

Bilingual Education Reduces Ethnic Outgroup Discrimination Through Perspective-Taking*

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Abstract

How to reduce intergroup prejudice is one of the most difficult challenges many societies face. Research on prejudice reduction usually focuses on short-term interventions that yield relatively inconclusive results. Instead, I focus on people's formative years and argue that bilingual instruction in schools durably reduces political discrimination against ethnic outgroups. By promoting the acquisition of a second language, bilingual instruction facilitates the cognitive development of perspective-taking ability, which in turn fosters more inclusive political attitudes. I find support for this argument by studying the effects of an education reform in Malaysia, which resulted in those students who were born after the cutoff receiving bilingual instruction, while those born before the cutoff were only taught in their mother tongue. I also provide suggestive evidence that the observed patterns stemmed from improvements in perspective-taking ability. The findings imply that education plays a pivotal role in reducing intergroup prejudice from an early age.

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Ethnic outgroup discrimination and ingroup favoritism are pervasive issues in many diverse societies. Citizens generally display a preference to vote for coethnic candidates (Adida, 2015; Ferree, 2006) while political elites often implement policies that benefit members of their own ethnic groups (Ejdemyr et al., 2018; Kramon and Posner, 2016). Moreover, this interplay between ethnic identities and political behavior further exacerbates the under-representation of ethnic minorities, which in turn raises the likelihood of civil wars (Buhaug et al., 2014; Cederman et al., 2010). Hence, considerable attention has been paid to the remedies that reduce interethnic prejudice. These include institutional reforms such as the use of quotas and media to improve minority representation and portrayals (Chauchard, 2017; Dunning and Nilekani, 2013; Lajevardi, 2021), and non-institutional factors such as interethnic contact (e.g., Adida et al., 2016; Weiss, 2021). However, the inclusionary impacts of many proposed interventions are either mixed or short-lived (Paluck et al., 2021; Parthasarathy, 2017). This may be because political attitudes are deeply ingrained during childhood and are resistant to change in adulthood (Sears and Funk, 1999; Tesler, 2015). It might therefore be more fruitful to focus on interventions during a person’s formative years, such as parental influences (Acharya et al., 2016) and education experiences (Ostwald et al., 2019) to better understand what shapes intergroup prejudice.

In this article, I consider whether bilingual instruction, as an early life intervention, is able to mitigate the political discrimination of ethnic outgroups. Bilingual instruction refers to the use of two languages to teach content subjects such as History or Math (see Liu, 2011). Drawing on insights from the bilingualism and perspective-taking research in psychology (Galinsky et al., 2005; Schroeder, 2018), I argue that this type of instructional method facilitates second language acquisition (Reljić et al., 2015; Rolstad et al., 2005), thereby creating bilingual speakers who are better at taking the perspectives of others (Javor, 2017; Schroeder, 2018). Being able to speak two languages allows bilinguals to adapt and cater to different listeners’ linguistic demands. For many cognitive scientists, this process of switching between multiple languages is analogous to the cognitive process of switching from one

person’s perspective to another. Given the higher rate of language switching at home and/or at school, bilinguals are subconsciously trained to curtail their own predispositions and biases while shifting their attention toward the mental state of the perspective-taking target (Bialystok and Viswanathan, 2009; Carlson and Meltzoff, 2008). More broadly, bilingualism promotes the cognitive development of perspective-taking *regardless of the type of second language spoken* (e.g., ethnic minority or colonial languages). Finally, prior works show that this ability to take the positions of others helps decrease exclusionary political attitudes toward a variety of social outgroups (Adida et al., 2018; Kalla and Broockman, 2020).

To test these claims, I analyze the impact of an education reform in Malaysia, where the ethnic majority language – i.e., *Bahasa Melayu* – was replaced by English as the language of instruction for Math and Science in all public secondary schools in 2003. Consequently, ethnic Malay citizens (i.e., the ethnic majority group in Malaysia) who were born between 1990 and 1995 would have been exposed to a combination of English and *Bahasa Melayu* instruction during their secondary school education, whereas those who were born between 1985 and 1989 would have received monolingual instruction in their mother tongue (i.e., *Bahasa Melayu*) for all subjects including Math and Science. As such, the as-if random assignment of the language of instruction in Malaysian schools (i.e., bilingual versus monolingual instruction) allows me to implement a regression discontinuity (RD) approach to analyze the causal effect of bilingual education on ethnic outgroup prejudice.

I fielded an original survey to more than 2,000 ethnic Malay participants in March 2022, asking a series of questions that measure one’s political attitudes toward ethnic minorities in Malaysia. Overall, I find that ethnic Malays who received bilingual instruction display less political discrimination against ethnic minorities than those who received monolingual instruction. The main results are also robust to a variety of RD model specifications and alternative explanations, such as interethnic contact. I further validate the mechanisms underlying this empirical pattern by providing evidence that bilingual instruction improves second language proficiency and perspective-taking. Finally, I examine the generalizability

of the findings through a cross-national analysis of the Asian Barometer Survey (ABS, 2017). Consistent with my expectations, bilingual speakers, regardless of the type of second language spoken, exhibit less outgroup prejudice than those who only speak one language at home.

This article makes three contributions. First, it builds on the rich literature that the development of political norms and values can be traced to a person's early upbringing in school (Campbell and Niemi, 2016; Cavaille and Marshall, 2019; Neundorf et al., 2016). Specifically, I argue that the socializing impact of education extends beyond the acquisition of civic skills and political knowledge (Finkel and Ernst, 2005; Nelsen, 2021; Niemi and Junn, 1998). Education also influences our cognitive ability to accept members of ethnic outgroups. Second, this article highlights the importance of studying political attitudes and behavior through a psycholinguistic lens. Previous works have shown that the language we speak can influence our outlook on a variety of salient issues, such as climate change (Pérez and Tavits, 2017), protection of minority rights (Pérez and Tavits, 2019a), and gender equality (Liu et al., 2018; Pérez and Tavits, 2019b; Tavits and Pérez, 2019). This research underscores the cognitive impact of bilingualism on intergroup tolerance by enhancing peoples' ability to put themselves in the shoes of others (Bekerman and Horenczyk, 2004; Wright and Tropp, 2005). Hence, the proposed mechanisms can be generalized to other ethnolinguistic settings and ostracized groups, such as immigrants and refugees. Lastly, this article speaks to the burgeoning scholarship on perspective-taking and prejudice reduction (Adida et al., 2018; Kalla and Broockman, 2020). Unlike previous studies, I show that perspective-taking is an ingrained cognitive ability that can be cultivated during a person's formative years. As such, bilingual education may represent a more durable solution to the challenge of reducing intergroup prejudice in modern societies.

Bilingual Education, Perspective-Taking & Outgroup Attitudes

I argue that bilingual education has important consequences on intergroup relations. Specifically, individuals who were exposed to bilingual instruction in school should possess more

inclusive political attitudes than those who received monolingual instruction. This theoretical claim stems from three insights. First, bilingual instruction promotes bilingualism – i.e., the ability to speak two languages. Second, bilinguals possess better perspective-taking ability than monolinguals. Third, the ability to understand other individuals’ motives and actions should be linked to lower levels of political discrimination against ethnic outgroups.

One immediate consequence of bilingual education is an increase in the number of hours that a student will have to read, write, and speak in a second language. As previously mentioned, I focus on the effects of language as a *medium of instruction* for content subjects such as History and Math, as opposed to language as a *subject* such as Spanish classes in schools. One key difference is the level of second language immersion. In particular, the former approach creates a more naturalistic learning environment by providing a purpose for second language use in the classroom as well as increasing the amount of exposure to the second language (Dalton-Puffer et al., 2010). This increases the likelihood that students will develop into bilingual speakers in the future (Reljić et al., 2015; Rolstad et al., 2005).

By improving their proficiency in the second language, students develop into bilinguals whose perspective-taking ability is widely considered to be superior to monolinguals. Schroeder (2018) summarizes three prevailing accounts from cognitive science and psychology for why bilinguals are better at comprehending other individuals’ intentions and actions than monolinguals. First, bilingualism improves executive functioning such as attention control, working memory, and inhibition abilities – i.e., cognitive functions that are crucial for perspective-taking (Bialystok and Viswanathan, 2009; Carlson and Meltzoff, 2008). Due to the process of frequently switching between two languages and the suppression of one medium to use the other, bilingual speakers are subconsciously trained to control and downweigh their prior beliefs and knowledge while “up-regulating” and shifting their attention toward understanding another person’s mental state (Schroeder, 2018; Zhang et al., 2015).

