quo seems to play a crucial role in shaping out-group evaluations of high and low-status groups (e.g., Harth et al., 2008; Hornsey et al., 2003). To extend this work, future studies analyzing the IAT language effect should consider assessing the relative contribution of these types of variables on the so-far observed language effects.

Future directions for studying the effect of language on implicit attitudes could further involve IATs with different types of stimuli. Since Ogunnaike et al. (2010) already found that the modality of the stimuli (i.e., written vs. auditory) did not influence the IAT effect, it would be particularly interesting to explore if the language affects IAT performance also when using a picture-IAT (e.g., Bluemke & Friese, 2006; Dasgupta et al., 2000). Given that one of the key arguments underlying the present study is that the stronger salience of one language or the other is closely linked to cultural associations embedded in that language, it is likely that the observed effect would be weakened or disappear when using pictures instead of words. Conversely, it could be that the language of IAT instructions would still work as a prime affecting the subsequent task. It remains for future research to determine if the use of different languages in picture IATs would affect IAT performance.

While Danziger and Ward (2010) included a control IAT with weapons and animals to test if language affects attitudes unrelated to the intergroup domain, no previous study has addressed whether the language context might affect attitudes towards an outgroup unrelated to the test language. For example, would bilingual US American participants display a greater outgroup bias towards Black/African - Americans when tested in English than Spanish? In this regard, future research could draw upon insights from the FLE research and link what we know from studies on cognitive and emotional processing of a native vs. a second language to social-psychological work on intergroup relations (as recently indicated by Hadjichristidis, Geipel, & Surian, 2019). This could be a promising avenue to investigate why and how test language might influence social judgments. It seems fruitful to further explore if what underpins language priming effects are merely cultural mindsets or culturally independent cognitive and affective processes.

Further, more work could be done to investigate the dynamics of bilingualism and cultural identity. For instance, how would the effect apply to bilingual-bicultural individuals, and would interindividual differences in the psychological management of intrapersonal multiculturalism

play a role? It would be of particular interest to assess how the observed effect connects to bicultural identity integration (BII; Benet-Martínez & Haritatos, 2005) and assimilation and contrast effects described by the cultural frame switching framework (Hong et al., 2000). Future studies may further investigate the IAT Language effect in individuals speaking more than two languages, examining the dynamics between L1, L2, L3, etc.

Conclusion

The primary aim of this study was to conceptually replicate the effect of test language on implicit attitudes observed by three previous studies and examine whether it can be extended to a majority group, namely White US-Americans. Overall, our data reinforce the finding that if an implicit measure of intergroup attitudes is administered in L2, in-group bias scores are lower than if the measure is administered in L1.

Our results reveal a consistent cross-national difference between minority (i.e., Mexicans) and majority group members (i.e., US Americans) in explicit attitudes such that Mexican participants showed in-group bias, whereas US American participants showed out-group bias. Yet when considering implicit attitudes, both groups exhibited significant in-group bias on an IAT across different conditions. In line with previous findings, the in-group bias was significantly lower when the IAT was taken in L2 than L1, here referred to as the IAT language effect. Our results indicate that ascribed/assumed group and perceived language status did not moderate this effect. However, Survey Language moderated the IAT language effect. Indeed, in the present study, the effect only occurred if the whole experiment was set in a native-language context but not when it was set in a foreign-language context.

Taken together, the present study is the first of its kind to explore cross-national differences in the effect of test language on implicit attitudes. It adds to the existing body of evidence suggesting that an L2 reduces implicit ingroup favoritism of different social groups but leaves open questions about the specific cultural and linguistic mechanisms underlying this effect.

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APPENDICES

Appendix A – Informed Consent

English version

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

Spanish version

¡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

Appendix B – Questionnaire

English version for Mexican participants [US American participants]

Please insert your Prolific ID:

