



## EMPIRICAL ARTICLE

# Language brokering profiles of Mexican-origin adolescents in immigrant communities: Social-cultural contributors and developmental outcomes

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## Abstract

This study examines social-cultural contributors and developmental outcomes of language brokers. From 2012 to 2020, three waves of data were collected from 604 Mexican-origin adolescent language brokers ( $M_{\text{age}} = 12.92$ ,  $SD = 0.92$ , 54% girls). The study (1) identified four distinct subgroups of language brokers (*efficacious*, *conservative*, *nonchalant*, and *burdened*) who translated for mothers and fathers, after incorporating objective bilingual proficiency along with multiple dimensions of language brokering; (2) showed that early adolescents' Mexican, rather than U.S., cultural values and orientation were related to later language brokering profiles; and (3) showed that the *efficacious* group was the most resilient while *burdened* was the most vulnerable to developmental problems. Preservation of Mexican culture may facilitate language brokering experiences related to more positive developmental outcomes.

Language brokering, when children translate and interpret for immigrant parents between the heritage language and English in naturalistic settings (Kam & Lazarevic, 2014), is a common bilingual practice among immigrant communities in the United States.

Although evidence suggests that heterogeneous language brokering experiences are related to varied developmental outcomes (e.g., academic performance; Kim et al., 2020), it remains unknown which personal attributes or cultural elements may contribute to

**Abbreviations:** BIC, Bayesian information criteria; FAFSA, Free Application for Federal Student Aid; LGCM, latent growth curve model; LPA, latent profile analyses.

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adolescents having different experiences of language brokering, or how patterns of such experiences may correspond with the formation of different subgroups of adolescent language brokers. Cultural factors, such as cultural orientation or cultural values (García Coll et al., 1996), are important contributors to the formation of distinct language broker subgroups. The influence of these cultural factors may be particularly salient during adolescence, a sensitive developmental period when bicultural youth are susceptible to the influence of their sociocultural environment (Blakemore & Mills, 2014) and have a need to explore their ethnic identities. For example, adolescents who endorse heritage cultural values, such as a sense of family obligation, may feel it is their duty to take on more family responsibilities, including language brokering for their parents (Wu & Kim, 2009); more brokering experiences may also provide opportunities for adolescents to practice bilingual skills and improve their bilingual proficiency (Valdés, 2014). On the other hand, adolescents may feel more confident and positive about brokering if they are exposed to more mainstream U.S. culture (e.g., independence/self-reliance) (Zhang et al., 2020). Therefore, the present study examines potential socio-cultural contributors along with the heterogeneity of language brokering experiences in a sample of Mexican-origin adolescent language brokers.

The current study expands previous literature on language brokering in three ways. First, the current study recognizes the heterogeneity of adolescent language brokers as a group. This understanding is based on the Tripartite Framework of Language Use in Immigrant Families, which emphasizes that language brokering in immigrant communities is a multidimensional experience (Kim et al., 2020). To depict and distinguish different language brokering profiles in immigrant communities in a more holistic way, the current study goes beyond self-reported language brokering experiences to also include objective measures of language brokering proficiency (i.e., vocabulary knowledge and translation speed and accuracy) as indicators of language broker profiles. Second, despite the profound influence of early-life cultural values and orientations on adolescent development, and the potential changes in cultural values and orientations during adolescence (Yan et al., 2021), no study to date has examined how endorsement of cultural values and orientations from early to late adolescence influences language brokering experiences. Using a longitudinal dataset, the current study explores early-adolescence socio-cultural contributors (i.e., Mexican and U.S. cultural orientations and values) of language broker profiles, while also recognizing the change and stability in socio-cultural contributors from early to late adolescence. Third, the current study extends a prior study demonstrating varied academic outcomes of different types of language brokers (Kim et al., 2020) to

investigate how developmental outcomes (e.g., internalizing and externalizing symptoms) vary across language broker profiles.

