

**Measuring Implicit and Explicit Attitudes Among Anglophone and
Francophone Canadians**

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Abstract

Given the longstanding history between Anglophone and Francophone linguistic groups in Canada, ingroup and intergroup biases can be seen as potential outcomes emerging from this frequently oppositional relationship. To explore attitudes about linguistic identity, the present study ($N = 419$) aimed to validate a novel measure of implicit attitudes between Anglophone and Francophone Canadians. In this study, online participants completed self-report questionnaires and an Implicit Association Test (IAT) to assess their attitudes towards Anglophone and Francophones. Correlations with these explicit attitudes were used to validate the measure. There was a small, positive correlation between measures of implicit and explicit attitudes, but there was no relationship between implicit attitudes and self-reported attitudes towards Canadian culture and nationality. This study provided important information for a novel measure, the IAT, and the data could be used to potentially justify the use of nationally representative samples in future studies.

Introduction

Language is a core component of identity. One's language and membership to a linguistic group form a key dimension of one's self concept, especially in nations consisting of multiple linguistic groups (Bjornsdottir et al., 2019). In Canada, there are two core linguistic groups: Anglophone Canadians and Francophone Canadians (Statistics Canada, 2016 Census). Indeed, past work has shown the importance of linguistic identity in Canada, as language was found to be the most significant dimension of ethnic identity between English and French Canadians, with only geographic location playing a more secondary role (Taylor et al., 1973). Language remains a salient dimension of identity and an indicator of one's group membership among Anglophone and Francophone Canadians, which in turn allows for intergroup comparisons to be made between the two linguistic groups (Tajfel & Turner, 1979; Giles & Johnson, 1987). Historically, relations between the two groups have not always been harmonious, with divisive tensions emerging between the Anglophone majority and the Francophone minority. Most notably, the 1980 Québec Referendum and the 1995 Québec Referendum took place as a result of Quebec's French-speaking population advocating for a separation of the province from the rest of Canada, which is predominantly Anglophone.

Given the significance of language and linguistic group membership to one's identity, it follows that these attitudinal differences between Anglophone and Francophone Canadians could be a consequential and impactful case of potential intergroup biases. Further research on ingroup biases might be useful for understanding Anglophone-Francophone relations, as these biases may have an influential role in shaping ingroup and outgroup dynamics.

Implicit and Explicit Attitudes

Attitudes can be defined as an association between an object and an evaluation in one's memory (Fazio et al., 1982). Attitudes can be understood as favorable or unfavorable ways of thinking or feeling toward social objects and situations and may help predict future behaviour when activated in certain situations (Greenwald & Banaji, 1995). Importantly, psychological research has shown considerable evidence for the distinction between the relatively more versus less controlled aspects of attitudes (De Houwer et al., 2009). Here, *explicit attitudes* can be understood as thoughtful reactions formed through additional controlled cognitive processing, and are usually equated with deliberative, self-reported evaluations (Gawronski & Bodenhausen, 2006). These attitudes are typically assessed using more "direct" measures, including self-report procedures like the Modern Racism Scale (McConahay, 1986), as well as more informal single-item and multi-item self-report procedures (Axt, 2017).

Critically, research has found that attitudes can also be activated outside of conscious attention, and that these implicit attitudes can predict behavior (Greenwald et al., 2009; Kurdi et al., 2019). These *implicit attitudes* are defined as judgments that are automatically activated, without the performer's awareness, which provoke favorable or unfavorable thoughts, feelings, or actions towards social objects, such as people, places, or situations (Greenwald & Banaji, 1995). In other words, implicit attitudes are a person's comparatively more automatic, immediate reactions based on pre-existing stereotypes and cognitive biases, which can be related to their social perceptions (De Houwer et al., 2009). Since implicit attitudes are difficult to observe directly through traditional self-report measures, these unconscious attitudes are typically inferred from people's performance on response latency measures (Wittenbrink & Schwarz, 2007).

The Implicit Association Test

One example of an implicit measure is the Implicit Association Test (IAT; Greenwald et al., 1998). The IAT seeks to measure an individual's immediate affective reaction based on pre-existing cognitive associations, which does not need to align with explicitly reported beliefs or attitudes (Greenwald et al., 1998). In other words, it is designed to measure social knowledge that may operate outside of conscious awareness or control (Nosek et al., 2007). Designed as a computer-based sorting task that assesses the strength of associations between target-concept discrimination and an attribute dimension, the IAT measures relative reaction times between concept and attribute pairings (Greenwald et al., 1998). When completing an IAT, participants are asked to use two computer keys to quickly sort words into categories on the left and right-hand sides of a screen, typically using the "e" key for words on the left side and the "i" key for words on the right (Greenwald et al., 2003).