A second set of explanations focuses on bilinguals’ heightened sense of metalinguistic awareness, defined as the ability to dissect and reflect on the properties of a language (Bia-

lystok and Barac, 2012). This innate capacity to distinguish between, for instance, a language that has gender markings (e.g., Russian) and a genderless tongue (e.g., Estonian) might be translated into a more general understanding that two people may interpret and react to the same event differently (see Pérez and Tavits, 2019b). In turn, bilinguals' cognitive flexibility to alter their predispositions and opinions under different linguistic contexts might explain why they perform better than monolinguals in assuming the beliefs and motivations of a perspective-taking target while downplaying their own mental states (see Liu et al., 2018). Lastly, the socio-pragmatic account postulates that the ability to switch between multiple languages allows bilinguals to operate more effectively in multicultural settings. This leads to a greater appreciation that different language speakers may subscribe to different sets of beliefs and values, as well as an improved ability to consider another person's thoughts and actions (Fan et al., 2015; Goetz, 2003; Ringe, 2022).

Taken together, the ability to take the perspectives of others can be improved when individuals are constantly forced to switch between two (or more) languages (e.g., Fan et al., 2015; Goetz, 2003; Schroeder, 2018).¹ This process of adapting and catering to the linguistic needs of different audiences is analogous to the cognitive process of switching and taking the perspectives of others. The higher the rate of language switching, the better the ability to take the perspectives of others. Moreover, the fact that perspective-taking effects are observed among Arabic-Hebrew speakers in Israel (Bekerman and Horenczyk, 2004), English-Tamil bilinguals in India (Bialystok and Viswanathan, 2009), Hungarian-Serbian bilinguals in Serbia (Javor, 2017) etc., suggests that the link between bilingualism and perspective-taking ability may be applicable across a wide variety of linguistic and country contexts. Put simply, these explanations are agnostic about whether a specific type of second language promotes the development of perspective-taking ability. Although it is conceivable that the strength of the relationship may vary across different types of languages,² the baseline expectation

¹Indeed, the above mechanisms can also be generalized to multilingual contexts where people learn and speak more than two languages.

²For instance, speaking a minority tongue may induce more perspective-taking by promoting intergroup conversations (see Tavits and Pérez, 2019; Wright and Tropp, 2005).

of this paper is that perspective-taking effects should still be observed in settings where the second language spoken is not native to any ethnic groups in the country.

This ability to display greater sensitivity toward another person’s mental state in turn reduces bilinguals’ susceptibility to discriminate against ethnic outgroups. By incorporating the other in the self, perspective-takers develop a sense of connectedness with the perspective-taking target (Galinsky et al., 2005), of which the latter is transformed from a member of an objective outgroup (e.g., ethnicity) into a subjective ingroup (i.e., shared mental states between the perspective-taker and the target). Taking the perspective of an ethnic outgroup member who, for instance, has been denied entry into a university because of their ethnic membership, may also lead to a more general realization that this predicament extends to other members of the target’s ethnic group as well (Todd et al., 2012). In addition, studies have shown that the propensity to attribute negative facts about an ethnic outgroup to dispositional – as opposed to situational – explanations can be reduced by perspective-taking (Todd et al., 2012). Notwithstanding its salutary influence on ethnic attitudes, perspective-taking is linked to more inclusive attitudes and behavior toward a variety of ostracized social groups, such as refugees and immigrants (Adida et al., 2018; Kalla and Broockman, 2020), the LGBTQ+ community (Broockman and Kalla, 2016), and former perpetrators of political violence (Bilali and Vollhardt, 2013).

Overall, bilinguals’ propensity to exhibit less ethnic discrimination may be explained by their perspective-taking ability, which is accumulated over time due to their bilingual training at home and/or at school. In other words, bilinguals are *ex ante* more mindful of other individuals’ beliefs and actions, and are more likely to practice perspective-taking as an everyday social function than monolinguals. For instance, Singh et al. (2020) observe that bilingual English-Mandarin children in Singapore exhibited less implicit bias against African race individuals than children who only spoke Mandarin. This finding is remarkable, considering the fact that people of African descent constitute less than one percent of the resident population in Singapore and that the participants did not receive any perspective-

taking stimuli during the study. This therefore rules out the possibility of interethnic contact or other interventions as intermediary factors inducing perspective-taking among bilinguals. Put simply, perspective-taking may be viewed as a cognitive ability that can be activated even in the absence of intergroup contact or other perspective-taking inducements.

To summarize the theoretical arguments, the primary expectation of this article is that individuals who received bilingual instruction should display less political discrimination against ethnic outgroups than those who received monolingual instruction. A prolonged exposure to bilingual education increases the likelihood that an individual develops into a bilingual speaker who is more adept at seeing things from other individuals' vantage points. The resulting improvement in perspective-taking ability should in turn reduce bilinguals' propensity to discriminate against ethnic outgroups.

Case Selection: Bilingual Instruction in Malaysia

I test my claims by exploiting the exogenous introduction of an education reform in Malaysia. There are several reasons why Malaysia is an ideal case for analyzing the effects of bilingual instruction on ethnic outgroup discrimination. First, Malaysia is a multi-ethnic country where ethnicity is a salient political issue (Weiss, 1999). It comprises three main ethnic groups: Malays and other indigenous peoples (67.4%), Chinese (24.6%), and Indians (7.3%). Since its independence in 1957, the Prime Minister has always come from the ethnic majority group. Political parties are also organized primarily along ethnic lines. In addition, the constitution contains provisions that grant a “special position” to Malays while the rights of other ethnic minorities are marginalized. The introduction of the New Economic Policy in 1971 further exacerbated the unequal treatment of ethnic minorities through the use of pro-Malay quotas for admission into public universities, civil service employment and business licenses. These policies continue to garner widespread support among ethnic Malays.³ Hence,

³According to one survey, 59 percent of Malay respondents agreed or strongly agreed that Malays should continue to enjoy special rights and privileges because they are the original inhabitants of the country (Merdeka Center for Opinion Research, 2010).

Malaysia provides an interesting test case to examine whether the reform had any impact in promoting more inclusive political attitudes among members of an ethnic majority group.

The second reason relates to the nature of the education reform in Malaysia. Given that the second language – i.e., English – was only used to deliver STEM (i.e., Science, Technology, Engineering, and Math) content, it seems reasonable to expect that the amount of second language immersion in Malaysian schools should be lower than, for instance, the use of the second language to teach humanities subjects such as History or Geography. However, if we can still observe significant effects in the Malaysia case, then it stands to reason that these effects should be considerably larger in other contexts where bilingual education is practiced in disciplines that require a more intensive use of the second language. In addition, English is a language that is not native to any ethnic groups in Malaysia.⁴ As such, the Malaysia case represents a hard empirical test of my theoretical expectations.

Third, the Malaysia case provides a unique natural experimental setting that helps avoid several empirical challenges for causal inference. This is important because it is difficult to test the proposed hypothesis empirically. For one, the type of language of instruction received may be confounded by other pretreatment factors, such as parents' outgroup biases (Huddy and Sears, 1995). Moreover, analyzing the political effects of bilingual education through an experimental framework may pose ethical concerns for participants, as the type of language of instruction used in schools can have significant future repercussions on the development of human capital and labor outcomes (Laitin and Ramachandran, 2016).

Education Reform in Malaysia

Concerned about the general lack of English literacy among ethnic Malays, the Malaysian government announced on May 6, 2002, that Math and Science would be taught in English

⁴According to Wave 7 of the World Values Survey (WVS, Haerpfer et al., 2022), the proportions of Malay, Chinese and Indian respondents in Malaysia who speak English at home are 6.9, 18.7, and 38.2 percent respectively. In contrast, more than half of the respondents from each of the three ethnic groups speak their mother tongue at home.

in all public primary and secondary schools starting 2003.⁵ As part of the nationwide reform, students who were beginning their form one education in 2003 (or the equivalent of grade seven) and subsequent cohorts received English instruction for STEM subjects. This meant that Malay students who were affected by the reform were exposed to bilingual instruction during their five-year secondary school education – i.e., Math and Science were taught in English while non-STEM classes were delivered in *Bahasa Melayu*. In contrast, the reform did not apply to secondary school students who had already advanced to form two or higher in 2003; hence these students continued to receive *Bahasa Melayu* instruction for all subjects including Math and Science – i.e., monolingual instruction.

