# Discrimination, language brokering efficacy, and academic competence among adolescent language brokers

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ABSTRACT

Introduction: Discrimination is detrimental for the development of ethnic minority adolescents' academic competence. To combat the negative effects of discrimination and promote academic success, it is important to understand the mechanisms underlying the association between discrimination and academic competence. Guided by the integrative model of ethnic minority children's development and the adapting cultural systems framework, this study examined whether a culture-specific factor, language brokering efficacy, mediated the relation between adolescents' perceived discrimination and their academic competence.
Method: Data were drawn form a two-wave longitudinal study of 604 Mexican American adolescent language brokers residing in and around a metropolitan city in central Texas, USA (54% female; $M_{age}$ = 12.5; SD = 1.0; 75% born in the U.S.). Path analyses were conducted to answer the research questions.
Results: The study revealed that the link between discrimination and academic competence was mediated by language brokering efficacy when translating for fathers and mothers, although the path from language brokering efficacy to academic competence was stronger when brokering for mothers.
Conclusions: The results highlight the importance of incorporating ethnic minority children's adapting cultural experiences in linking the contextual influence with their developmental competence. Implications for interventions aiming to reduce the negative impacts of discrimination are also discussed.

The Latino population, the largest and fastest-growing ethnic minority group in the United States, has demonstrated a clear educational achievement gap with the general population. Latino children are found to experience more academic difficulties (e.g., lower levels of school readiness, higher school dropout rates, and worse academic outcomes) compared to their White and Asian American counterparts (Musu-Gillette et al., 2016). There are negative long-term consequences for such low academic achievement. For example, individuals without a high school degree are more likely to have lower annual incomes compared to those with a high school degree, and they are more at risk of living below the poverty line (Musu-Gillette et al., 2016). Scholars have identified the discriminatory experience as a significant risk factor for such academic difficulties (Benner et al., 2018; English, Lambert, & Ialongo, 2016). Thus, gaining a clearer understanding of the mechanisms underlying the association between discrimination and academic

outcomes is essential to improve the academic achievement of the Latino population (Lopez, Passel, & Rohal, 2015).

The integrative model of ethnic minority children's competencies (García Coll et al., 1996) suggests that discrimination can exert a negative influence on ethnic minority adolescents' developmental competence indirectly through their experiences in adapting to the new culture and environment. White, Nair, and Bradley (2018) further proposed an adapting cultural system framework positing that adapting cultural experiences are transactional in nature, reflecting the influence of both the heritage and mainstream U.S. culture. One salient aspect of such adapting cultural experiences for Mexican American adolescents is their role as cultural and linguistic brokers. As language brokers, adolescents mediate between the heritage language/culture and U.S. language/culture for their English-limited immigrant parents (White et al., 2018). Around 71%–89% of Mexican American children from immigrant families have served as language brokers and regarded language brokering as a part of their daily lives (Chao, 2006, pp. 271–296).

In the brokering process, adolescent language brokers often have to communicate interpersonally with members of the U.S. culture and are likely to be exposed to more discriminatory treatment (Guan, Nash, & Orellana, 2016; Kam, Marcoulides, & Merolla, 2017). Discriminatory experiences may influence how brokers feel about language brokering. For example, when adolescents perceive more unfair treatment and interpret this negative feedback as discriminatory, they may internalize these negative interactions, thinking that they are not good at translating, and then develop low brokering efficacy. This lower sense of brokering efficacy may then spread to other domains of motivation based on self-efficacy theory (Maddux, 1995), and this has the potential to undermine adolescents' academic achievement. Taken together, there are theoretical and empirical reasons that language brokering efficacy may mediate the link between discrimination and academic competence; however, there is a dearth of research in investigating this mechanism.

To fill this gap, the current study used a longitudinal sample of Mexican Americans, the largest subgroup of Latinos in the U.S. (Lopez et al., 2015), to examine whether language brokering efficacy can possibly explain one of the processes through which discrimination influences academic competence among language brokers. We specifically focused on early adolescence because (a) children in immigrant families typically begin language brokering between the ages of 8 and 12 (Morales & Hanson, 2005); (b) children often start recognizing the social cues of differential treatment during early adolescence (Spears Brown & Bigler, 2005); and (c) early adolescence is the developmental stage in which general declines in academic motivation and school achievement are commonly observed (Eccles & Midgley, 1990, pp. 134–155).

## 1. Discrimination, language brokering efficacy, and academic competence

Discrimination is prevalent in the lives of Latino adolescents (Arellano-Morales et al., 2015) and it also plays a central role in adolescent development (García Coll et al., 1996). The direct association between adolescents' perceived discrimination and their academic achievement is well demonstrated in the extant literature (see, Benner et al., 2018). For example, studies have found that Latino adolescents with greater self-reported discrimination were more likely to struggle academically (Chithambo, Huey Jr, & Cespedes-Knadle, 2014) and have lower levels of academic motivation (Perreira, Fuligni, & Potochnick, 2010). Recognizing the multifaceted nature of academic outcomes (Crosnoe & Benner, 2015), the current study examines academic competence as a multidimensional construct that encompasses grades, school engagement, and learning goals (i.e., the goals for achievement that encompass the mindset and attitude to acquire new knowledge or skills, Grant & Dweck, 2003). We aim to illustrate the mechanism underlying the link between discrimination and low academic competence by examining the potential mediating effect of adapting cultural experience, language brokering.