In the first blocks of the task, participants must complete a task of initial target-concept discrimination in which one must sort words related to each concept (e.g., flower, insect) into categories. For instance, if the "Flower" category was on the left side, and the word "Tulip" was shown on the screen, the participant would click the "e" key to sort the word into the corresponding category. In the second block, one must sort words relating to the attribute (e.g., pleasant, unpleasant). For example, if the word "Happy" was presented and the category "Pleasant" was on the right, the person would click the "i" key to sort the word into the corresponding category. The third part is the initial combined block in which both the concept and attribute words must be sorted into categories, for instance "Flowers/Pleasant" on the left and "Insects/Unpleasant" on the right, and the order in which the blocks are presented varies across participants. The fourth IAT block is the reversed target-concept discrimination task

where the placement of the concepts switch. For instance, if the “Flower” category was on the left, it would move to the right, and the “Insect” category would move to the left. In the fifth block, the concept and attribute words are combined in an opposite way than before, for example with “Flowers/Unpleasant” and “Insects/Pleasant.” Participants’ performance is based on the relative differences between the third and fifth blocks. An implicit preference for flowers would be seen as present if the participant had a faster response time when “Flower/Pleasant” and “Insect/Unpleasant” shared the same key.

In previous research, the IAT has been implemented to study linguistic groups and linguistic-related concepts. Specifically, the IAT has been used to examine linguistic attitudes towards different forms accented speech using various types of stimuli, including both audio and textual cues. One study compared the linguistic associations of 131 participants who self-identified as American with 34 participants who self-identified as foreign to the U.S. (Pantos & Perkins, 2013). This study primarily examined whether participants favoured a U.S. accent compared to a foreign accent, and whether there were differences in the participants’ implicit and explicit attitudes towards accented speech. The results revealed that participants displayed a pro-U.S. accent bias on the IAT measure, but a pro-foreign accent bias on explicit measures (Pantos & Perkins, 2013).

More generally, these findings align with prior work arguing that implicit and explicit attitudes are distinct and separable attitude constructs (Nosek & Smyth, 2007). Similarly, another study explored the use of the IAT with textual and audio inputs as tools to examine language attitudes in a South African context, specifically regarding Standard South African-accented English and Afrikaans-accented English (Álvarez-Mosquera & Marín-Gutiérrez, 2018). In this study, significantly more positive attitudes were shown towards Standard South African-

accented English than towards Afrikaans-accented English, particularly among younger and more educated South African indigenous language speakers (Álvarez-Mosquera & Marín-Gutiérrez, 2018). Given the past research showing how the IAT has been applied effectively to issues of language and linguistic identity, there is reason to expect that the measure will be useful in investigating Anglophone and Francophone attitudes in Canada.

Ingroup and Outgroup Favoritism

Linguistic identity may be one other context in which ingroup favoritism emerges. *Ingroup favoritism* can be defined as the tendency to favour and hold more positive attitudes towards members of one's own group than those in other groups (Tajfel & Turner, 1979). This tendency is widespread and is shown by dominant and non-dominant group members alike (Axt et al., 2018). Research has shown that members of higher status or socially advantaged groups expressed ingroup favoritism (Dasgupta, 2004), but prior work has also revealed that non-dominant group members tended to favour their ingroup, at least when completing indirect measures that had a positive connotation (Axt et al., 2018).

In contrast, *outgroup favoritism* refers to the expression of a preference towards members of a group that is distinct from one's own (Jost et al., 2004). Contrary to the widespread belief that members of low-status groups evaluate outgroup members more negatively, socially disadvantaged group members did in fact demonstrate outgroup favoritism on implicit and explicit measures, although this bias was more prevalent on implicit measures (Jost et al., 2004; Axt et al., 2018). Similarly, past research has shown that ingroup members demonstrated reduced ingroup favoritism and even outgroup favoritism on negatively connotated items, which may be the result of situational influences such as cultural norms that individuals have learned over time (Axt et al., 2018).

Previous findings have shown that both ingroup and outgroup favoritism have been observed on various implicit measures. Past research shows evidence of implicit and outgroup favoritism in areas including age, race, skin-tone, child-race, Arab-Muslim, Judaism, disability, sexuality, and weight (Nosek et al., 2007). Similar findings of ingroup and outgroup favoritism were observed in earlier research incorporating the IAT when comparing members of advantaged and disadvantaged groups based on race, age, and sexual orientation (Jost et al., 2004). Specifically, strong explicit and implicit ingroup favoritism was shown by European Americans, whereas African Americans showed strong ingroup favoritism explicitly but not implicitly. Young people displayed strong ingroup favoritism, and older people showed strong implicit outgroup favoritism. Lastly, most straight participants demonstrated ingroup favoritism on implicit measures, but more than a third of gay participants showed an implicit outgroup preference (Jost et al., 2004).

Different theoretical perspectives can help one understand the potential roots of ingroup and outgroup favoritism. *Social identity theory* has been used to explain intergroup behaviour, specifically ingroup favoritism (Tajfel & Turner, 1979). *Social identity* can be defined as a person's sense of self and belonging which derives from their membership in a group, in addition to the social consequences one experiences from being a group member (Tajfel & Turner, 1979; Hornsey, 2008). Such groups may be formed based on age, race, gender, religious affiliation or organizational membership, and individuals may be classified into such groups based on their similarity to the group members' characteristics (Tajfel & Turner, 1979; Ashforth & Mael, 1989). Social identity theory suggests that intergroup behaviours can be understood through the following principles: 1) individuals hope to achieve or maintain positive social identity; 2) one's ingroup must be perceived as positively differentiated or distinct from relevant outgroups; and 3)

individuals will strive to move from one group to another when social identity is unsatisfactory (Tajfel & Turner, 1979). The theory hypothesizes that, once individuals have internalized their group membership as part of their self-concept, the pressure to view one's own group positively through ingroup and outgroup comparisons is what pushes social groups to distinguish themselves from one another (Tajfel & Turner, 1979). Competitive intergroup behaviour could therefore partially be explained by group members' efforts to form a positive and stable self-concept for themselves (Hornsey, 2008).