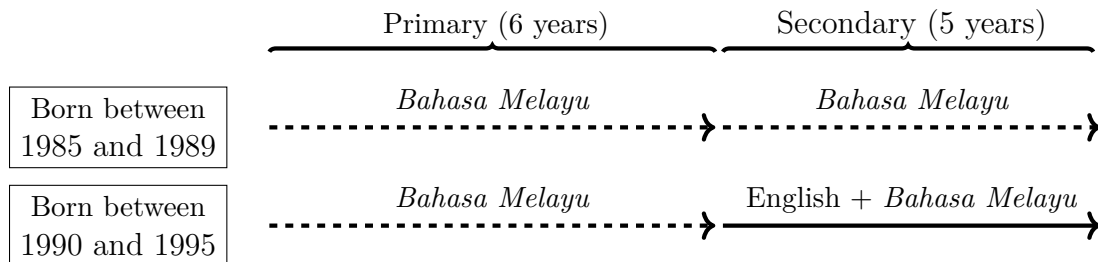
Given that children in Malaysia typically begin their formal education at the age of seven as well as the fact that the education system is structured on a $6 + 5 + 2$ model,⁶ we can identify how the reform affected different birth year cohorts of Malay students (Figure 1). The pioneer cohort of form one students who received bilingual instruction were born in 1990 – i.e., they would have turned thirteen years old in 2003. In contrast, Malay students who were born in 1989 and earlier studied both STEM and non-STEM subjects in *Bahasa Melayu* – i.e., they would have advanced to form two or higher in 2003 thereby missing the cutoff to study STEM subjects in English. Given the narrow timeline between the announcement date (i.e., May 6, 2002) and the implementation of the reform (i.e., January 2003), it is also unlikely that students manipulated the likelihood of receiving English or *Bahasa Melayu* instruction. Grade skipping and repetition are also uncommon in Malaysian schools. Finally, besides the language reform in 2003, there were no major curricular changes that occurred during this period. Overall, these observations imply the quasi-randomized nature of the reform in assigning the type of language of instruction used in Malaysia schools.

There are several reasons to think that the reform might be successful in improving second

⁵This article focuses on ethnic Malay secondary school students who were affected by the reform. I provide detailed descriptions of the Malaysian education system and the language reform in Supplementary Information (SI) section SI1.

⁶Students in Malaysia generally receive six years of primary school education, five years of secondary school education, and two years of pre-university training.

Figure 1: **Language of Instruction in Malaysian Public Schools for Ethnic Malays**



language proficiency among affected students in Malaysia. First, the reform substantially increased the number of teaching hours dedicated to second language instruction: about 40 percent of the teaching time was dedicated to English instruction, with the remaining 60 percent being taught in *Bahasa Melayu* (Gill, 2013). According to a 2008 survey of 1,700 ethnic Malay students, more than 90 percent indicated that their teachers used either an English-only approach or a combination of English and *Bahasa Melayu* instruction to teach Math and Science (Isahak et al., 2008). This suggests that affected Malay students, when compared to their predecessors, experienced a higher rate of language switching between their mother tongue and English in the classroom. Second, the reform affected intermediate learners who had acquired a basic level of English literacy since English is a compulsory subject at the elementary level, thereby making the transition from monolingual to bilingual instruction less onerous.⁷ Third, the Malaysian government put in place additional measures to ensure that teachers were properly trained to deliver STEM classes in English. These include the introduction of a national re-training program for STEM teachers and a buddy support system that matched STEM teachers with their language counterparts (Tan, 2011).

Survey Design & Empirical Strategy

I fielded a survey comprising more than 2,000 participants in March 2022.⁸ The survey was administered in *Bahasa Melayu* to ensure consistency in the interpretation of the questions

⁷However, it must be emphasized that students did not spend a significant amount of time learning English at the primary school level since a majority of the classes were still delivered in their native tongue.

⁸SI section SI2a provides details on the survey design, variable measurements, and descriptive statistics.

(Pérez, 2017) and to eliminate any unintended language effects that might contaminate the findings (see Pérez and Tavits, 2019a,b).

The sampling frame of the survey comprises individuals who (1) are ethnic Malays, (2) were born between 1985 and 1995, and (3) had completed their secondary school graduation examination (i.e., *Sijil Pelajaran Malaysia*, SPM). On the first requirement, I exclude other ethnic minorities, given that most ethnic Malays enroll into public secondary schools that were not immune from the reform in 2003.⁹ Second, I did not sample ethnic Malays who were born before 1985 or after 1995 as they were operating under a different set of language regimes.¹⁰ The final prerequisite – i.e., secondary school graduation – ensures that the main reason why a participant was exposed to bilingual or monolingual instruction in a secondary school can be explained by their birth year. This minimizes the range of potential explanations for non-compliance. For instance, some individuals received neither monolingual nor bilingual instruction at the secondary school level because they did not enroll into a secondary school. This also excludes individuals who did not receive the full extent of monolingual or bilingual instruction because they had dropped out of secondary school.¹¹

Measuring Political Discrimination Against Ethnic Outgroups

I define ethnic outgroup political discrimination as an individual’s propensity to deny members of ethnic outgroups to participate in a country’s political process (see Sorens, 2010). Specifically, attitudinal displays of political discrimination on the basis of ethnic identity may be manifested through an individual’s (1) preference toward the country’s chief executive, (2) view on the political rights of non-coethnic members in the country, and (3) opinion regarding the role of ethnic identities in shaping interparty competition in the country. Questions

⁹Only one percent of the respondents indicated that they had attended private secondary schools. Responses from these participants were dropped from the empirical analyses. I also exclude ethnic Chinese due to their preference to enroll into Chinese independent high schools that were exempted from the reform.

¹⁰See SI section SI1c for a description of the different types of language regimes implemented in Malaysian schools across different birth year cohorts of Malay students.

¹¹It should also be pointed out that only 7.8 percent of the population of interest – i.e., ethnic Malays who were born between 1985 and 1995 – did not complete secondary school education, according to the 2010 Malaysian census data.

were adapted from existing attitudinal surveys in Malaysia (e.g., Al Ramiah et al., 2017; Merdeka Center for Opinion Research, 2010).

The first dimension measures an individual’s preference with regard to the ethnicity of the country’s chief executive. *Coethnic PM* measures a Malay respondent’s level of agreement (on a 4-point Likert scale) toward the statement, “The Prime Minister of Malaysia should always be a Malay.” Second, *Ethnic Rights* asked respondents whether they strongly disagreed, disagreed, agreed, or strongly agreed with the view that “People should be treated and given the same rights in Malaysia regardless of race or religion.” The last aspect, *Ethnic Party*, relates to participants’ opinions about the ethnicized nature of interparty competition in Malaysia. Respondents read the following statement: “There should be no race-based parties in Malaysia.” A higher level of disagreement implies that the respondent supports the continued presence of ethnic parties to protect Malay interests. Responses to the three outcome questions were recoded and normalized to unit length so that larger values reflect greater political discrimination against non-coethnic groups.¹²

Measuring Mechanisms: English Proficiency & Perspective-Taking Ability

To measure second language proficiency, the survey asked participants the following question: “In your opinion, how well do you know English?” *English Proficiency* is coded on a 5-point Likert scale, ranging from “Do not know the language at all” to “Fluent.” Responses are normalized to facilitate interpretation. Although a more objective measure of English literacy would be to ask respondents to provide English test results, it is possible that a large proportion of respondents might not remember their scores as they had left school for more than a decade, thereby leading to more incorrect or missing responses.