## Language broker profiles of Mexican-origin adolescents

Focusing on immigrant communities, the Tripartite Framework of Language Use posits that language brokering is a multifaceted experience, including bilingual proficiency, bilingual practice (i.e., brokering) frequency, and subjective language brokering experiences (Kim et al., 2020). Different dimensions of language brokering experiences coalesce and relate to each other to shape distinct language broker profiles (Gullifer et al., 2021; Kim et al., 2020). For instance, a previous study identified four types of Mexican-origin adolescent language brokers (i.e., efficacious, moderate, ambivalent, and nonchalant groups) based on the Tripartite Framework of Language Use (Kim et al., 2020), suggesting the heterogeneity of brokering experiences among Mexican-origin adolescents.

Although language brokering requires a more nuanced understanding of concepts than direct translation does, bilingual skills (e.g., proficiency) are a large part of language brokering. However, most previous studies rely on self-report measures of bilingual proficiency and thus are unable to consider how effective adolescents are at language brokering in naturalistic settings (Macintyre et al., 1997; Weisskirch, 2017). Despite the fact that bilingual proficiency can be partly represented by self-report measures, there are other strong indicators of bilingual proficiency, particularly vocabulary, as well as the speed and accuracy of translation. Specifically, the lack of objective measures related to vocabulary knowledge and translation ability may limit the understanding of language brokers and their heterogeneity in two ways. First, self-rated bilingual proficiency reflects only the subjective aspect of language proficiency, which may be influenced by adolescents' emotions (Macintyre et al., 1997), and thus is unable to capture language brokering skills as they are practiced in real life. Second, self-rated language proficiency is based on a general perception of language proficiency across different contexts, such as using English when taking academic tests, while brokering is a specific bilingual practice that requires certain language skills, such as translating and interpreting between English and Spanish accurately and quickly in daily life. In order to have a holistic and accurate understanding of different groups of language brokers, it is not enough to consider only self-reported bilingual proficiency; objective measures must also be included. However, studies to date have not assessed objective language brokering skills as an indicator of bilingual proficiency. Thus, the current study

incorporates objective measures of bilingual skills related to real-life brokering (i.e., vocabulary knowledge and translation ability) as indicators of language broker profiles.

A large vocabulary in both languages is critical for providing high-quality brokering, because adolescent language brokers are placed in various brokering contexts, ranging from grocery stores to government offices (Kam & Lazarevic, 2014). Adolescents who lack vocabulary knowledge may find it challenging to translate accurately in various brokering contexts and may feel frustrated or anxious while language brokering. Moreover, a large vocabulary may be a prerequisite for high translation speed and accuracy, both of which are required in language brokering tasks, particularly in exigent circumstances when brokering is needed (Iqbal & Crafter, 2023). Slowness or translation mistakes may impede parents' understanding of English materials. Consistent and cumulative difficulties in understanding important information (e.g., government or medical documents) because of language brokering difficulties may contribute to challenges in immigrant families' adaptation in the United States (Antonini, 2016; Valenzuela, 1999). For example, mistakes in translating workplace safety guidelines to parents may result in possible injuries (Valenzuela, 1999). Also, low-speed brokering may frustrate individuals involved in the communication and reduce communication effectiveness. Altogether, a large vocabulary and translation speed and accuracy may be important components indicating high bilingual proficiency from an objective point of view.

Using a person-centered approach, the current study adopts the same dataset and self-reported language brokering indicators used by Kim et al. (2020) and incorporates new objective assessments of (1) vocabulary knowledge and (2) translation accuracy and speed for sentences used across common brokering scenarios to provide a more valid classification and precise description of Mexican-origin bilingual adolescent brokers. For example, there may be a subgroup of language brokers in which adolescents have greater vocabulary knowledge, shorter translation reaction time, and higher translation accuracy, as well as the co-occurrence of confidence in brokering with more positive and less negative experiences (i.e., efficacious group). Adolescents who feel less involved in brokering emotionally (i.e., those with low levels of all subjective language brokering experiences, as in the nonchalant group) may invest less time and energy in brokering by giving up accuracy in order to spend a shorter time translating. Adolescents who have high levels of both positive and negative brokering experiences may have an average vocabulary as well as moderate translation speed and accuracy, but report low levels of language proficiency because they lack confidence.