In contrast, *system justification theory*, defined as the legitimization of social processes even at the expense of one's group and personal interests, has often been referenced as a potential explanation for outgroup favoritism (Jost & Banaji, 1994). In the context of system justification theory, the term *system* is used to describe any social, political, or economic order incorporating various individuals and groups (van der Toorn & Jost, 2014). According to this theory, individuals are motivated by their respective needs to reduce uncertainty, threat, and to maintain the social order, which in turn drives them to think and behave in ways that maintain the current system (Jost & Banaji, 1994; Jost & Hunyady, 2005; van der Toorn & Jost, 2014). Further, system justification can operate both implicitly and explicitly, for instance through the endorsement of stereotypes and defending the legitimacy of unequal status quos (Jost & Kay, 2005; van der Toorn & Jost, 2014).

In contrast to social identity theory, system justification theory proposes that intergroup hierarchies are maintained by both ingroup favoritism and outgroup derogation by dominant groups, and the partly automatic complicity of subordinated group members through the perpetuation of outgroup favoritism, which is then usually expected on more indirect or implicit measures (Jost et al., 2004). Outgroup favoritism could partly be attributed to individuals' desire

to hold favorable attitudes towards themselves and their own groups, but also towards the status quo and the social order that affects them (Jost et al., 2004; Nosek et al., 2007). Through this lens, outgroup favoritism has been regarded as an adaptive tactic which enables individuals to internalize and rationalize aspects of their environment, especially attributes that are beyond their control (Jost et al., 2004).

Anglophone and Francophone Canadians

Given the proximity and situational salience of the Anglophone and Francophone Canadian groups, members of each linguistic group may be expected to perceive the other as a relevant group to which intergroup comparisons can be drawn. A previous study using data from the 2015 Canadian Election Study (CES) explored how outgroup attitudes among linguistic minority and majority groups were shaped by the intergroup tensions among Anglophones and Francophones in Canada. The study investigated whether a perceived threat to Québec, for Francophones, and whether a perceived threat to Canadian identity, for Anglophones, impacted both linguistic groups' general attitudes towards Anglophones and Francophones. The results indicated that Francophone and Anglophone Canadians have similar, positive attitudes towards one another, and that perceived cultural threat is associated with negative intergroup attitudes for both minority and majority group members (Medeiros, 2019). At the same time, findings also revealed that, over the past 25 years, intergroup relations between Anglophones and Francophones in Canada were becoming significantly more positive, and both groups presently held quite positive intergroup sentiments (Medeiros, 2019).

Considering these findings, it may be useful to have another study incorporate the IAT specifically in the context of Anglophone and Francophone Canadians to examine these attitudinal differences using both implicit and explicit measures. Studying this line of research is

even more important given the significance of both linguistic groups to one another and the impact that intergroup tensions between the two groups has on majority and minority groups in Canada. Given the salience of the Anglophone-Francophone distinction in Canada, and past work on the IAT and linguistic issues, we sought to develop a novel measure of implicit attitudes towards Anglophones and Francophones.

Methods

Participants

Participants were volunteers from the Project Implicit research pool. The study had a target sample size of 300 participants who identified as either an Anglophone or Francophone Canadian. This minimum sample size provided 80% statistical power to detect a correlation as small as $r = 0.16$ or $d = 0.34$. A total of 428 participants completed the study. Participants were excluded from analyses if more than 10% of their IAT responses in critical blocks were faster than 300ms (Nosek et al., 2007). Participants were also excluded if they did not complete all five self-report items measuring their explicit attitudes towards Anglophone versus Francophone Canadians. Further, participants who selected a score of 4 or 5 for their identification as an Anglophone and as a Francophone, therefore identifying equally strongly with both linguistic groups, were excluded from analyses. These criteria left 419 participants ($M_{age} = 37.22$, $SD_{age} = 15.59$, 62.8% female, 75.6% White) that were included in analyses. Degrees of freedom vary due to missing data.

Demographics

Participants reported their racial identity by selecting one of the following items: Asian, Black, Hispanic, Middle Eastern, Multiracial, Native, Pacific Islander or White. Participants indicated their gender identity from the following options: female, male, or other (see Table 1).