Perspective-taking ability is measured using the perspective-taking sub-scale from the Interpersonal Reactivity Index (IRI, see Davis, 1983). Specifically, participants read a total

¹²The survey also asked participants about their preferences in relation to the ethnicity of their local political representative. However, this outcome variable was dropped from the empirical analyses due to measurement error. This is discussed in SI section SI2b.

of seven statements that measure their perspective-taking ability (e.g., “Before criticizing somebody, I try to imagine how I would feel if I were in their place”) and answer on a 5-point Likert scale ranging from “Does not describe me well” to “Describes me very well.” Responses are normalized and averaged to create a composite score of a respondent’s *Perspective-Taking* ability (Cronbach’s $\alpha = 0.67$). One benefit of the IRI is that the items can be easily administered in a survey setting. The perspective-taking sub-scale from the IRI has also been shown to correlate strongly with other common measures of cognitive empathy, such as the Basic Empathy Scale (Jolliffe and Farrington, 2006).

Pretreatment Covariates

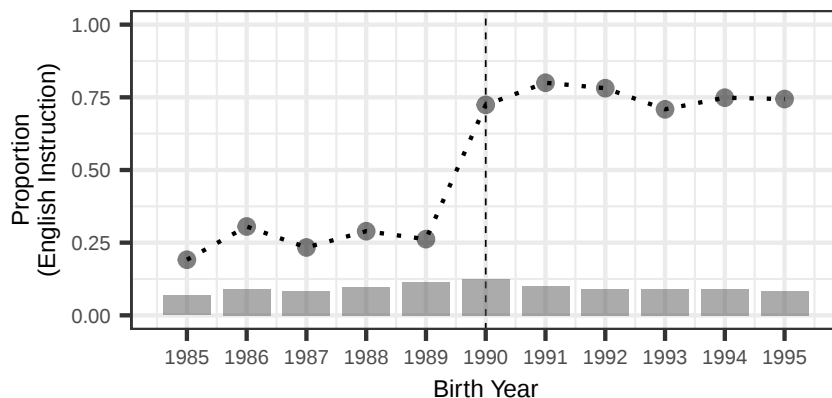
The first pretreatment covariate is *Female*, which equals one for female respondents and zero otherwise. Next, *Urban School* equals one if a respondent attended an urban secondary school and zero otherwise. Compared to their urban counterparts, it is possible that students from rural schools were more likely to receive monolingual instruction in their native tongue even if they were born after the cutoff, due to differences in teaching quality. This may therefore lead to subsequent rural-urban disparities in the level of compliance with the education reform, second language proficiency, perspective-taking ability, and outgroup attitudes. Finally, *Home Language* measures a respondent’s language exposure at home. This is a categorical variable that consists of three mutually exclusive categories: (1) only speak *Bahasa Melayu* at home, (2) only speak English at home, and (3) speak more than one language at home. In particular, individuals who come from English-only or multilingual families may possess more cosmopolitan outlooks, or may be exposed to a broader range of positive narratives (e.g., from overseas news outlets) about ethnic outgroups at home (Hu and Liu, 2020).

Empirical Strategy

Recall that the language of instruction for STEM subjects at the secondary school level should be English for Malays who were born between 1990 and 1995, and *Bahasa Melayu*

for those who were born between 1985 and 1989. To verify if the reform coincided with participants' birth years, respondents indicated during the survey whether English or *Bahasa Melayu* was used to teach STEM subjects during their secondary school education. According to Figure 2, the reform should be regarded as an encouragement intervention, by increasing the probability that a respondent who was born between 1990 and 1995 received English instruction for STEM subjects at the secondary school level.¹³

Figure 2: **Respondents' Birth Year & Language of Instruction for STEM Subjects**



Notes: The vertical bars reflect the frequency distribution of the respondents by their birth years. Each point refers to the proportion of individuals in a cohort who reported that English was used to teach STEM subjects at the secondary school level. The vertical dashed line refers to the cutoff year at 1990.

In light of Figure 2, I implement a set of fuzzy regression discontinuity (RD) models to estimate the local average treatment effect (LATE) of bilingual instruction on ethnic outgroup attitudes. *Reform* is an instrument that equals one if a respondent's birthdate falls between 1990 and 1995, and zero otherwise. The main predictor is *Bilingual Instruction*, which equals one if the respondent reported that English was used to teach STEM subjects during their secondary school education, and zero otherwise. Note that individuals who received English instruction for STEM subjects also received *Bahasa Melayu* instruction for non-STEM subjects – hence bilingual instruction. In contrast, those who reported *Bahasa Melayu* instruction for STEM classes received the same language of instruction for non-STEM subjects – hence monolingual instruction. The running variable x_i is defined as the

¹³I also provide additional evidence that the reform significantly predicts the type of language of instruction used in Malaysian schools through both linear and logit regression models (Table SI2c.6).

difference in the number of days between a respondent’s birthdate and January 1, 1990, i.e., $x_i = \text{Date of Birth}_i - \text{January 1, 1990}$. Formally,

$$\text{First Stage: Bilingual Instruction}_i = \alpha + \gamma \text{Reform}_i + f(x_i) + \psi Z_i + \epsilon_i$$

$$\text{Second Stage: } Y_i = \zeta + \beta \widehat{\text{Bilingual Instruction}}_i + f(x_i) + \delta Z_i + \mu_i$$

where Y_i is the outcome measure of ethnic outgroup political discrimination, and Z_i is a vector of pretreatment covariate values. I also consider both linear and quadratic functions of the running variable – i.e., $f(x_i)$. Finally, the LATE is estimated by picking an optimal bandwidth within which the functional form between the running variable and the outcome measure can be approximated using $f(x_i)$, with larger triangular kernel weights assigned to observations that are closer to the cutoff at January 1, 1990 (Calonico et al., 2014, 2020).

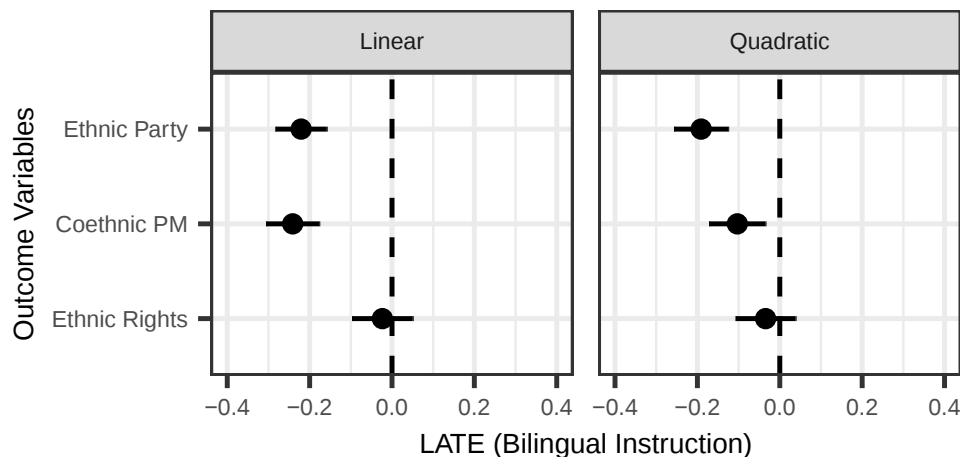
The above empirical strategy is valid insofar as four additional assumptions are satisfied. First, Figure 2 demonstrates that the reform significantly predicts the likelihood of receiving bilingual instruction (relevance). Second, respondents on either side of the cutoff are similar in every aspect, less the probability of receiving bilingual instruction (independence). Third, the reform only affected ethnic discrimination through its effect on *Bilingual Instruction* (exclusion restriction). Lastly, it is unlikely that individuals would make a conscious effort to do the exact opposite of what they were supposed to do before or after the reform (“no-defiers” assumption). I address these empirical concerns in the next section.

Results

Figure 3 reports the effects of bilingual instruction on ethnic outgroup attitudes. By and large, the results provide support for the paper’s main prediction: bilingual education reduces political discrimination against ethnic outgroups. The point estimates for *Bilingual Instruction* are negative across all three measures of ethnic outgroup discrimination, though it is insignificant for *Ethnic Rights*. In particular, bilingual instruction is associated with

lower levels of support for a coethnic Prime Minister (*Coethnic PM*) and the presence of ethnic parties in Malaysia (*Ethnic Party*). The coefficients are also robust to different polynomial functions of the running variable. Moreover, the estimated effect sizes are substantively meaningful, with an average LATE of about 0.2 for each of the two outcome measures. Recall that *Coethnic PM* and *Ethnic Party* were measured on a 4-point Likert scale, and rescaled to unit length. As such, compared to those who were taught solely in their native language, respondents who received bilingual instruction register, on average, a 0.8 point less political discrimination against ethnic outgroups on a 4-point Likert scale (i.e., $0.2 \times 4 = 0.8$).