## Cultural orientations and cultural values as contributors of language broker profile membership

Exploring potential contributors of language broker profiles is critical for understanding the formation of distinct groups of language brokers from a developmental perspective. Considering the socio-cultural environment of ethnic minority children, the integrative model for minority children (García Coll et al., 1996) suggests that linguistic development among ethnic minority children is influenced by children's endorsement of their heritage and host cultures. Adolescence is a critical developmental period for bicultural children to explore their ethnic identities through the endorsement of both cultures. That is, the endorsement of culture does not remain static across adolescence (Yan et al., 2021); rather, adolescents may experience changes in cultural endorsement during adolescence, along with increased or decreased knowledge about the two cultures. Such changes in cultural endorsement from early to late adolescence may influence adolescents' engagement and experiences in culture-related practices, such as language brokering. Understanding this influence provides an opportunity to uncover implications for interventions aiming to improve performance in culture-related practices (i.e., language brokering) during the course of adolescence. The endorsement of culture can be manifested by cultural orientations or the extent to which adolescents believe and perform specific cultural norms and traditions (Tsai & Chentsova-Dutton, 2002), and cultural values, such as family obligation or independence/self-reliance. Mexican-origin adolescent language brokers may have different senses of Mexican and U.S. cultural orientations and values that influence their language brokering strategies (e.g., Zhang et al., 2020) and thus shape distinct language broker profiles.

Adolescents with a greater sense of Mexican cultural orientation and values may be more closely attached to Mexican culture and their Mexican-origin parents, and thus be more willing to engage in language brokering, exhibiting higher levels of brokering frequency along with more positive and less negative brokering experiences (Wu & Kim, 2009; Zhang et al., 2020). In addition, adolescents with higher Mexican cultural orientation may speak Spanish more in their daily lives. The use and retention of Spanish may improve their language brokering abilities. One of the key traditional values in Mexican culture is the sense of responsibility to support the family (i.e., family obligation value; Fuligni et al., 1999). Given that brokering is a responsibility adolescents take on to facilitate their families' ability to navigate living in the host country (White et al., 2018), adolescents who endorse family obligation may be less likely to perceive brokering as a burden

(Wu & Kim, 2009), and thus less likely to be in the group with low brokering frequency and high negative brokering experiences.

Adolescents who endorse more U.S. cultural beliefs are likely to acquire more knowledge about U.S. culture; thus, they may be better at understanding English-speaking individuals or English language materials and thus better at interpreting the English language to their parents during brokering (Kam & Lazarevic, 2014). Given that high U.S. orientation may be associated with enhanced language brokering proficiency, adolescents with this orientation may be more likely to develop positive subjective brokering experiences and thus be in the efficacious group. Although previous literature suggests that endorsement of U.S. cultural values may be associated with various bilingual language use experiences, such as higher self-efficacy in brokering (Kam & Lazarevic, 2014), few studies have empirically investigated the association between specific U.S. cultural values and language brokering experiences (Shen et al., 2019). The mainstream U.S. culture emphasizes individualism and encourages youth to depend on themselves rather than others (Knight et al., 2010). Thus, the current study examines independence (or self-reliance) to illustrate how U.S. cultural values shape the development of brokering experiences empirically.