Table 1*Participant Demographics*

Demographic Categories	Frequency	Percentage (%)
Gender		
Female	263	62.8
Male	144	34.4
Other	11	2.6
Not specified	1	0.2
Race/Ethnicity		
White	317	75.6
Asian	49	11.7
Multiracial	24	5.7
Black	12	2.9
Middle Eastern	9	2.1
Native	6	1.4
Hispanic	1	0.23
Pacific Islander	1	0.23
Age	$M_{age} = 37.22$	$SD_{age} = 15.59$

Procedure

Participants completed several basic demographic questions when first registering for the Project Implicit research pool. Participants then completed the IAT task and the self-report questionnaires in a randomized order. Additional demographic items were completed immediately after the self-reported attitude items.

Measures*Implicit Measure*

Participants completed a seven-block Implicit Association Test (IAT; Greenwald et al., 1998) measuring implicit attitudes towards Francophone versus Anglophone Canadians. The

IAT measured the association between the categories of “Anglophone Canadians” and “Francophone Canadians” and the concepts of “Good” and “Bad”. The experiment’s classification tasks used 40 stimulus words: 10 good words (e.g., *friend, smiling, adore, joyful, pleasure, friendship, happy, attractive, cherish, glad*), 10 bad words (e.g., *bothersome, awful, pain, nasty, dirty, hatred rotten, horrific, hurtful, annoy*), 10 Anglophone Canadian names (e.g., *James, Tyler, David, Grace, Bill, Jennifer, Susan, Betty, Jessica, Hunter*), and 10 Francophone Canadian names (e.g., *Clémence, Solène, Amélie, Pierre, Devereux, François, Fleur, Loïc, Benoît, Roux*).

IATs were scored by the *D* algorithm (Greenwald et al., 2003), such that one variable was used to represent the participants’ IAT scores, with higher values indicating more positive implicit associations towards Anglophones than Francophones. Participants were excluded from analyses if more than 10% of their IAT responses in critical blocks were faster than 300ms (Nosek et al., 2007).

Explicit Measure

Participants completed five self-report items measuring their explicit attitudes towards Anglophone versus Francophone Canadians. The five-item explicit attitude questionnaire had a similar structure and scoring as in prior research (e.g., Axt et al., 2020; see Appendix A). Participants reported how much they preferred Anglophone versus Francophone Canadians (1 = *strongly prefer Anglophone Canadians*, 7 = *strongly prefer Francophone Canadians*), in addition to how much they liked Anglophone and Francophone Canadians respectively (1 = *strongly dislike*, 7 = *strongly like*). Participants were additionally asked to move a thermometer slider to describe how positively or negatively they felt towards Anglophone and Francophone Canadians separately (-100 = *extremely negative*, 100 = *extremely positive*). An explicit

preference item was used for the analyses, which was made of standardized values of 1) the relative preference item, 2) a difference score from the two liking items, and 3) a difference score from the two slider items.

Participants additionally filled out 10 self-report items concerning their attitudes towards Canadian culture and nationality, including items such as, “*Language is a critical part of one’s national identity*” and “*I feel like my culture is threatened when I hear people speaking other languages than my own.*” All items were rated on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) (see Appendix B). These items were selected to examine whether participants’ attitudes towards minorities and other cultures in Canada were correlated with their attitudes towards their language outgroup. The items, “*Other cultures suppress our national traditions,*” and “*The culture of minorities living in Canada is an important part of Canadian culture,*” were similar to the Cultural-National dimension of the Multiple Threat and Prejudice Questionnaire (MTPQ) used in previous research (Bigazzi et al., 2019). Additionally, the item, “*The national majority should always have more political rights than minorities,*” was taken directly from the Nationalism Scale (Todosijević, 2004).

Demographics Questionnaire

Participants completed 10 demographic items about their spoken languages and their identification as an Anglophone or Francophone (see Appendix C). Participants reported how much they identified as being an Anglophone and Francophone, respectively, on the following items, “*To what extent do you identify as an Anglophone?*” and “*To what extent do you identify as a Francophone?*” The items were rated on a 5-point scale (1 = *not at all*, 5 = *an extreme amount*). Any participant who reported a score of 4 or 5 was considered in these analyses and was classified as an Anglophone or Francophone based on the respective items. Using these cut-

off values, 268 participants identified as Anglophone, 37 participants (8.0%) identified as Francophone, and 114 participants did not identify strongly as either Anglophone or Francophone, meaning they had data for both identification items but had selected values lower than 4. Participants were also excluded from analyses if they did not provide a rating for either item.

Results

Implicit Attitudes

A one-sample *t*-test across the entire sample indicated there were more positive implicit associations towards Anglophones than Francophones, $M = 0.44$, $SD = 0.50$, $t(18.02)$, $p < .001$, $d = 0.88$, 95% CI = [0.39, 0.49].

A between-subjects *t*-test comparing IAT *D* scores between Anglophone and Francophone participants revealed a significant effect (Anglophone $M = 0.52$, $SD = 0.43$, Francophone $M = -0.34$, $SD = 0.53$, $t(10.95)$, $p < .001$, $d = 1.78$, 95% CI = [-1.00, -0.70]).