Garcia Coll's integrative model (1996) suggests that minority children's experiences of discrimination can negatively impact their adapting cultural experiences, which in turn, influence child developmental competence. Thus, discrimination may affect adolescents' psychological experiences of language brokering to influence academic competence. For example, when adolescents are placed in a highly discriminatory environment where they perceive more negative feedback and unfair treatment, they may feel less confident and competent in their ability to translate for their parents (Kim et al., 2018). Kam and Lazarevic (2014b) found that adolescents derive a sense of efficacy towards brokering when they feel confident about it and Borrero's qualitative work (2015) showed that the confidence Latino brokers developed in brokering is a cultural asset. These types of positive psychological experiences (e.g., efficacy) during language brokering have been associated with more positive adolescent outcomes including higher levels of students' reading comprehension (Borrero, 2015), academic performance (Buriel, Perez, De Ment, Chavez, & Moran, 1998), and academic self-efficacy (Acoach & Webb, 2004).

## 2. The role of parent gender

Most extant studies on language brokering focus only on adolescents' brokering experiences for mothers (Kam & Lazarevic, 2014a; Shen, Kim, Wang, & Chao, 2014); however, adolescents also perform brokering tasks for fathers. As patriarchal gender roles (e.g., mothers being the caretakers, fathers serving as the authority figures) are strongly emphasized in Mexican American families (Updegraff et al., 2014), it is likely that adolescents interact with their parents differently and that their brokering experiences may also differ by parent gender. Initial evidence has shown that adolescent brokers are more involved in brokering for mothers than fathers as they translate more frequently for mothers (Chao, 2006, pp. 271–296) and derive a greater sense of efficacy as well as burden when brokering for mothers (Wu & Kim, 2009). Thus, it is possible that the efficacy derived from brokering for mothers may have a more influential effect on adolescent brokers' academic competence, and it may also be a more salient mediator in linking discrimination and academic competence.
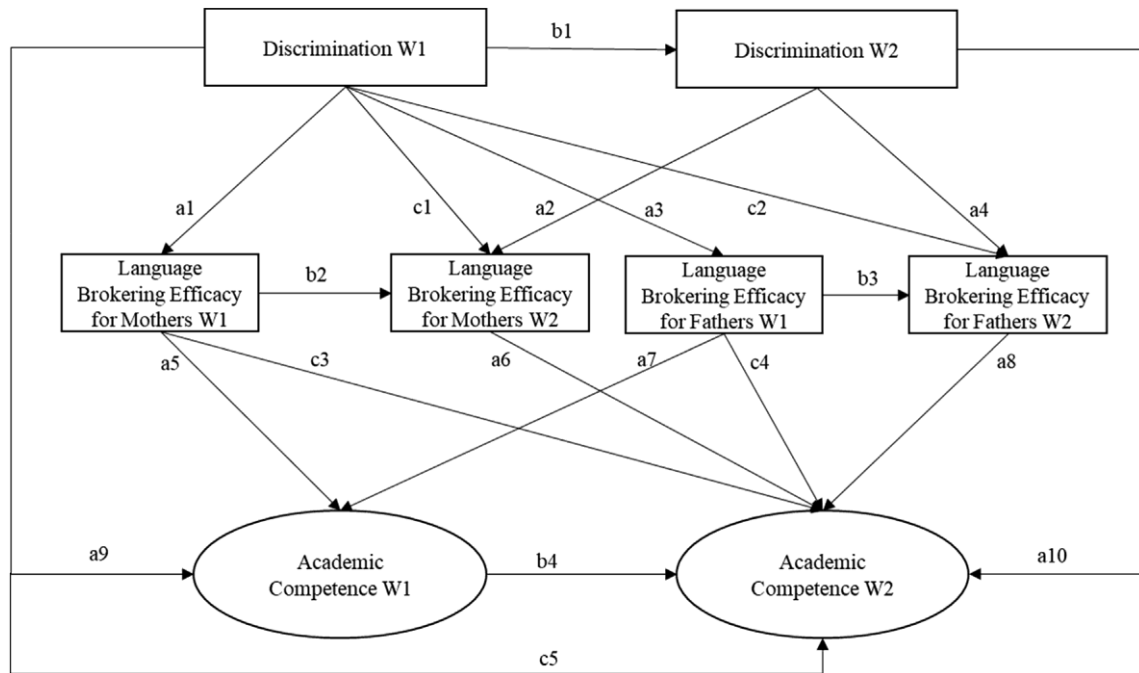
Fig. 1. Conceptual model linking adolescents' perceived discrimination, language brokering efficacy and academic competence.

## 3. Current study

There are two aims in the current study (see Fig. 1 for the conceptual model). First, we examined the mediating effect of language brokering efficacy on the relation between discrimination and academic competence. We hypothesized that the discriminatory treatment that adolescent brokers perceived would make them feel less efficacious in conducting brokering tasks, which would, in turn, undermine brokers' academic competence. Second, we explored whether the mediational model operates differently when adolescents translate for fathers versus mothers.

The current study also tested an alternative model that examined whether academic competence mediated the link between discrimination and language brokering efficacy given the potential bidirectional relation between language brokering efficacy and academic competence. According to Bandura (1977), academic achievement is promotive in building individuals' sense of efficacy. Indeed, one recent study found that, while self-efficacy tends to decline during early adolescence, students with better math achievement are likely to experience less steep declines (Soland, 2019). Based on the theoretical and empirical evidence, the alternative model tested whether discriminatory experiences negatively influenced adolescents' academic competence, and whether competence, in turn, drove adolescents to feel less efficacious in their brokering abilities.