Figure 3: **Bilingual Instruction Reduces Ethnic Outgroup Political Discrimination**



Notes: The figure illustrates the LATEs of *Bilingual Instruction* on the three outcome measures of ethnic outgroup political discrimination using linear (left plot) and quadratic (right plot) functions of the running variable. Each horizontal line is the 95% confidence interval of the point estimate (robust standard errors). The values for each of the three outcome measures range between zero and one, with larger values reflecting more ethnic outgroup discrimination. The pretreatment covariates are *Female*, *Home Language*, and *Urban School*. Full results are reported in Table SI3a.7.

Overall, the results from Figure 3 illustrate the enduring effects of bilingual education in bringing about more inclusive political attitudes among affected students in Malaysia. The fact that we can detect significant and substantial differences in ethnic outgroup attitudes among participants who had left school for more than a decade is remarkable. This further validates the belief that intergroup prejudice can be reliably and durably reduced during a person's formative years. In addition, the findings could be interpreted as a conservative

estimate of the (true) impact of bilingual instruction on ethnic outgroup attitudes, given that the second language was used to deliver STEM content, and that English is a language that is not native to any ethnic groups in Malaysia. Put differently, it is possible that the effect sizes could be substantially larger if the second language was taught in non-STEM settings where the level of language immersion was higher, or if ethnic Malays had to learn a minority tongue that would better facilitate interethnic contact and perspective-taking (Bekerman and Horenczyk, 2004; Wright and Tropp, 2005).

Bilingual Instruction Improves English Literacy & Perspective-Taking Ability

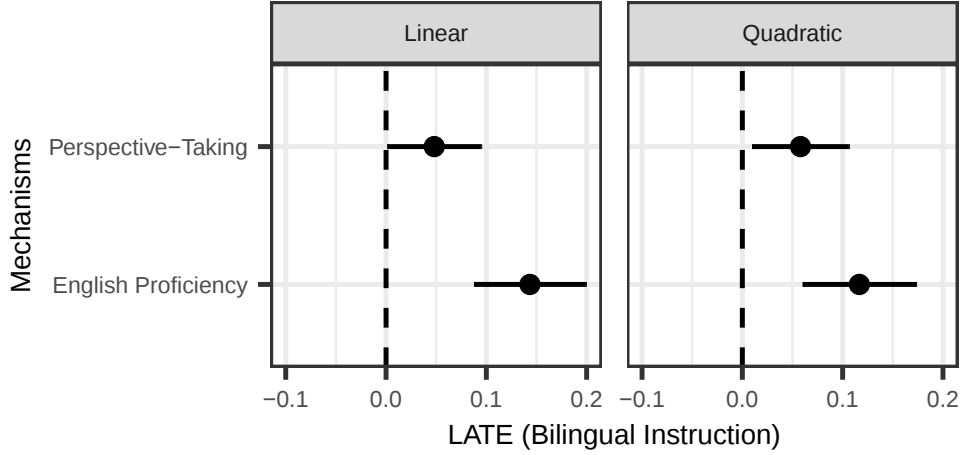
Next, I provide suggestive evidence that the patterns above likely stem from improvements in second language literacy and perspective-taking ability among individuals who received bilingual education. One testable implication is that individuals who received bilingual instruction should report higher levels of second language proficiency than those who received monolingual instruction. A second expectation is that bilingual instruction promotes the development of perspective-taking ability among affected students.

I test the two implications by replacing the outcome variable with *English Proficiency* or *Perspective-Taking* in the fuzzy RD models.¹⁴ Figure 4 reports the LATEs of bilingual instruction on English literacy and perspective-taking ability. In line with the two expectations, respondents who were exogenously assigned to bilingual instruction report higher levels of English literacy and are better at taking the perspectives of others. In addition, the provision of bilingual instruction had sizeable effects on self-reported English proficiency (mean = 0.72, sd = 0.23) and perspective-taking ability (mean = 0.68, sd = 0.16), amounting to a 0.63 and 0.29 standard deviation improvement among affected respondents for the linear RD models (i.e., left plot in Figure 4).

Above all, it is notable that we can detect statistically significant associations between

¹⁴Note that the assumptions should hold even when the outcome variables are changed to *English Proficiency* or *Perspective-Taking*. For instance, it is unlikely that the reform predicts both outcomes through alternative channels other than the language of instruction used in schools (exclusion restriction), or that respondents who were supposed to receive English instruction chose to do the opposite (“no-defiers”).

Figure 4: **Bilingual Instruction Improves English Literacy & Perspective-Taking**



Notes: The figure illustrates the LATEs of *Bilingual Instruction* on *English Proficiency* and *Perspective-Taking* using linear (left plot) and quadratic (right plot) functions of the running variable. Each horizontal line is the 95% confidence interval of the point estimate (robust standard errors). The values for each of the two mechanisms range between zero and one, with larger values reflecting higher levels of self-reported English literacy and perspective-taking ability. The pretreatment covariates are *Female*, *Home Language*, and *Urban School*. Full results are reported in Table SI3b.8.

bilingual instruction and perspective-taking ability across different RD model specifications, given that the survey did not introduce any vignettes or information that would induce participants – especially those who received bilingual instruction in the past – to think in the shoes of others. Overall, the results from Figure 4 are consistent with the argument that bilingual instruction mitigates ethnic outgroup discrimination by improving second language proficiency and perspective-taking ability, though they do not represent direct evidence that this relationship is mediated by the two mechanisms.

Robustness Checks

I conduct additional analyses to verify the main findings. Unless specified otherwise, results of the robustness tests are reported in Supplementary Information (SI) section SI3c.

First, I show that the main findings are robust to a variety of alternative RD model specifications, such as allowing the running variable to take on different coefficients on either side of the discontinuity (Table SI3c.9), including a different set of kernel weights (Table

SI3c.9), and using different bandwidths and sample sizes (Table SI3c.10). I also find that *Bilingual Instruction* fails to predict the outcome measures when I introduce placebo reforms occurring two and three years before the actual cutoff date at January 1, 1990 (Table SI3c.11).

Second, I demonstrate that respondents who were and were not affected by the reform are largely balanced on the pretreatment and posttreatment covariates (i.e., independence assumption), especially for those who were born closer to the cutoff (Table SI3c.12). I also consider the degree in which the main results could be generalized to the population of ethnic Malays who were born between 1985 and 1995.¹⁵ Following [Marbach and Hangartner \(2020\)](#), I show that the compliers in the sample tend to be females, are more likely to come from families that only speak *Bahasa Melayu* at home, and are more likely to have attended a rural secondary school (Figure SI3c.2). As such, while the main findings may not be generalizable to the entire population, they reflect changes in political attitudes among ethnic Malay participants who stood a high chance of remaining as monolinguals – and hence might display more outgroup discrimination – if not for the reform in 2003.

Finally, I examine the possibility that the reform affected outgroup discrimination through alternative channels other than the language of instruction used in schools (exclusion restriction). One possible violation is that the switch from *Bahasa Melayu* to English instruction might have persuaded more ethnic Chinese parents to admit their children into public secondary schools, which in turn might facilitate greater interethnic contact and less prejudice.¹⁶ Table SI3c.13 shows that the reform does not predict the frequency and quality of interethnic interactions, thus mitigating the plausibility of this mechanism. Another possible violation builds on the idea that younger people are generally more tolerant than their older counterparts ([Janmaat and Keating, 2019](#)). As such, the education reform may affect ethnic attitudes through the same factors that contribute to this phenomenon (e.g., exposure to

¹⁵The finding that bilingual instruction promotes inclusive attitudes only apply to a subset of Malays who complied with the assigned treatment – that is, those who received bilingual instruction as a result of the reform and those who received monolingual instruction because they were born before the cutoff.