A one-sample *t*-test across Anglophone participants indicated that Anglophone participants displayed an implicit preference for Anglophones compared to Francophones, $M = 0.51$, $SD = 0.43$, $t(19.51)$, $p < .001$, $d = 1.19$, 95% CI = [0.46, 0.56]. Similarly, another one-sample *t*-test across Francophone participants indicated that Francophone participants displayed an implicit preference for Francophones compared to Anglophones, $M = -0.34$, $SD = 0.53$, $t(-3.96)$, $p < .001$, $d = 0.64$, 95% CI = [-0.52, -0.17].

Explicit Attitudes

A one-sample *t*-test across the entire sample indicated that there was a reliable, explicit preference for Anglophones compared to Francophones, $M = 4.44$, $SD = 0.85$, $t(106.66)$, $p < .001$, $d = 0.52$, 95% CI = [4.35, 4.52].

A between-subjects *t*-test comparing Anglophone-identifying participants and Francophone-identifying participants' scores on the aggregate explicit attitude item showed a significant effect (Anglophone $M = 0.13$, $SD = 0.95$, Francophone $M = -0.45$, $SD = 0.72$), $t(-3.53)$, $p < .001$, $d = 0.69$, 95% CI = [-0.90, -0.25].

A one-sample *t*-test across Anglophone participants indicated that Anglophone-identifying participants reported an explicit preference for Anglophones compared to Francophones, $M = 4.56$, $SD = 0.89$, $t(10.43)$, $p < .001$, $d = 0.63$, 95% CI = [4.46, 4.67].

Another one-sample *t*-test across Francophone participants revealed that Francophone-identifying participants did not display an explicit preference for Francophones compared to Anglophones, $M = 3.97$, $SD = 0.83$, $t(-0.19)$, $p = 0.84$, $d = 0.04$, 95% CI = [3.70, 4.25].

Correlations of IAT Scores with Explicit Measures

There was a small, positive correlation between participants' implicit and explicit attitude measures, $r = 0.22$, $p < .001$, 95% CI = [0.12, 0.30]. A correlation between the extent to which participants identified as being an Anglophone and their implicit preferences towards Anglophones compared to Francophones revealed a statistically non-significant result, $r = 0.11$, $p = 0.07$, 95% CI = [-0.01, 0.23]. Similarly, a correlation between the extent to which participants identified as being a Francophone and their implicit preferences towards Anglophones compared to Francophones revealed a statistically non-significant result, but followed the expected directionality, such that self-identifying as a Francophone was negatively correlated with implicitly preferring the Anglophone linguistic group, $r = -0.31$, $p = 0.05$, 95% CI = [-0.58, 0.01].

Finally, there were extremely small correlations ($r < |0.10|$) between the participants' implicit attitudes and their explicitly reported attitudes towards Canadian culture and nationality (see Table 2), such that none of the correlations were statistically significant at $p < .05$.

Correlations of Explicit Measures and Group Identification

A correlation between the extent to which participants identified as being an Anglophone with their explicitly reported preferences for Anglophones compared to Francophones revealed a statistically non-significant result, $r = 0.09$, $p = 0.12$, 95% CI = [-0.02, 0.21]. Another correlation between the extent to which participants identified as being a Francophone and their explicitly reported preferences for Anglophones compared to Francophones had a statistically non-significant result, but followed the expected directionality, such that identifying as a Francophone was negatively correlated with explicitly preferring the Anglophone linguistic group, $r = -0.09$, $p = 0.58$, 95% CI = [-0.41, 0.24].

Discussion

The aim of this study was to further investigate implicit and explicit attitude differences among Anglophone and Francophone Canadians using the Implicit Association Test (IAT) and self-report questionnaires. We expected a positive correlation between participants' implicit and explicit attitudes towards Anglophones compared to Francophones, with members of both linguistic groups displaying ingroup favoritism. We found that, across the entire sample, there were more positive associations towards Anglophones than Francophones on both the IAT and the explicit preference item. Further, there was a moderate, positive correlation between participants' implicit and explicit attitudes, which were taken from the participants' respective IAT scores and self-report measures. Both Anglophone- and Francophone-identifying participants exhibited ingroup favoritism on the IAT, meaning that they showed an implicit

preference for members of their own linguistic group. However, ingroup favoritism on the explicit attitude measures was seen among Anglophone-identifying participants but not among Francophone-identifying participants, highlighting a difference between the linguistic groups for explicitly reported ingroup favoritism. These findings are generally in line with previous research, specifically with regard to how ingroup favoritism was displayed on prior implicit measures (Nosek et al., 2007; Rudman et al., 2002; Westgate et al., 2015; Castelli et al., 2008).

There was no reliable correlation between the extent to which participants identified as an Anglophone or Francophone, respectively, with their implicitly and explicitly reported preferences for Anglophones compared to Francophones. That is, there was no statistically significant correlation between the extent to which participants identified as Anglophone and their implicit preferences for Anglophones compared to Francophones. Similarly, the correlation between the extent to which participants identified as Francophone and their implicit preferences for Anglophones compared to Francophones followed a negative direction but was not statistically significant. Further, the correlation between participants' identification as an Anglophone and their explicitly reported preferences for Anglophones compared to Francophones had a non-significant result. Another correlation between the between the extent to which participants identified as Francophone and their explicitly reported preferences for Anglophones compared to Francophones followed a negative direction but was not statistically significant. We did not find a relationship between participants' implicit attitudes and several self-report items concerning Canadian culture and nationality. Overall, these results indicate that implicit and explicit attitudes can differ across linguistic groups and are in accordance with previous findings about ingroup favoritism on implicit measures.