## 4. Method

### 4.1. Participants

Data for the current investigation come from a two-wave longitudinal study of 604 Mexican American immigrant families residing in and around a metropolitan city in central Texas, USA. Data were collected when adolescents were in sixth through eighth grades ($M_{age}$ = 12.41, SD = 0.97) at Wave 1. Slightly over half of the sample was female (N = 328, 54.3%), and most adolescent participants were born in the U.S. (N = 455, 75.3%). Both the mean and median family income were between $20,001 to $30,000, with a majority of families (89%) reporting family incomes lower than $50,001. For both fathers and mothers, the mean and median highest education level was finished middle school. Almost all parents were born in Mexico (98.6% of fathers, 99.3% of mothers).

### 4.2. Procedures

Participants were recruited through public records, school presentations, and community recruitment from 2012 to 2015. To qualify for participation, parents were required to be of Mexican origin with a child in middle school who translated for at least one parent. A family visit was scheduled to obtain parents' consent and adolescent assent after families were screened as eligible. Bilingual and bicultural interviewers read questions aloud and entered participants' responses on a laptop computer. Both languages, English and Spanish, were also presented together on the questionnaires administered to the participants. In total, two waves of data (approximately one year apart) were collected following these procedures. Of the 604 families participating in Wave 1, 483 (80%)

Table 1
Bivariate correlations, means, and standard deviation for study variables.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Discrimination W1 | – | | | | | | | | | | | |
| 2 Discrimination W2 | .54** | – | | | | | | | | | | |
| 3 Brokering efficacy for mothers W1 | -.20** | -.15** | – | | | | | | | | | |
| 4 Brokering efficacy for mothers W2 | -.17** | -.24** | .50** | – | | | | | | | | |
| 5 Brokering efficacy for fathers W1 | -.22** | -.21** | .75** | .53** | – | | | | | | | |
| 6 Brokering efficacy for fathers W2 | -.24** | -.22** | .44** | .71** | .53** | – | | | | | | |
| 7 Learning goals W1 | -.12** | -.21** | .35** | .28** | .33** | .27** | – | | | | | |
| 8 Learning goals W2 | -.21** | -.22** | .23** | .27** | .25** | .24** | .43** | – | | | | |
| 9 School engagement W1 | -.27** | -.23** | .40** | .34** | .36** | .32** | .53** | .40** | – | | | |
| 10 School engagement W2 | -.22** | -.27** | .24** | .38** | .28** | .31** | .38** | .55** | .51** | – | | |
| 11 Grades W1 | -.13** | -.13** | .23** | .23** | .21** | .16** | .32** | .24** | .37** | .31** | – | |
| 12 Grades W2 | -.11* | -.14** | .13** | .24** | .17** | .27** | .26** | .22** | .33** | .38** | .51** | – |
| Mean | 1.63 | 1.56 | 3.4 | 3.44 | 3.37 | 3.38 | 3.91 | 3.87 | 3.91 | 3.88 | 10.1 | 10.01 |
| SD | .48 | .47 | .71 | .67 | .76 | .67 | .68 | .6 | .58 | 1.81 | 1.90 | |
| Min observed values | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 |
| Max observed values | 3.89 | 3.67 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 13.00 | 13.00 |
| N | 604 | 483 | 602 | 482 | 530 | 419 | 604 | 483 | 604 | 483 | 602 | 482 |

Note. W1 = Wave 1; W2 = Wave 2. **p < .01.

families also agreed to participate in Wave 2. Families that participated were compensated $60 at Wave 1 and $90 at Wave 2. Attrition analyses were conducted to compare families who participated in both waves to those who had dropped out at Wave 2 on demographic variables and all study variables at Wave 1. No differences were found between groups except that for families that continued participating, parents tended to have higher education ($t_{mother}$ (591) = 2.41, p < .05; $t_{father}$ (291) = 3.13, p < .01).

### 4.3. Measures

Descriptive statistics and bivariate correlations for the measures appear in Table 1. All measures assessing central study constructs were collected at Waves 1 and 2.

#### 4.3.1. Discrimination

Adolescents' perceived discrimination was measured by the daily discrimination scale (Kessler, Mickelson, & Williams, 1999). This scale was measured by nine items (e.g., I am treated with less courtesy than other people") using a four-point scale (ranging from "1 = never" to "4 = often"), with higher mean scores indicating more experiences of being the target of discrimination (α = 0.82 at wave 1 and α = 0.84 at wave 2).

#### 4.3.2. Language brokering efficacy

Adolescents' efficacy as a translator for parents was assessed by four items derived from Kim, Hou, Shen, and Zhang (2017) (e.g., "I am good at translating for my mother (or father)"). Adolescents reported for mothers and fathers separately on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher mean scores reflected a higher sense of efficacy (α = 0.87 and 0.90 for fathers at wave 1 and 2, α = 0.83 and 0.84 for mother at wave 1 and 2).