¹⁶It should be noted that ethnic Chinese parents in Malaysia generally prefer to send their children to Chinese independent high schools, given that these schools offer a Mandarin-based curriculum.

diverse opinions on social media). Although a direct test of this contention is not feasible, an examination of the baseline fuzzy RD models reveals that the point estimates for the running variable are all positive and statistically significant (Table SI3a.7). In other words, the later a person’s birthdate, the higher the level of ethnic outgroup discrimination. This contradicts the intuition underlying this possible violation (at least in the Malaysia case).

Alternative Explanations

I consider three potential alternative explanations for the main findings. The first relates to the bundle of posttreatment measures that were omitted from the baseline models, such as education and employment status. For instance, exposure to English instruction in schools expands the range of higher education options and employment opportunities among affected Malay individuals. It is therefore possible that these socioeconomic mechanisms may mediate the extent in which bilingual instruction affects ethnic outgroup discrimination. I account for this concern by including a broader set of social and economic controls in the models. The same key findings are obtained after accounting for respondents’ highest education qualification, marital status, income, and employment situation (Table SI3d.14).

Another alternative explanation is that bilingual instruction may facilitate interethnic contact by providing a common linguistic medium for different ethnic groups to communicate with each other, thereby resulting in more positive evaluations of outgroup members (Wright and Tropp, 2005). It is also possible that these interethnic interactions may induce greater perspective-taking among individuals who were affected by the education reform. To assuage these concerns, I replicate the fuzzy RD models by regressing two measures of interethnic contact – i.e., frequency and quality of interactions – on *Bilingual Instruction*, with *Reform* as the instrumental variable. I find that bilingual instruction does not increase the quantity and quality of interethnic contact (Table SI3d.15), thereby suggesting that the relationship between bilingual education and ethnic outgroup discrimination could not be mediated by intergroup contact between Malays and other minority groups in Malaysia.

Lastly, another interpretation of the findings is that the observed patterns may be a consequence of using English as a language of instruction in schools, as opposed to the more general expectation that bilingual instruction promotes politically inclusive ethnic attitudes. Specifically, the results may be a reflection of the suggestion that English literacy is associated with more cosmopolitan (ergo more tolerant) attitudes, given its status as a lingua franca in many multicultural and global settings (Hu and Liu, 2020).

I test the possibility of this alternative explanation by investigating whether there is any meaningful difference between English-speaking bilinguals and non-English-speaking bilinguals in Malaysia. If the results were primarily influenced by the effect of English instruction as opposed to bilingual instruction, then we could make the parallel argument that English-speaking bilinguals should exhibit less political discrimination against ethnic outgroups than non-English-speaking bilinguals. Table SI3d.16 reports the results from a series of models where the outcome measures of ethnic discrimination are regressed on a binary indicator of whether a respondent speaks English among a subset of bilingual speakers.¹⁷ Accordingly, differences in ethnic discrimination cannot be explained by whether the second language spoken by a bilingual respondent is English or not.

Generalizability of Findings

Before concluding, it is useful to consider the generalizability of the findings beyond the Malaysia case. Recall that the theoretical link between bilingual instruction and inclusive attitudes stems from the primary claim that bilinguals are better perspective-takers and hence should display less outgroup discrimination than monolingual speakers. As such, this expectation should also apply to (1) a broader set of bilinguals who do not speak *Bahasa Melayu* or English, and (2) a wider set of social outgroups such as immigrants.

To test these implications, I conduct a cross-national analysis using the latest wave of the

¹⁷The survey also asked participants to list the languages that they speak outside their homes. As such, I measure bilingualism based on whether a respondent speaks more than one language at home or outside.

Asian Barometer Survey (ABS, 2017), which spans over 15,000 participants from more than 10 East and Southeast Asian countries. Unlike most global and regional surveys such as the World Values Survey, one benefit of analyzing the ABS is that the survey asked respondents whether they speak only local language, only official language, or a mixture of local and official languages at home.¹⁸ This allows for the construction of the main predictor variable in the cross-national analysis – i.e., *Bilingualism*, which equals one if a respondent speaks a mixture of local and official languages at home, and zero otherwise. Another benefit is that the region is home to a large proportion of bilinguals for whom English is neither their first nor second language. It is estimated that less than 10 percent of the population in the 14 ABS countries speak English as their first or second language (Eberhard et al., 2022). As such, the ABS analysis provides a robust test of the expectation that bilinguals should exhibit less outgroup prejudice regardless of the type of languages spoken.

I rely on two items to measure outgroup attitudes. The first is *Ethnic Inequality*, which asked whether respondents strongly agreed (1), agreed (2), disagreed (3), or strongly disagreed (4) with the view that “all citizens from different ethnic communities in your country are treated equally by the government.” I expect that bilinguals should display stronger disagreement toward this statement, given their heightened sensitivity toward the perspectives and plights of other ethnic outgroups in their country. The second is *Anti-Immigrant*, a 4-point ordinal variable measuring respondents’ opinions on whether the government should increase or decrease the flow of immigrants into their country. Larger values reflect stronger anti-immigrant sentiments. Accordingly, bilinguals should exhibit less anti-immigrant tendencies than monolingual speakers.

Table 1 presents the results from a series of linear models where *Ethnic Inequality* and *Anti-Immigrant* are regressed on *Bilingualism* and a set of socioeconomic controls such as education and income, as well as country fixed effects. Consistent with my theory, bilingual respondents tend to perceive that some ethnic communities are treated unfairly by their gov-

¹⁸Indeed, the latest wave of the World Values Survey (Haerpfer et al., 2022) specifically requests interviewers to only code one answer to the question “What language do you normally speak at home?”

Table 1: **Bilinguals Display Less Outgroup Discrimination**

DV =	Ethnic Inequality		Anti-Immigrant	
	All Respondents	Exclude English-Speaking Countries	All Respondents	Exclude English-Speaking Countries
Bilingualism	0.049* (0.022)	0.048* (0.023)	-0.074** (0.026)	-0.055† (0.031)
<i>N</i>	12,726	9,616	10,586	7,516
Country FE	Yes	Yes	Yes	Yes

Notes: Table entries are unstandardized coefficient estimates. Robust standard errors are displayed in parentheses. The values for *Ethnic Inequality* and *Anti-Immigrant* range between 1 and 4. The larger the *Ethnic Inequality*, the stronger the respondent feels that different ethnic groups are treated unfairly by the government. In contrast, the larger the *Anti-Immigrant*, the weaker the respondent discriminates against immigrants in their country. English-speaking countries refer to countries where a substantial proportion of their residents speak English as their first or second language. These are Hong Kong, Malaysia, Singapore, and Philippines. Control variables include education, gender, age, marital status, income, whether the respondent lives in an urban or rural area, and whether the respondent identifies with a religion. Country fixed effects are also included in the models. Full results are reported in Table SI4.17. ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$.

ernment in their country. They also display less xenophobic sentiments than monolinguals. Similar findings are observed even when respondents from English-speaking countries – i.e., where a substantial proportion of their citizens speak English as the first or second language (i.e., Hong Kong, Malaysia, Singapore, and Philippines) – are excluded from the analysis.

Conclusion

In this article, I show that differences in ethnic outgroup attitudes can be traced to an individual’s language training in school. Specifically, I demonstrate the causal effects of bilingual education on ethnic outgroup discrimination by leveraging the as-if random assignment of the language of instruction in Malaysian schools due to the sudden introduction of an education reform in 2003. I find that ethnic Malays who received bilingual instruction displayed less political discrimination against ethnic outgroups. The empirical analyses also provide suggestive evidence that this relationship might be mediated by increases in second language proficiency and perspective-taking ability among affected students. In addition, the main findings are robust to different RD model specifications and to different tests of the

identifying assumptions (e.g., independence and exclusion restriction). I also rule out alternative explanations such as interethnic contact and whether the findings stemmed from the effect of English instruction. Finally, I triangulate the results from the Malaysia case with cross-national evidence from the ABS, and find preliminary support for the link between bilingualism and inclusive political attitudes across a broader set of non-English-speaking bilinguals and social outgroups such as immigrants.