Study Implications

The findings from this study can provide valuable insight into understanding potential intergroup biases among Anglophone and Francophone Canadians. Seeing as attitude differences were found between Canada's two core linguistic groups, with Anglophone- and Francophone-identifying members displaying ingroup favoritism on the implicit measures, the data from this study could be used to justify the use of nationally representative samples in future research. However, it is important to note that the participant sample was recruited exclusively from the Project Implicit research pool as this may have had an impact on the study's results. Due to the focus on implicit social cognition at Project Implicit, these participants may have been more familiar with the topics of implicit attitudes and biases, in addition to the measures used in the study. By using a more representative sample of Canadians, we can account for potential selection bias and investigate whether different samples display the same effects seen in the present study. Based on the current sample being predominantly Anglophone and Canada's population being mostly Anglophone, we would anticipate that nationally representative samples would show similar results as the present study with participants demonstrating implicit ingroup favoritism.

Given the salience of linguistic identity in Canada (Taylor et al., 1973), the study's data involving Anglophone and Francophone participants' implicit and explicit intergroup attitudes could be used as an indicator of Canada's national social stability. Positive intergroup relations are characteristic of a peaceful sociopolitical context and are often used as a measure of social and political stability (Medeiros, 2019). Previous research has shown that the Anglophone and Francophone linguistic groups in Canada already viewed each other positively, and that their relations were becoming significantly more positive over the past 25 years (Medeiros, 2019). Further, findings from the study could additionally be used as a predictor of Canada's

sociopolitical climate. In the past, major political movements throughout Canada's history could be traced back to shifting sentiments among linguistic groups. For example, the 1980 Québec Referendum and the 1995 Québec Referendum were largely driven a collective desire among individuals predominantly belonging to the French linguistic group to ensure the protection of the French language and culture.

For example, data from a more representative sample could also be used to provide information about the population's satisfaction with the current Canadian provincial and federal governments, in addition to their support for certain language laws. Canadian citizens' respective attitudes towards their linguistic ingroups versus outgroups, especially in cases of ingroup favoritism, may have implications in predicting the extent to which individuals support language laws which favor one language over another, for instance Québec's French-favoring Bill 101 and more recent Bill 96. Based on the current study's results which revealed implicit ingroup favoritism among Anglophone and Francophone participants, it could be inferred that favorable treatment of one's linguistic ingroup is a significant factor that individuals consider when forming their political opinions and endorsing certain language laws. Indeed, in the case of Québec's Bill 96, a bill aiming to change the Canadian Constitution to recognize Québec as a nation, establish French as its official language, and amplify the presence of the French language in the province, current data reveals moderately strong support for the bill among Francophones in the province (77%) and very strong opposition by the province's Anglophone population (95%; Angus Reid Institute, 2021). Understanding current intergroup perceptions among Canada's linguistic groups can provide valuable predictive information regarding potential social movements and the country's overall sociopolitical climate.

The data from this study also has the potential to generalize to other contexts where language may have a salient role, for instance in hiring or admissions processes. If implicit ingroup favoritism is prevalent among both Anglophone and Francophone participants, it follows that these implicit preferences may play a role in decision-making contexts. Therefore, these findings may be helpful in informing different hiring strategies or trainings to help address these biases and to ensure that equitable decisions are made.

Limitations

One limitation of the study is that a significant proportion of participants identified as Anglophone ($N = 268$) compared to those who identified as Francophone ($N = 37$) and those who did not identify with either linguistic group ($N = 114$). It would have been beneficial to include a larger sample of Francophone participants in the study as this would have created a more representative sample and the study's results could have been more applicable to both Anglophone and Francophone linguistic groups.

Another related limitation of this study is that there was not a proportionate number of participants from each province. Given that 177 participants (42.2%) were from Ontario, a predominantly Anglophone province, this likely skewed the results to the extent that participants showed implicit and explicit preferences for Anglophones. While Ontario is the most populated province in Canada with a population of 14,915,270 (38.8%), Quebec, the second most populated province with a population of 8,631,147 (22.5%), is underrepresented in the sample with only 37 participants (8.0%; Statistics Canada, 2021). Due to this underrepresentation of participants from the primarily Francophone province of Québec, there is a possibility that there would have been stronger, positive implicit and/or explicit biases towards Francophones had Québécois participants been more accurately represented in the sample. Future research could

aim to avoid this bias by including a sample that is proportionate to the size of each province, which would in turn ensure a greater representation of attitude differences among Anglophones and Francophones in Canada. Although results may show a similar overall preference for Anglophones compared to Francophones on the study's implicit and explicit measures, given that a vast majority of Canada's population speaks English compared to French, the use of a more diverse and nationally representative sample of the Canadian population can additionally help increase the generalizability of the study's findings (Statistics Canada, 2016 Census).