#### 4.3.3. Academic competence

The latent variable of academic competence relied on adolescents' self-reports of three measures—grades, learning goals, and school engagement. Adolescents identified their grades on a 13-point scale ranging from 1 (F) to 13 (A+). Learning goals were assessed by two items derived from Grant and Dweck's study (2003), including "I strive to constantly learn and improve in classes," and "in my classes I focus on developing my abilities and acquiring new ones." Adolescents reported on a scale of 1 (strongly disagree) to 5 (strongly agree), with higher mean scores reflecting greater levels of learning goals. Spearman-Brown coefficient is often used to examine the reliability of two-item scales (Eisinga, Grotenhuis, & Pelzer, 2013). Spearman-Brown coefficient of this scale was 0.57 and 0.60 at waves 1 and 2, respectively. School engagement was based on four items derived from Hou, Kim, and Benner (2017). A sample item is "I am motivated to get good grades in school." Adolescents reported on a scale of 1 (strongly disagree) to 5 (strongly agree), with higher scores reflecting higher levels of school engagement (α = 0.76 and 0.77 at waves 1 and 2, respectively). Tests of the measurement model suggested that the three indicators loaded well on the latent variable of academic competence: λs ranging from 0.49 to 0.77, p < .001 at W1; λs ranging from 0.54 to 0.75, p < .001 at W2.

#### 4.3.4. Covariates

A set of demographic variables were included as covariates in the current study, including adolescent age, gender, nativity (i.e., whether born in the U.S.), and parental education and income given their association with adolescents' developmental outcomes demonstrated in prior studies (Conger & Donnellan, 2007; Yip, Gee, & Takeuchi, 2008). Parents reported on their highest education level on a scale of 1 (no formal schooling) to 11 (finished graduate degree). Parents self-reported their income using 11-point scale,

ranging from 1 ($10,000 or under) to 11 ($110,001 or more).

In addition, adolescent language brokering frequency and language proficiency were included as covariates because prior studies have demonstrated that these factors relate to language brokering experiences as well as adolescents' academic outcomes (Acoach & Webb, 2004; Halgunseth, 2003). Adolescents reported, in general, how often they translated for their mothers and fathers separately, on a scale ranging from 1 (never) to 6 (daily). Language proficiency was assessed by three self-reported items each for English and Spanish: "How well do you speak and understand English (or Spanish)?" "How well do you read English (or Spanish)" and "How well do you write English (or Spanish)?". Adolescents reported on a 5-point scale ranging from 1 (not well) to 5 (extremely well). Higher mean scores reflected better language skills ($\alpha = 0.83$ and $0.80$ for English and Spanish, respectively). We chose this self-reported measure because prior research has found that the self-reported measures of language proficiency were reliably correlated with the objective measure (Dunn & Fox Tree, 2009).

### 4.4. Analysis plan

Path analyses were conducted using Mplus 7.3 (Muthén & Muthén, 1998-2011), which handles missing data through the full-information maximum likelihood (FIML) estimation. Psychometric analyses showed that all the study variables were normally distributed. To test whether discrimination related to adolescents' academic competence indirectly through language brokering efficacy, we analyzed a path model shown in Fig. 1. Adolescents' language brokering efficacy when translating for fathers and mothers were included in the same model to recognize potential shared variance. In the path model, adolescents' perceived discrimination, language brokering efficacy, and adolescents' academic competence were measured at both Wave 1 and Wave 2; MacCallum and Austin (2000) emphasized the importance of including autoregressive effects as well as concurrent relations of constructs when estimating longitudinal effects. Thus, we tested the concurrent paths (a1-a10 in Fig. 1), stability paths (autoregressive; b1-b4), and longitudinal paths (cross-lagged; c1-c5) among the study constructs simultaneously. This modeling makes it possible to examine the longitudinal relations (c paths) while controlling for prior levels of study variables (b paths). In addition, we are able to examine whether the longitudinal relations (c paths) are mediated by the concurrent (a paths) and/or stability paths (b paths). All the potential mediating pathways from discrimination (at Waves 1 and 2) to the academic competence (at wave 2) were examined.

Second, to test whether the paths differed across brokering for fathers versus mothers, we conducted tests of structural invariance. We used a stepwise process whereby we initially estimated the base (i.e., full) model; we then constrained each individual set of pathways across brokering for fathers and mothers to be equal (e.g., a1 and a3 paths, c1 and c2 paths). We used chi-square difference tests to determine whether the more constrained model resulted in a significant decrease in the overall model fit. Significant decreases would suggest that the constrained model fits the data worse than the full model and, as such, that there are meaningful differences across brokering for fathers and mothers.

## 5. Results

### 5.1. Linking discrimination, brokering efficacy, and academic competence

The conceptual model fit the data well, $\chi^2(126) = 305.26$, $p = 0.00$, comparative fit index (CFI) $= 0.93$, root mean square error of approximation (RMSEA) $= 0.05$ [CI: 0.04, 0.06], standard root mean-square residual (SRMR) $= 0.05$. The standardized path parameters for the model are presented in Fig. 2.

#### 5.1.1. Direct links among central study constructs

The general pattern of concurrent relations (a paths) were significant in the models. Specifically, discrimination was negatively related to language brokering efficacy within each wave and when brokering for both fathers (a3 and a4 paths) and mothers (a1 and a2 paths). Language brokering efficacy when brokering for mothers was positively related to academic competence within each wave (a5 and a6 paths), whereas brokering efficacy when translating for fathers was positively related to academic competence within Wave 1 (a7 path) but not Wave 2 (a8 path). Discrimination was negatively related to academic competence within each wave (a9 and a10 paths).