The findings from this paper make several important contributions. First, this study expands the traditional understanding that education influences political attitudes and behavior primarily through the acquisition of civic skills and political knowledge. I demonstrate that education also improves our cognitive ability to assume the vantage points of ethnic outgroup members in our midst. More broadly, the findings indicate that a person’s education represents a bundle of experiences inside and outside the classroom, from the language of instruction used to the types of extracurricular activities offered. Hence, unpacking this bundle of experiences – through a rigorous analysis of other facets of the education system – represents an important step for future scholars to resolve some of the theoretical issues that remain unsolved in the education literature (Cavaille and Marshall, 2019; Persson, 2015).

Second, this article contributes to the more general understanding that the language(s) we speak can influence our social and political outlooks. The finding that bilingual instruction promotes the development of perspective-taking ability and lowers intergroup prejudice in Malaysia speaks to recent calls for a wider investigation of language’s effects on affective, cognitive, and behavioral political outcomes (Pérez and Tavits, 2017). To my knowledge, this research is also one of the first that uncovers an empirical connection between bilingualism and outgroup tolerance at a cross-national level. Admittedly, the statistical tests are not perfect, primarily because we lack a good empirical measure of a person’s linguistic diversity at home and/or outside. As such, future iterations of cross-national surveys should allow respondents to freely specify the language(s) they speak at home and outside, thereby enabling future researchers to test this phenomenon more robustly.

Finally, the results also bear lessons for what types of policy interventions might have long-lasting impacts on prejudice reduction. The fact that this study was able to detect significant differences in perspective-taking ability and ethnic attitudes among Malays who had left school for more than a decade underscores the persistent influence of pre-adult factors in shaping a person’s later-life political attitudes. Hence, a more durable solution to the problem of intergroup prejudice may not lie in inducing one-off perspective-taking by reading about marginalized groups, but in cultivating perspective-taking ability through early life interventions such as bilingual education. Future works should devote attention toward investigating the efficacy of other agents of political socialization and how these inclusionary effects might also apply to other ostracized groups such as the LGBT community.

References

- Acharya, Avidit, Matthew Blackwell and Maya Sen. 2016. “The Political Legacy of American Slavery.” *The Journal of Politics* 78(3):621–641.
- Adida, Claire L. 2015. “Do African Voters Favor Coethnics? Evidence from a Survey Experiment in Benin.” *Journal of Experimental Political Science* 2(1):1–11.
- Adida, Claire L., Adeline Lo and Melina R. Platas. 2018. “Perspective Taking Can Promote Short-Term Inclusionary Behavior Toward Syrian Refugees.” *Proceedings of the National Academy of Sciences* 115(38):9521–9526.
- Adida, Claire L., Nathan Combes, Adeline Lo and Alex Verink. 2016. “The Spousal Bump: Do Cross-Ethnic Marriages Increase Political Support in Multiethnic Democracies?” *Comparative Political Studies* 49(5):635–661.
- Al Ramiah, Ananthi, Miles Hewstone and Ralf Wölfer. 2017. *Attitudes and Ethnoreligious Integration: Meeting the Challenge and Maximizing the Promise of Multicultural Malaysia*. Malaysia: CIMB Foundation.
- Asian Barometer. 2017. *Asian Barometer Survey Wave 4*. Taipei: Hu Fu Center for East Asia Democratic Studies, National Taiwan University.
- Bekerman, Zvi and Gabriel Horenczyk. 2004. “Arab-Jewish Bilingual Coeducation in Is-

- rael: A Long-Term Approach to Intergroup Conflict Resolution.” *Journal of Social Issues* 60(2):389–404.
- Bialystok, Ellen and Mythili Viswanathan. 2009. “Components of Executive Control With Advantages for Bilingual Children in Two Cultures.” *Cognition* 112(3):494–500.
- Bialystok, Ellen and Raluca Barac. 2012. “Emerging Bilingualism: Dissociating Advantages for Metalinguistic Awareness and Executive Control.” *Cognition* 122(1):67–73.
- Bilali, Rezarta and Johanna Ray Vollhardt. 2013. “Priming Effects of a Reconciliation Radio Drama on Historical Perspective-Taking in the Aftermath of Mass Violence in Rwanda.” *Journal of Experimental Social Psychology* 49(1):144–151.
- Broockman, David and Joshua Kalla. 2016. “Durably Reducing Transphobia: A Field Experiment on Door-to-Door Canvassing.” *Science* 352(6282):220–224.
- Buhaug, Halvard, Lars-Erik Cederman and Kristian Skrede Gleditsch. 2014. “Square Pegs in Round Holes: Inequalities, Grievances, and Civil War.” *International Studies Quarterly* 58(2):418–431.
- Calonico, Sebastian, Matias D Cattaneo and Max H Farrell. 2020. “Optimal Bandwidth Choice for Robust Bias-Corrected Inference in Regression Discontinuity Designs.” *The Econometrics Journal* 23(2):192–210.
- Calonico, Sebastian, Matias D. Cattaneo and Rocio Titiunik. 2014. “Robust Non-parametric Confidence Intervals for Regression-Discontinuity Designs.” *Econometrica* 82(6):2295–2326.
- Campbell, David E. and Richard G. Niemi. 2016. “Testing Civics: State-Level Civic Education Requirements and Political Knowledge.” *American Political Science Review* 110(3):495–511.
- Carlson, Stephanie M. and Andrew N. Meltzoff. 2008. “Bilingual Experience and Executive Functioning in Young Children.” *Developmental Science* 11(2):282–298.
- Cavaille, Charlotte and John Marshall. 2019. “Education and Anti-Immigration Attitudes: Evidence from Compulsory Schooling Reforms across Western Europe.” *American Political Science Review* 113(1):254–263.
- Cederman, Lars-Erik, Andreas Wimmer and Brian Min. 2010. “Why Do Ethnic Groups Rebel? New Data and Analysis.” *World Politics* 62(1):87–119.

- Chauchard, Simon. 2017. *Why Representation Matters: The Meaning of Ethnic Quotas in Rural India*. Cambridge: Cambridge University Press.
- Dalton-Puffer, Christiane, Tarja Nikula and Ute Smit, eds. 2010. *Language Use and Language Learning in CLIL Classrooms*. Amsterdam; Philadelphia: John Benjamins.
- Davis, Mark H. 1983. "Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach." *Journal of Personality and Social Psychology* 44(1):113–126.
- Dunning, Thad and Janhavi Nilekani. 2013. "Ethnic Quotas and Political Mobilization: Caste, Parties, and Distribution in Indian Village Councils." *American Political Science Review* 107(1):35–56.
- Eberhard, David M., Gary F. Simons and Charles D. Fennig, eds. 2022. *Ethnologue: Languages of the World*. Twenty-fifth ed. Dallas, Texas: SIL International.
- Ejdemyr, Simon, Eric Kramon and Amanda Lea Robinson. 2018. "Segregation, Ethnic Favoritism, and the Strategic Targeting of Local Public Goods." *Comparative Political Studies* 51(9):1111–1143.
- Fan, Samantha P., Zoe Liberman, Boaz Keysar and Katherine D. Kinzler. 2015. "The Exposure Advantage: Early Exposure to a Multilingual Environment Promotes Effective Communication." *Psychological Science* 26(7):1090–1097.
- Ferree, Karen E. 2006. "Explaining South Africa's Racial Census." *The Journal of Politics* 68(4):803–815.
- Finkel, Steven E. and Howard R. Ernst. 2005. "Civic Education in Post-Apartheid South Africa: Alternative Paths to the Development of Political Knowledge and Democratic Values." *Political Psychology* 26(3):333–364.
- Galinsky, Adam D., Gillian Ku and Cynthia S. Wang. 2005. "Perspective-Taking and Self-Other Overlap: Fostering Social Bonds and Facilitating Social Coordination." *Group Processes & Intergroup Relations* 8(2):109–124.
- Gill, Saran Kaur. 2013. *Language Policy Challenges in Multi-Ethnic Malaysia*. Dordrecht: Springer.
- Goetz, Peggy J. 2003. "The Effects of Bilingualism on Theory of Mind Development." *Bilingualism: Language and Cognition* 6(1):1–15.