Another weakness of this research was that there could have been more specific measures to examine how long participants had been speaking either English or French. As a result of participants being able to freely type in their responses, some participants did not provide specific times for when they started to learn either language (e.g., "middle school" or "childhood") and were subsequently excluded from the analyses due to this ambiguity. The incorporation of a forced-response question concerning how long participants had been speaking each language or through which sources they had learnt each language (e.g., at school compared to at home) would enable us to establish a more precise time at which the participants had begun speaking each language. Using this information, we would be able to further explore whether there was a correlation between participants' familiarity with the English and French languages and their attitudes towards the respective Anglophone and Francophone groups.

A final limitation is that the analyses were not limited to participants living exclusively within Canada. Although it was required for all participants to be Canadian citizens to participate in the study, the inclusion of citizens who are living outside of Canada in the sample may have influenced the results due to the varying levels of exposure these participants had to Anglophone

and Francophone linguistic groups, in addition to the English and French languages more generally.

Future Directions

The present findings could be used to provide baseline information about participants' attitudes towards Anglophones and Francophones, in addition to Canada's current linguistic intergroup relations. Future research could incorporate follow-up analyses comparing participants' attitudes from when they had moved to a province to their attitudes after living in the province for a longer period of time. In line with previous research examining the influence of one's cultural environment on implicit attitudes, we would anticipate that individuals who move to a more Anglophone or Francophone province will adopt implicit attitudes that are more in line with the values of that province (Rudman, 2004; Axt et al., 2014).

A related line of research could investigate the potential development of outgroup favoritism over time among Anglophones and Francophones as a function of being the linguistic majority or minority within a province. Previous research has shown that outgroup favoritism could be used by individuals from marginalized groups as an adaptive mechanism to address the current status quo and cope with situational factors beyond their control (Jost et al., 2004; Nosek et al., 2007). By drawing comparisons to participants' attitudes taken around the beginning of their time spent in a province, these results could help shed light on the ways in which outgroup favoritism develops and on whether outgroup favoritism is a factor that presents itself more prominently over extended periods of time.

Another future line of research could investigate the role of intergroup social contact and interpersonal relationships across intergroups in shaping individuals' implicit and explicit views towards Anglophones and Francophones. Studies have demonstrated that previous experiences

of intergroup contact help inform people's attitudes and behaviour towards outgroup and unknown group members (Stark et al., 2013; Vermue et al., 2019). Previous research has shown that intergroup contact with an outgroup member has the potential to improve individuals' attitudes towards the outgroup as a whole, in addition to their attitudes towards other uninvolved outgroups (Boin et al., 2021; Pettigrew, 2009). Studies examining intergroup contact among Anglophone and Francophone linguistic groups can contribute to this line of research and could provide valuable insight into the malleability of ingroup biases following different forms of social interactions. In line with previous findings, we could anticipate that individuals who have greater exposure to members of their linguistic outgroup, for instance bilingual individuals for English and French, will hold more favorable views towards the linguistic outgroup and other outgroups, compared to individuals who have limited intergroup contact.

A final, related aspect that could be further explored in future research is the role of bilingualism in shaping participants' attitudes towards Anglophones and Francophones. In the current study, participants who scored equally high on the Anglophone and Francophone self-identification items and had subsequently been classified as both an Anglophone and a Francophone (e.g., selected a "5" for their identification as an Anglophone and a "4" for their identification as a Francophone), were excluded from the data to maintain the clear distinction between the Anglophone and Francophone linguistic groups. Future analyses could place a greater focus on exploring attitude differences between bilingual individuals, considering that Canada is a country with both English and French as its official languages. Given that the IAT is a relative measure, it would not be possible to simultaneously show positive attitudes towards both Anglophone and Francophone Canadians. In this case, to examine attitude differences between bilingual individuals, attitudes towards Francophones and Anglophones would need to

be measured separately using a measure such as the Single-Category IAT. Based on previous research which highlighted the benefits of being exposed to outgroup members (Boin et al., 2021; Pettigrew, 2009), we would predict that bilingual participants would hold more positive implicit and explicit attitudes towards Anglophone and Francophone participants as a result of belonging to multiple linguistic backgrounds, compared to monolingual participants who primarily identify with one linguistic group.

Conclusion

The study investigated Anglophone and Francophone Canadians' implicit and explicit attitudes regarding Anglophone and Francophone linguistic groups using the Implicit Association Test (IAT) and self-report questionnaires. The results from this study found implicit and explicit attitude differences between the Anglophone and Francophone linguistic groups, with members of both groups displaying respective ingroup favoritism on implicit measures, but only the Anglophone group demonstrating ingroup favoritism on the explicit measures. Overall, these findings can provide a potential explanation for the attitudinal differences between Anglophone and Francophone Canadians as being a consequence of intergroup biases, specifically ingroup favoritism, among linguistic groups.