In general, the cross-lagged paths (c paths) did not emerge as significant despite significant longitudinal zero-order correlations between discrimination, language brokering efficacy, and academic competence (see Table 1). The non-significant cross-lagged paths is likely because the relations were fully mediated by the concurrent and stability paths. For example, the relation between discrimination at W1 and brokering efficacy for mothers at W2 was mediated by brokering efficacy for mothers at W1 ($\beta = -0.07$, $p < .001$). The only significant cross-lagged path was that language brokering efficacy for mothers at W1 was negatively related to academic competence at W2 ($\beta = -0.21$, $p < 0.01$). This significant negative path contrasts with the significant positive bivariate correlation between brokering efficacy for mothers at W1 and the three indicators of academic competence at W2 (r ranged from 0.13 to 0.24). This discrepancy suggests a suppression effect in our proposed model, which may be due to the strong stability of academic competence across the two study waves ($\beta = 0.85$, $p < .001$). To further test this, we analyzed a model that did not include Wave 1 academic competence. This model fit the data well ($\chi^2(84) = 176.63$, $p = .00$, RMSEA $= 0.04$ [CI: 0.03, 0.05], CFI $= 0.95$, SRMR $= 0.05$), and the previously negative path from brokering efficacy for mothers at W1 to academic competence at W2 became non-significant ($\beta = 0.00$, $p = 0.99$). Results for other parts of the model were similar to the previous model.
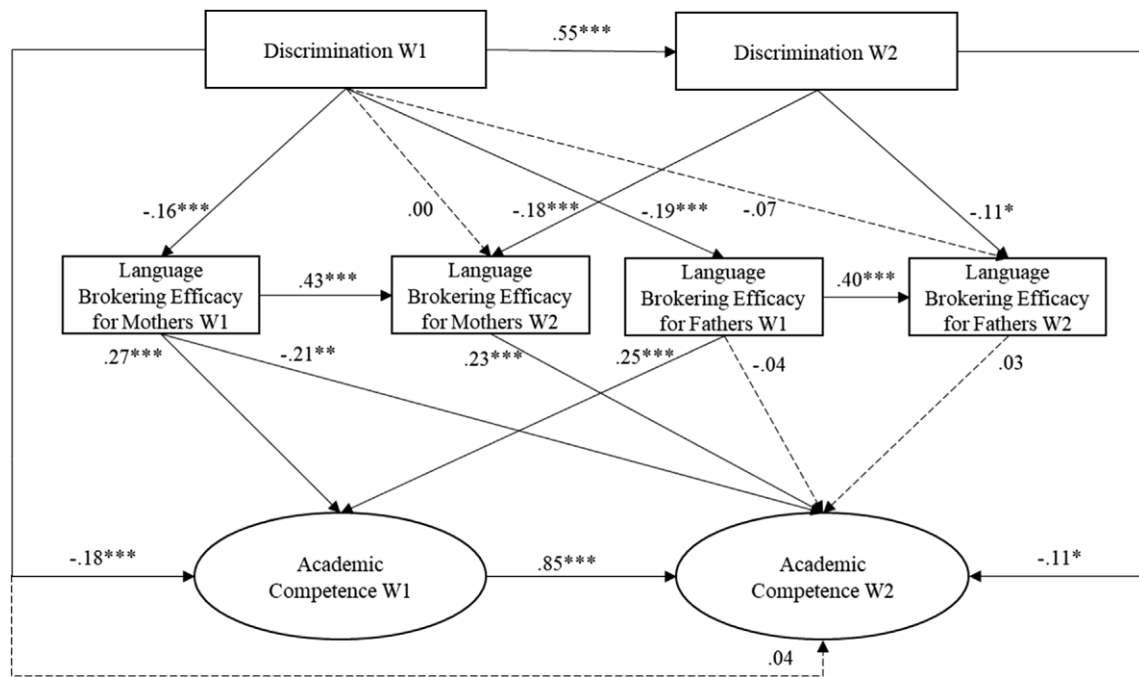
Fig. 2. Mediation model linking discrimination, language brokering efficacy, and academic competence. Standardized path parameters are presented. W1 = Wave 1, W2 = Wave 2. Significant paths are shown in solid line and non-significant paths are shown in dashed line. *$p < .05$, **$p < .01$, ***$p < .001$.

### 5.1.2. Indirect effects from discrimination to adolescents' academic outcomes

All potential indirect effects from discrimination to adolescents' academic competence were tested with one exception: we did not test indirect pathways involving the path from language brokering efficacy for mothers at W1 to academic competence at W2, given the suppression effect. Consistent with the hypotheses, both concurrent and longitudinal indirect pathways were found (see Table 2). Concurrently, at Wave 1, discrimination related to academic competence indirectly through brokering efficacy when brokering for both parents; at Wave 2, discrimination indirectly related to academic competence through brokering efficacy when brokering for mothers (but not fathers). Longitudinally, the indirect effect of Wave 1 discrimination on Wave 2 academic competence was significant via three pathways. First, Wave 1 discrimination was positively related to Wave 2 discrimination, which was then negatively related to language brokering efficacy when translating for mothers at Wave 2. This was then related to better Wave 2 academic