Overall, previous studies have shown that both Mexican and U.S. cultural orientations and values can benefit adolescent language brokers in terms of their bilingual proficiency, brokering frequency, and subjective brokering experiences (Kam & Lazarevic, 2014; Wu & Kim, 2009). However, these findings come from variable-centered studies that considered each of these different language brokering experiences separately. There is a lack of research that can reveal how Mexican and U.S. cultural orientations shape adolescent brokers' multifaceted language brokering experiences. Early adolescence is a critical time period to explore ethnic identity (Spencer et al., 2000), which may have a long-term influence on culturally relevant practices such as language brokering. While cultural orientation may shape ethnic identity development, little is known about how endorsement of cultural orientation and values in early adolescence may influence the development of different types of language brokers. Moreover, the endorsement of cultural orientation and values may vary across developmental periods (Lee et al., 2020), and distinct developmental patterns of cultural endorsement may result in varied adjustment outcomes (Yan et al., 2021). As such, it is worthwhile to consider how initial levels (i.e., in early adolescence) and changes (i.e., across the course of adolescence from early to late adolescence) in cultural values and orientations may influence language broker profiles in late adolescence.

## Language broker experiences and adolescent development

The integrative model for minority children (García Coll et al., 1996) posits that unique experiences in ethnic minority communities (e.g., language brokering in immigrant communities) may significantly influence children's developmental outcomes. For example, higher brokering frequency, bilingual proficiency, positive language brokering feelings, and lower negative language brokering feelings are related to better adolescent psychosocial well-being (Kam, 2011; Müller et al., 2020). A previous study adopted a person-centered approach and showed that different types of language brokers exhibit various academic outcomes (Kim et al., 2020). Specifically, adolescents in the efficacious group (i.e., the group with high language proficiency, high brokering frequency, high levels of positive subjective brokering experiences, and low levels of negative subjective brokering experiences) reported the highest grades, effortful control, and school engagement (Kim et al., 2020). Despite the demonstrated associations between language brokering and adolescent adjustment, few previous studies have considered language brokering effectiveness in immigrant communities to illuminate differences in adolescents' developmental outcomes (e.g., internalizing and externalizing symptoms). In fact, assessing bilingual abilities related to real-life brokering tasks may promote the understanding of variations in adolescent adjustment that are related to bilingual language use in daily life. Additionally, it is relatively unknown which type of language brokers can benefit most from language brokering experiences in terms of their psycho-social adjustment (Shen et al., 2019). Adolescence is a sensitive period for mental health problems and risky behaviors (Fuhrmann et al., 2015). Thus, to reveal which language broker profiles may be adaptive and which may put adolescents at greater risk for negative developmental outcomes, the current study investigates the association between language broker profile membership and adolescent developmental outcomes to identify which types of language brokers are most and least vulnerable to internalizing symptoms and delinquent behaviors.

Moreover, brokering experiences with fathers and mothers may affect adolescent outcomes differently, given the different parental roles and varied interaction patterns with mothers versus fathers (Paquette, 2004). Mothers often serve as caregivers, who are supposed to provide emotional support, while fathers may function as authoritative figures who provide instrumental support, especially in Mexican-origin families emphasizing traditional family roles (Updegraff et al., 2014). In addition, adolescents may broker more frequently for mothers than fathers, as mothers may spend more



time at home. Although a previous study has shown that brokering frequency for either fathers or mothers is not associated with internalizing or externalizing symptoms, the study did not consider brokering as a multifaceted, heterogeneous experience (Chao, 2006). It is possible that adolescents may engage in varied patterns of language brokering and be influenced by those brokering experiences differently given the distinct expectations when brokering for mothers versus fathers. Considering differences in mothers' and fathers' roles in the Mexican-origin family (Updegraff & Umaña-Taylor, 2015), the current study explores adolescents' language brokering experience for mothers and fathers separately.