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Appendix A

1. Which statement best describes you? (7-point Likert scale)
 1. I strongly prefer Anglophone Canadians to Francophone Canadians
 2. I moderately prefer Anglophone Canadians to Francophone Canadians
 3. I slightly prefer Anglophone Canadians to Francophone Canadians
 4. I like prefer Anglophone Canadians and Francophone Canadians equally
 5. I slightly prefer Francophone Canadians to Anglophone Canadians
 6. I moderately prefer Francophone Canadians to Anglophone Canadians
 7. I strongly prefer Francophone Canadians to Anglophone Canadians
2. On average, how much do you like Anglophone Canadians? (7-point Likert scale)
 1. Strongly dislike
 2. Moderately dislike
 3. Slightly dislike
 4. Neutral
 5. Slightly like
 6. Moderately like
 7. Strongly like
3. On average, how much do you like Francophone Canadians? (7-point Likert scale)
 1. Strongly dislike
 2. Moderately dislike
 3. Slightly dislike
 4. Neutral
 5. Slightly like

6. Moderately like
 7. Strongly like
4. For each question, click on the grey line to indicate your judgment. After clicking the line, you can slide the circle to choose the exact judgment.
- a. How negative or positive are your feelings towards Anglophone Canadians?
 1. Extremely negative (-100)
 2. Neutral (0)
 3. Extremely positive (100)
 - b. How negative or positive are your feelings towards Francophone Canadians?
 1. Extremely negative (-100)
 2. Neutral (0)
 3. Extremely positive (100)

Appendix B

The following self-report items were presented to the research participants. All items were rated on scale from 1 (*strongly disagree*) to 7 (*strongly agree*):

1. Language is a critical part of one's national identity.
2. The national majority should always have more political rights than minorities.
3. Other cultures suppress our national traditions.
4. The culture of minorities living in Canada is an important part of Canadian culture.
5. I can freely speak whatever language I would like to where I live.
6. I feel like my culture is threatened when I hear people speaking other languages than my own.
7. People who don't speak the same language as me are foreigners.
8. Immigrants are very different from Canadians regarding their ways of communicating with others.
9. I think every school in Canada should be required to teach courses in French.
10. The presence of other cultures in Canada makes Canadian culture less unique.

Appendix C

1. Are you a Quebec resident?
 - a. Yes
 - b. No
2. How old were you when you learned English?
 - a. Text box provided
3. How old were you when you learned French?
 - a. Text box provided
4. How many languages do you speak fluently?
 - a. 1
 - b. 2
 - c. 3
 - d. 4 or more
5. Would you consider yourself fluent in French?
 - a. Yes
 - b. No
6. How often do you speak English in your daily life?
 - a. I never speak English
 - b. I speak English a small amount of the time
 - c. I speak English a moderate amount of the time
 - d. I speak English a great deal of the time
 - e. I speak English nearly all of the time
7. How often do you speak French in your daily life?

- a. I never speak French
 - b. I speak French a small amount of the time
 - c. I speak French a moderate amount of the time
 - d. I speak French a great deal of the time
 - e. I speak French nearly all of the time
8. What language do you speak at home?
- a. English
 - b. French
 - c. Another language
9. To what extent do you identify as an Anglophone?
- a. Not at all
 - b. A little bit
 - c. A moderate amount
 - d. A good deal
 - e. An extreme amount
10. To what extent do you identify as a Francophone?
- a. Not at all
 - b. A little bit
 - c. A moderate amount
 - d. A good deal
 - e. An extreme amount

Table 2*Correlations Between IAT Scores and Explicit Beliefs*

IAT <i>D</i> score	<i>r</i>	<i>p</i>	95% CI lower	95% CI upper
Language is a critical part of one's national identity.	.05	.35	-.05	.14
The national majority should always have more political rights than minorities.	.09	.05	-.001	-.19
Other cultures suppress our national traditions.	-.005	.92	-.10	.09
The culture of minorities living in Canada is an important part of Canadian culture.	.09	.06	-.002	.19
I can freely speak whatever language I would like to where I live.	.09	.06	-.002	.19
I feel like my culture is threatened when I hear people speaking other languages than my own.	.02	.71	-.08	.11
People who don't speak the same language as me are foreigners.	.02	.63	-.07	.11
Immigrants are very different from Canadians regarding their ways of communicating with others.	.09	.06	-.004	.19
I think every school in Canada should be required to teach courses in French.	-.03	.50	-.13	.06
The presence of other cultures in Canada makes Canadian culture less unique.	-.01	.82	-.11	.08

Statement of Contribution

As a research student in the McGill Intergroup Cognition Laboratory at McGill University, I developed the topic of this thesis with the guidance of Dr. Jordan Axt. This research paper is unique to the field as it incorporates the Implicit Association Test (IAT) specifically in the context of Anglophone and Francophone Canadians to examine attitudinal differences using both implicit and explicit measures. I contributed to this study by assisting in the study's conceptualization and deciding which measures and variables to include. Following this, Dr. Axt set up and ran the study on Project Implicit, and I collected and cleaned data from over 400 participants. I identified background papers and conducted a literature review on the topics of implicit and explicit attitudes, the IAT, ingroup and outgroup favoritism and the history of Anglophone-Francophone relations in Canada. I performed the statistical analyses and interpreted the results presented in this paper with input and guidance from Dr. Axt. I additionally incorporated comments and feedback from Dr. Axt throughout the writing process of this thesis.