**Table 2**
Linking discrimination, language brokering efficacy, and academic competence.

| Paths | Total | Direct | Indirect |
|---|---|---|---|
| Disc W1 → Academic W2 | -.26*** | .04 | -.29*** |
|   Disc W1 → Disc W2 → Academic W2 | | | -.06* |
|   Disc W1 → Brokering efficacy for mothers W2 → Academic W2 | | | .00 |
|   Disc W1 → Brokering efficacy for fathers W1 → Academic W2 | | | .01 |
|   Disc W1 → Brokering efficacy for fathers W2 → Academic W2 | | | .00 |
|   Disc W1 → Academic W1 → Academic W2 | | | -.15*** |
|   Disc W1 → Disc W2 → Brokering efficacy for mothers W2 → Academic W2 | | | -.02** |
|   Disc W1 → Brokering efficacy for mothers W1 → Brokering efficacy for mothers W2 → Academic W2 | | | -.02** |
|   Disc W1 → Disc W2→ Brokering efficacy for fathers W2 → Academic W2 | | | .00 |
|   Disc W1 → Brokering efficacy for fathers W1→ Brokering efficacy for fathers W2 → Academic W2 | | | .00 |
|   Disc W1 → Brokering efficacy for mothers W1 → Academic W1 → Academic W2 | | | -.04** |
|   Disc W1 → Brokering efficacy for fathers W1 → Academic W1 → Academic W2 | | | -.04** |
| Disc W2 → Academic W2 | -.16** | -.11* | -.05** |
|   Disc W2 → Brokering efficacy for mothers W2 → Academic W2 | | | -.04** |
|   Disc W2 → Brokering efficacy for fathers W2 → Academic W2 | | | -.00 |
| Disc W1 → Academic W1 | -.27*** | -.18*** | -.09*** |
|   Disc W1 → Brokering efficacy for mothers W1 → Academic W1 | | | -.04** |
|   Disc W1 → Brokering efficacy for fathers W1 → Academic W1 | | | -.05* |

Note. N = 604, Disc = Discrimination; Academic = Academic Competence; W1 = Wave 1; W2 = Wave 2. Significant pathways are bolded. **$p < .01$. ***$p < .001$.

Table 3
Invariance Tests Across Language Brokering Efficacy for Fathers and Mothers.

| | χ2 (df) | Δχ2 (Δdf) | p-value | CFI | RMSEA | SRMR |
|---|---|---|---|---|---|---|
| 1. Base Model | 342.42 (148) | – | – | 0.95 | 0.04 | 0.05 |
| 2. Structural invariance | | | | | | |
| a. Disc W1 to Brokering efficacy W1 | 344.32 (149) | 1.90 (1) | 0.17 | 0.92 | 0.05 | 0.05 |
| b. Disc W1 to Brokering efficacy W2 | 344.93 (149) | 2.51 (1) | 0.11 | 0.92 | 0.05 | 0.05 |
| c. Disc W2 to Brokering efficacy W2 | 343.93 (149) | 1.51 (1) | 0.22 | 0.92 | 0.05 | 0.05 |
| d. Brokering efficacy W1 to Academic W2 | 344.34 (149) | 1.91 (1) | 0.17 | 0.92 | 0.05 | 0.05 |
| e. Brokering efficacy W2 to academic W2 | 346.35 (149) | 3.92 (1) | 0.05 | 0.92 | 0.05 | 0.05 |
| f. Brokering efficacy W1 to Academic W1 | 342.75 (149) | 0.32 (1) | 0.57 | 0.92 | 0.05 | 0.05 |

Note. All model comparisons were made comparing to the base model. Disc = Discrimination; Academic = Academic Competence; W1 = Wave 1; W2 = Wave 2.

competence. Second, Wave 1 discrimination was negatively related to language brokering efficacy when translating for mothers at Wave 1, which was then positively related to Wave 2 brokering efficacy for mothers. This was in turn related to better academic competence at Wave 2. Third, Wave 1 discrimination was negatively related to language brokering efficacy at Wave 1 (when brokering for both fathers and mothers), which was then positively related to Wave 1 academic competence and then Wave 2 academic competence.

## 5.2. Parent gender differences

We also explored whether the relations under study were different when brokering for fathers versus mothers (see Table 3). Results demonstrated that the relation between Wave 2 language brokering efficacy and Wave 2 academic competence differed significantly across brokering for fathers versus mothers. Specifically, language brokering efficacy when brokering for mothers had a stronger effect on adolescents' academic competence (β = 0.23, p < .001) compared with brokering for fathers (β = 0.03, p = .70). There was no significant parent gender difference in any other paths in the model.