- Haerpfer, Christian W., Ronald Inglehart, Alejandro Moreno, Christian Welzel, Kseniya Kizilova, Juan Diez-Medrano, Marta Lagos, Pippa Norris, Eduard Ponarin and Bi Pura-nen, eds. 2022. *World Values Survey: Round Seven - Country-Pooled Datafile*. Madrid, Spain & Vienna, Austria: JD Systems Institute & WVSA Secretariat.
- Hu, Yue and Amy H. Liu. 2020. "The Effects of Foreign Language Proficiency on Public Attitudes: Evidence from the Chinese-Speaking World." *Journal of East Asian Studies* 20(1):1–23.
- Huddy, Leonie and David O. Sears. 1995. "Opposition to Bilingual Education: Prejudice or the Defense of Realistic Interests?" *Social Psychology Quarterly* 58(2):133–143.
- Isahak, Haron, Abdul Latif Hj. Gapor, Md Nasir bin Masran, Abdul Halim bin Ibrahim and Mariam binti Mohamed Nor. 2008. *Kesan dasar pengajaran matematik dan sains dalam bahasa Inggeris di sekolah rendah [The Effects of the Teaching of Mathematics and Science in English in Primary Schools]*. Tanjung Malim, Malaysia: Penerbit Universiti Pendidikan Sultan Idris.
- Janmaat, Jan G. and Avril Keating. 2019. "Are Today's Youth More Tolerant? Trends in Tolerance Among Young People in Britain." *Ethnicities* 19(1):44–65.
- Javor, Rebeka. 2017. "Bilingualism, Theory of Mind and Perspective-Taking: The Effect of Early Bilingual Exposure." *Psychology and Behavioral Sciences* 5(6):143.
- Jolliffe, Darrick and David P. Farrington. 2006. "Development and Validation of the Basic Empathy Scale." *Journal of Adolescence* 29(4):589–611.
- Kalla, Joshua L. and David E. Broockman. 2020. "Reducing Exclusionary Attitudes through Interpersonal Conversation: Evidence from Three Field Experiments." *American Political Science Review* 114(2):410–425.
- Kramon, Eric and Daniel N. Posner. 2016. "Ethnic Favoritism in Education in Kenya." *Quarterly Journal of Political Science* 11(1):1–58.
- Laitin, David D. and Rajesh Ramachandran. 2016. "Language Policy and Human Development." *American Political Science Review* 110(3):457–480.
- Lajevardi, Nazita. 2021. "The Media Matters: Muslim American Portrayals and the Effects on Mass Attitudes." *The Journal of Politics* 83(3):1060–1079.
- Liu, Amy H. 2011. "Linguistic Effects of Political Institutions." *The Journal of Politics* 73(1):125–139.

- Liu, Amy H., Sarah Shair-Rosenfield, Lindsey R. Vance and Zsombor Csata. 2018. “Linguistic Origins of Gender Equality and Women’s Rights.” *Gender & Society* 32(1):82–108.
- Marbach, Moritz and Dominik Hangartner. 2020. “Profiling Compliers and Noncompliers for Instrumental-Variable Analysis.” *Political Analysis* 28(3):435–444.
- Merdeka Center for Opinion Research. 2010. Malaysian Political Values Survey. Technical report Merdeka Center for Opinion Research.
URL: <https://merdeka.org/v2/?s=political+values+survey>
- Nelsen, Matthew D. 2021. “Teaching Citizenship: Race and the Behavioral Effects of American Civic Education.” *Journal of Race, Ethnicity, and Politics* 6(1):157–186.
- Neundorff, Anja, Richard G. Niemi and Kaat Smets. 2016. “The Compensation Effect of Civic Education on Political Engagement: How Civics Classes Make Up for Missing Parental Socialization.” *Political Behavior* 38(4):921–949.
- Niemi, Richard G. and Jane Junn. 1998. *Civic Education: What Makes Students Learn*. New Haven, CT: Yale University Press.
- Ostwald, Kai, Elvin Ong and Dimitar Gueorguiev. 2019. “Language Politics, Education, and Ethnic Integration: The Pluralist Dilemma in Singapore.” *Politics, Groups, and Identities* 7(1):89–108.
- Paluck, Elizabeth Levy, Roni Porat, Chelsey S. Clark and Donald P. Green. 2021. “Prejudice Reduction: Progress and Challenges.” *Annual Review of Psychology* 72(1):533–560.
- Parthasarathy, Ramya. 2017. “Ethnic Quotas as Term-Limits: Caste and Distributive Politics in South India.” *Comparative Political Studies* 50(13):1735–1767.
- Persson, Mikael. 2015. “Education and Political Participation.” *British Journal of Political Science* 45(3):689–703.
- Pérez, Efrén O. 2017. “The Origins and Implications of Language Effects in Multilingual Surveys: A MIMIC Approach with Application to Latino Political Attitudes.” *Political Analysis* 19(4):434–454.
- Pérez, Efrén O. and Margit Tavits. 2017. “Language Shapes People’s Time Perspective and Support for Future-Oriented Policies.” *American Journal of Political Science* 61(3):715–727.

- Pérez, Efrén O. and Margit Tavits. 2019a. "Language Heightens the Political Salience of Ethnic Divisions." *Journal of Experimental Political Science* 6(2):131–140.
- Pérez, Efrén O. and Margit Tavits. 2019b. "Language Influences Public Attitudes toward Gender Equality." *The Journal of Politics* 81(1):81–93.
- Reljić, Gabrijela, Dieter Ferring and Romain Martin. 2015. "A Meta-Analysis on the Effectiveness of Bilingual Programs in Europe." *Review of Educational Research* 85(1):92–128.
- Ringe, Nils. 2022. *The Language(s) of Politics: Multilingual Policy-Making in the European Union*. Ann Arbor: University of Michigan Press.
- Rolstad, Kellie, Kate Mahoney and Gene V. Glass. 2005. "The Big Picture: A Meta-Analysis of Program Effectiveness Research on English Language Learners." *Educational Policy* 19(4):572–594.
- Schroeder, Scott R. 2018. "Do Bilinguals Have an Advantage in Theory of Mind? A Meta-Analysis." *Frontiers in Communication* 3:36.
- Sears, David O. and Carolyn L. Funk. 1999. "Evidence of the Long-Term Persistence of Adults' Political Predispositions." *The Journal of Politics* 61(1):1–28.
- Singh, Leher, Paul C. Quinn, Miao Qian and Kang Lee. 2020. "Bilingualism is Associated with Less Racial Bias in Preschool Children." *Developmental Psychology* 56(5):888–896.
- Sorens, Jason. 2010. "The Politics and Economics of Official Ethnic Discrimination: A Global Statistical Analysis, 1950–2003." *International Studies Quarterly* 54(2):535–560.
- Tan, May. 2011. "Mathematics and Science Teachers' Beliefs and Practices Regarding the Teaching of Language in Content Learning." *Language Teaching Research* 15(3):325–342.
- Tavits, Margit and Efrén O. Pérez. 2019. "Language Influences Mass Opinion Toward Gender and LGBT Equality." *Proceedings of the National Academy of Sciences* 116(34):16781–16786.
- Tesler, Michael. 2015. "Priming Predispositions and Changing Policy Positions: An Account of When Mass Opinion Is Primed or Changed." *American Journal of Political Science* 59(4):806–824.
- Todd, Andrew R., Galen V. Bodenhausen and Adam D. Galinsky. 2012. "Perspective Taking Combats the Denial of Intergroup Discrimination." *Journal of Experimental Social Psychology* 48(3):738–745.

- Weiss, Chagai M. 2021. “Diversity in Health Care Institutions Reduces Israeli Patients’ Prejudice Toward Arabs.” *Proceedings of the National Academy of Sciences* 118(14):e2022634118.
- Weiss, Meredith L. 1999. “What Will Become of Reformasi? Ethnicity and Changing Political Norms in Malaysia.” *Contemporary Southeast Asia* 21(3):424–450.
- Wright, Stephen C. and Linda R. Tropp. 2005. “Language and Intergroup Contact: Investigating the Impact of Bilingual Instruction on Children’s Intergroup Attitudes.” *Group Processes & Intergroup Relations* 8(3):309–328.
- Zhang, Haoyun, Chunyan Kang, Yanjing Wu, Fengyang Ma and Taomei Guo. 2015. “Improving Proactive Control with Training on Language Switching in Bilinguals.” *NeuroReport* 26(6):354–359.