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

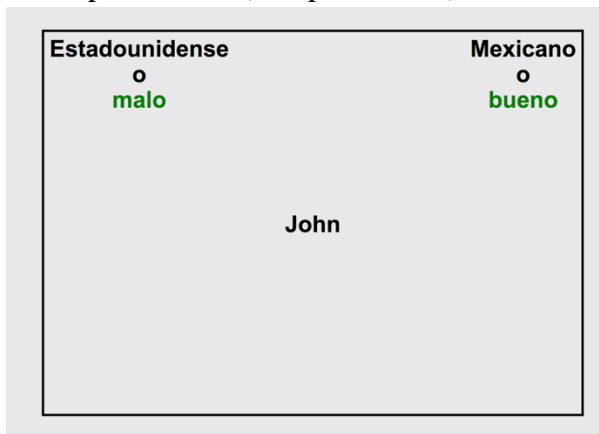
10. We want to test your attention. Please mark the response option "Strongly agree".
Strongly agree- Somewhat agree-Neither agree or disagree-Somewhat disagree-Strongly disagree

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.
- US American people
 - United States
 - English language
13. Please describe how you feel about US American people in general:
- 1 (cold) to 7 (warm)
 - 1 (negative) to 7 (positive)
 - 1 (hostile) to 7 (friendly)
 - 1 (suspicious) to 7 (trusting)
 - 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:
- 1 (cold) to 7 (warm)
 - 1 (negative) to 7 (positive)
 - 1 (hostile) to 7 (friendly)
 - 1 (suspicious) to 7 (trusting)
 - 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 [the 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".

Strongly agree- Somewhat agree-Neither agree or disagree-Somewhat disagree-Strongly disagree

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).

Spanish version for Mexican participants [US American participants]

Por favor, inserte su Prolific ID:

Demographics

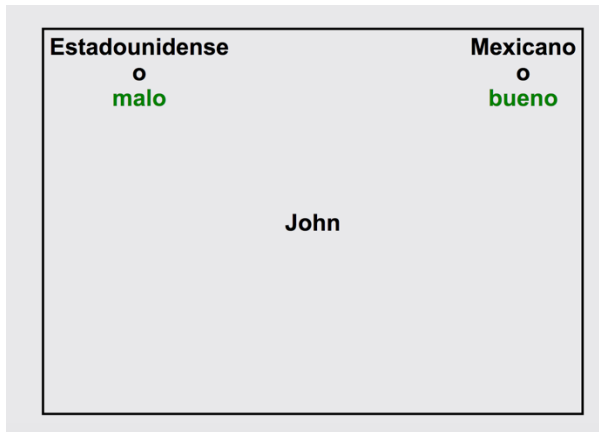
1. ¿Cuántos años tiene?
2. ¿En que país nació?
3. ¿En qué país reside actualmente?
 - a. México
 - b. Estados Unidos
 - c. Otro, especificar:
4. ¿Cuál fue su sexo asignado al nacer?
 - a. Masculino
 - b. Femenino
 - c. Indeterminado
 - d. Prefiero no contestar
5. ¿Con qué grupo étnico / racial se identifica?
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". Totalmente de acuerdo - Parcialmente de acuerdo - Ni de acuerdo ni en desacuerdo - Algo en desacuerdo - Muy en desacuerdo

11. IATs

11.1 Spanish IAT (Sample Stimuli)



11.2 English IAT (Sample Stimuli)



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.
- Mexicanos
 - Mexico
 - Español
13. Por favor, describa cómo se siente con respecto a los Mexicanos en general:
- 1 (frío/a) to 7 (cálido/a)
 - 1 (negativo/a) to 7 (positivo/a)
 - 1 (hostil) to 7 (amistoso/a)
 - 1 (sospechoso/a) to 7 (confiado/a)
 - 1 (desprecio) to 7 (respeto)
 - 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 – Estatutos 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. Estadounidenses
- b. Estados Unidos
- c. Inglés

22. Por favor, describa cómo se siente con respecto a los Estadounidenses en general:
- 1 (frío/a) to 7 (cálido/a)
 - 1 (negativo/a) to 7 (positivo/a)
 - 1 (hostil) to 7 (amistoso/a)
 - 1 (sospechoso/a) to 7 (confiado/a)
 - 1 (desprecio) to 7 (respeto)
 - 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 – Estatutos 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]?
- 1 (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". Totalmente de acuerdo - Parcialmente de acuerdo - Ni de acuerdo ni en desacuerdo - Algo en desacuerdo - Muy en desacuerdo