## 5.3. Results for the alternative model

The model fit indices of the alternative model ($\chi^2$(126) = 290.02, p = .00, RMSEA = 0.05 [CI: 0.04, 0.05], CFI = 0.93, SRMR = 0.04) were similar as the proposed model. We found significant concurrent associations between discrimination, academic competence, and language brokering efficacy (see Fig. 3). In addition, there were also significant indirect effects from discrimination to language brokering efficacy through academic competence. The results of our conceptual model and this alternative model suggest that discrimination can influence both brokering efficacy and academic competence, which may then reciprocally influence each
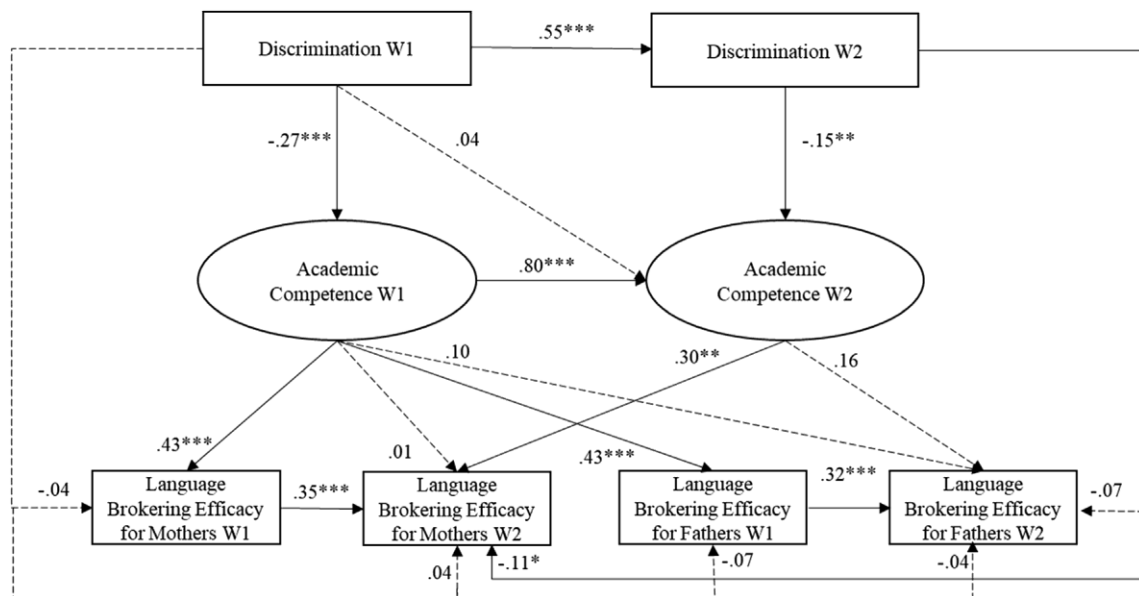


Fig. 3. Alternative model linking discrimination, academic competence, and language brokering efficacy. W1 = Wave 1, W2 = Wave 2. Significant paths are shown in solid line and non-significant paths are shown in dashed line. *p < .05, **p < .01, ***p < .001.

other.

## 6. Discussion

Despite past research suggesting the detrimental influence of discrimination on children's academic achievement (Benner et al., 2018), there is a dearth of studies examining the mechanisms through which discrimination may relate to adolescents' academic competence. Identifying mechanisms is important because it is critical for developing intervention programs. The current study investigated a theoretically motived and culture-specific mechanism (i.e., language brokering efficacy) as a possible mediator explaining part of the negative effects of discrimination on academics.

### 6.1. Linking discrimination, language brokering efficacy and academic competence

Consistent with Garcia Coll's integrative model (Garcıa Coll et al., 1996), the current study echoed previous findings that perceived discrimination takes a toll on ethnic minority adolescents' academic competence (e.g., Benner et al., 2018). In addition, our findings also demonstrated that discrimination could influence adolescent brokers' translating experiences for their parents. During the brokering process, adolescents often encounter intercultural interactions, and they are also likely to expose their accent and minority status to the third parties, all of which may invite more discriminatory treatment (Guan et al., 2016; Kam et al., 2017). Despite the salience of discrimination encountered by language brokers, few studies have directly examined how such experiences influence adolescents' brokering experiences. The current study found that perceived discrimination could impede adolescent brokers from developing a strong sense of brokering efficacy when translating for their mothers and fathers. These findings added to prior work highlighting the detrimental effects of discrimination in various domains of adolescent development.

In identifying the pathways that discrimination influences adolescents' developmental outcomes, the current study found that adolescents' brokering efficacy may be one of the mechanisms through which discrimination exerts its influence in language brokers' academic achievement. When Mexican American adolescent brokers perceived more daily discriminatory treatment, they reported lower sense of efficacy in translating for both of their parents. In turn, this reduced brokering efficacy was related to lower levels of academic competence. Prior study has found that children with extensive brokering experiences tend to develop greater academic self-efficacy (Buriel et al., 1998). Thus, it is possible that the efficacy brokers derived from the translating experiences may enhance their academic efficacy, which would be then reflected in better academic competence. The finding of the mediating role of brokering efficacy in the link between discrimination and academic competence is consistent with the general tenet of the integrative model for the development of minority children (Garcıa Coll et al., 1996) as well as the adapting cultural systems framework (White et al., 2018), which suggest that discrimination can influence child development through adapting cultural experiences. Results of the alternative model revealed that there may be bidirectional or reciprocal relations between brokering efficacy and academic competence as better academic competence was related to higher brokering efficacy. This can be partly explained by Bandura's theory on self-efficacy (1977), which argued that mastery experience in diverse life domains (e.g., stronger academic competence) strengthens individual's general sense of self-efficacy, which can influence domain-specific efficacy (e.g., brokering efficacy, Grether, Sowislo, & Wiese, 2018). The indirect effect of the alternative model suggested that discrimination may hinder brokers from developing a stronger sense of brokering efficacy through reducing their academic competence.

Taken together with the proposed and alternative models, discrimination exerts its negative influences on both language brokering efficacy and academic competence, which may then reciprocally influence each other. These findings suggest two potential approaches for future interventions in eliminating the negative cascading effects of perceived discrimination among Mexican American language brokers. First, at the family level, parents could help their language brokering children build a stronger sense of brokering efficacy through recognizing their children's strengths in translating, offering more praise, and giving more positive feedback after their children translate for them (Guan & Shen, 2015). Another intervention approach is to directly intervene in adolescent brokers' academic competence, through which their brokering efficacy may also be enhanced. Afterschool programs that provide more academic tutoring or support to adolescent language brokers may be necessary to help them catch up academically.

### 6.2. Variation by parent gender

The current study distinguished the language brokering experiences between brokering for fathers versus mothers, moving beyond prior studies focusing on the experiences of language brokering for mothers only (Kam & Lazarevic, 2014a; Shen et al., 2014). We found that brokering efficacy for mothers (versus fathers) was more influential for adolescent academic competence at Wave 2, which was consistent with our hypothesis. This difference due to parent gender is perhaps related to the traditional parent gender roles in Mexican culture. Specifically, mothers in Mexican families often function as caretakers, whereas fathers often function as breadwinners (Updegraff et al., 2014). Thus, adolescents tend to spend more time with mothers than fathers on a daily basis and perform brokering tasks more frequently for mothers (Kim et al., 2017). We suspect that these frequent interactions with mothers likely make language brokering efficacy for mothers more influential for adolescents' academic competence. This finding is consistent with prior parenting literature that demonstrated stronger influence on children's developmental outcomes for mothers versus fathers (Chuang & Tamis-LeMonda, 2009; Dumka, Gonzales, Bonds, & Millsap, 2008).

In addition, results from the mediation analyses showed that brokering efficacy for mothers and fathers both mediated the link between discrimination and adolescent academic competence. Even though the role of fathers is often underplayed in the literature, our result suggested that experiences of brokering for mothers and fathers are both important in understanding the process through

which discrimination influences language brokers' academic competence. A qualitative study found that Mexican immigrant fathers play an important role in helping children navigate diverse and challenging social environments (Behnke, Taylor, & Parra-Cardona, 2008), which may partly explain why brokering efficacy for fathers also acts as a mediator linking environmental stressor (i.e., discrimination) and academic. This finding also highlights the need for future research to recognize the important role of fathers in unpacking adolescents' experiences within their everyday social environments.

## 6.3. Contributions and limitations

There are several strengths of the current study. First, this is the first study, to our knowledge, that demonstrates the indirect links from discrimination to adolescents' academic competence via language brokering experiences. This finding highlights that it is important to incorporate adolescents' unique experience of language brokering in understanding the effect of discrimination on their well-being. Second, whereas most of the existing research on language brokering focuses only on brokering for mothers, the current study distinguished adolescents' brokering experiences when translating for fathers versus mothers. This allowed us to explore the differential influences of brokering on adolescents' well-being across parent gender.

Although the current study contributes to the existing literature, limitations should be noted. First, the generalizability of the current findings to other Mexican American samples needs to be tested. Participants of the current study came from an area with a large population of Mexican Americans. Studies have shown that ethnically concentrated neighborhoods can act as a buffer that protects Mexican American adolescents from discriminatory experiences (White, Zeiders, Knight, Roosa, & Tein, 2014). Thus, future studies with participants from less ethnically concentrated communities should be conducted to determine if language brokering efficacy also functions as a mediating mechanism for individuals not residing in ethnic enclaves. In a similar vein, participants in the current study are from Mexican immigrant families with low socioeconomic status (SES). As language brokering is found to be more prevalent within low SES families (Kwon, 2015), it is unknown whether brokering efficacy would still hold as an explanatory mechanism within high SES families where brokering is less prevalent.

Thirdly, even though the results of the current study suggested the potential bidirectional relation between language brokering efficacy and academic competence, with only two waves of data, we are not able to make any firm conclusions. Future studies with more waves of longitudinal data is needed to further understand the relation between these two constructs and examine how such relation changes across different developmental period. Fourthly, it would also be important for future studies to investigate other aspects of language brokering or other culturally unique experiences of minority children. For example, bilingualism has been considered as a unique cultural asset for Mexican American children (Borrero, 2015). As bilingualism is associated with better academic outcomes in general (Golash-Boza, 2005; Ke, 2014), future studies can explore whether such benefits still hold for Mexican American adolescent brokers and whether such benefits can counteract the negative influences of discrimination on adolescents' academic outcomes. In addition, the three indicators of academic competence (i.e., grades, learning goals and school engagement) in the current studies were self-reported by adolescents, which may introduce self-evaluation biases. Future studies should include more objective measures (e.g., attendance and GPA from school records) to gain a more complete understanding of adolescents' academic competence. Lastly, the two-item measure of learning goal had relatively low reliability. Future studies should use validated measures of learning goals with more items.

## 7. Conclusion

The present study highlighted the importance of incorporating ethnic minority children's adapting cultural experiences in untangling the underlying mechanism between discrimination and academic competence. The findings suggested two pathways through which discrimination exerts its negative influences: one is through impeding brokering efficacy and then impacting academic competence; the other is through reducing academic competence and then lowering language brokering efficacy. Theoretically, the current study underscores the important role of considering adolescents' subjective language brokering experiences in linking the contextual factors with developmental competence. Practically, the current study also suggests that interventions for improving language brokering efficacy as well as directly targeting at improving academic competence may be effective in reducing the negative impacts of discrimination.

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