Language history

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

31. ¿Es su lengua materna el español el [inglés]?
- sí
 - no
 - sí, pero también tengo otra(s), especificar:
32. ¿Qué idiomas habla con fluidez?
33. Indique la edad en la que:
- comenzó a adquirir el inglés [español]
 - comenzó a dominar el inglés [español]
 - años totales aprendiendo inglés [español]
34. Enumere en una escala de 1 (= no soy competente) a 7 (= soy totalmente competente), ¿cómo se calificaría en inglés [español]?
- Hablar:
 - Comprensión:
 - Leer:
 - Escritura:
35. Indique la cantidad de tiempo que ha pasado en cada entorno lingüístico en el número total de años:
- en un país donde se habla inglés [español]
 - en su propia familia donde se habla inglés [español]
 - en un ambiente escolar / laboral donde se habla inglés [español]
36. ¿Cómo aprendió inglés [español] hasta ahora?
- Principalmente a través de la instrucción formal en el aula (p.ej., escuela, cursos de idiomas...)
 - Principalmente a través de la interacción informal (p. ej., con la familia, viajar / vivir en el extranjero...)
 - Otro (especificar):
37. En una escala de 1 (= nunca) a 7 (= siempre), indique con qué frecuencia se relaciona con personas que hablan inglés [español] 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 [español] 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. alerta
- d. avergonzado/a
- e. inspirado/a
- f. nervioso/a
- g. determinado/a
- h. atento/a
- i. temeroso/a
- j. 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).

Appendix C – Additional Data

Table C.1

Reliability of the measures (N = 184)

Scale	Number of items	Range	Reliability
Feeling Thermometer ingroup	3	0 - 100	Cronbach's $\alpha = .825$
Feeling Thermometer outgroup	3	0 - 100	Cronbach's $\alpha = .820$
General evaluation scale ingroup	6	1 - 7	Cronbach's $\alpha = .908$
General evaluation scale outgroup	6	1 - 7	Cronbach's $\alpha = .900$
Warmth scale ingroup	2	1 - 7	$r_s = .407^{**}$
Warmth scale outgroup	2	1 - 7	$r_s = .680^{**}$
Competence scale ingroup	2	1 - 7	$r_s = .157^*$
Competence scale outgroup	2	1 - 7	$r_s = .314^{**}$
Language status L1	2	1 - 7	$r_s = .271^{**}$
Language status L2	2	1 - 7	$r_s = .435^{**}$
L2 fluency	4	1 - 7	Cronbach's $\alpha = .794$
PANAS - PA	5	1 - 5	Cronbach's $\alpha = .857$
PANAS - NA	5	1 - 5	Cronbach's $\alpha = .637$

Note. * indicates $p < .05$, ** indicates $p < .01$

Table C.2

Reliability (Cronbach's α) of the IATs

	US Americans	Mexicans
English IAT English Version	.811	.663
English IAT Spanish Version	.728	.781
Spanish IAT Spanish Version	.746	.659
Spanish IAT English Version	.765	.765

Table C.3

Warmth and Competence Ratings as a function of Nationality and Target Group of Evaluation

	ingroup		outgroup	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mexicans				
Warmth	5.75	0.74	3.90	1.11
Competence	4.86	0.93	5.20	1.06
US Americans				
Warmth	4.58	1.24	5.19	1.26
Competence	4.97	1.08	4.84	1.26

Table C.4*Perceived group status scores as a function of Nationality and Target group*

	<i>M</i>	<i>SD</i>
Mexicans		
ingroup	3.58	0.98
outgroup	5.91	0.87
US Americans		
ingroup	5.47	1.06
outgroup	3.73	1.08

Table C.5*Intergroup Contact Ratings as a function of Nationality and Type of Contact*

	Quantity		Quality	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mexicans	3.40	1.94	6.05	1.21
US Americans	3.59	1.61	5.68	1.12

Table C.6*Mean PANAS ratings as a Function of Survey Version*

	L1		L2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
upset	1.47	0.79	1.53	0.90
hostile	1.36	0.74	1.34	0.67
alert	2.82	1.19	2.78	1.30
ashamed	1.42	0.84	1.55	0.92
inspired	2.68	1.22	2.60	1.10
nervous	1.64	0.98	1.95	1.16
determined	3.04	1.33	3.18	1.15
attentive	3.97	0.95	3.82	0.99
afraid	1.40	0.83	1.47	0.82
active	3.09	1.19	2.98	1.11