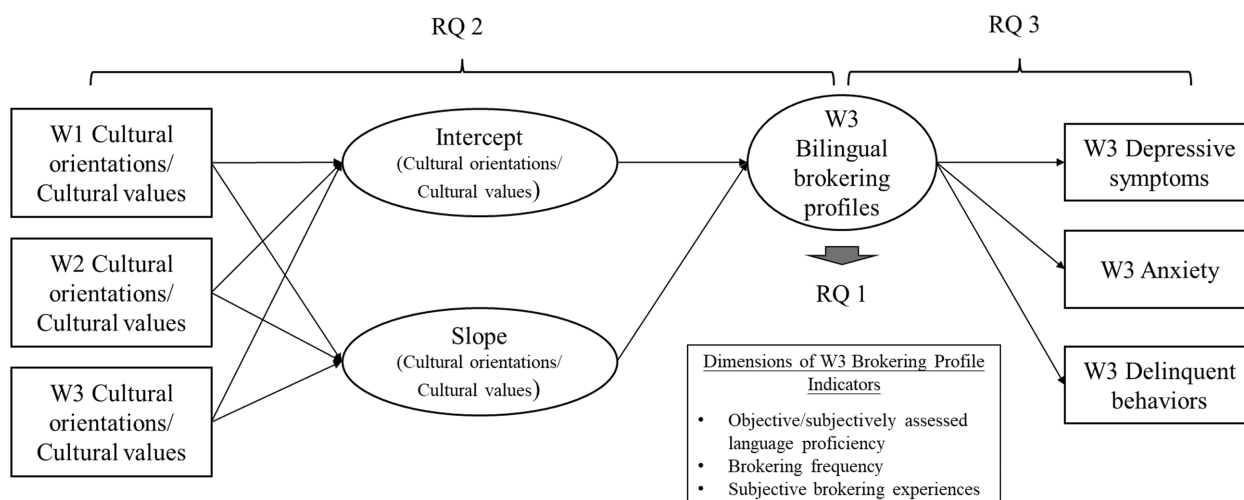
## The current study

To fill the gap in previous literature on language brokering, the current study focuses on language brokering experiences of Mexican-origin bilingual adolescent brokers for mothers and fathers, separately, to investigate three research questions. The conceptual model and research questions are shown in Figure 1.

Firstly, the current study aims to identify distinct language broker profiles using a comprehensive approach that incorporates objective language skills along with self-rated language proficiency, brokering frequency, and subjective brokering experiences. The current study incorporates the Wave 1 and Wave 2 dataset from the same project that Kim et al. (2018, 2020) utilized, with the addition of data from Wave 3, which is unique to the current study, as it is the only wave to include objective measures of language proficiency for aim one.

The first research goal encompasses both confirmatory and exploratory efforts. We hypothesize that four brokering profiles may emerge at Wave 3 based on past research using the first two waves from Kim et al. (2020). Specifically, there may be: (1) one group in which highly proficient adolescents positively engage in brokering (i.e., higher brokering frequency, high objective and self-reported language proficiency, high positive and low negative brokering experiences); (2) a second group in which adolescents are not as actively involved in brokering (i.e., low brokering frequency, low translation accuracy but high speed, moderate vocabulary size and self-reported language proficiency, low levels of both positive and negative brokering experiences); (3) a third group in which adolescents have mixed experiences with brokering (i.e., moderate brokering frequency, moderate objective but low self-reported language proficiency, high levels of both positive and negative brokering experiences); and (4) a fourth group in which adolescents experience average levels across all indicators.

Secondly, the current study moves beyond Kim et al. (2018, 2020) to investigate how Mexican and U.S. cultural orientations and values in early adolescence, as well as how changes in Mexican and U.S. cultural orientations and values from early to late adolescence, are related to bilingual profiles at late adolescence. This research goal represents a mixture of confirmatory and exploratory efforts. We hypothesize that higher Mexican or U.S. orientation and values in early adolescence would be related to a higher likelihood of being in the first group compared to other groups. We did not make specific hypotheses for the association between changes in cultural values or orientations during adolescence and brokering profiles due to the lack of research evidence to



**FIGURE 1** Conceptual model of contributors and outcomes associated with language brokering profiles. W1=Wave 1. W2=Wave 2. W3=Wave 3. RQ, research question. Separate models were estimated to address the three research questions: (1) identifying language brokering profiles at Wave 3, (2) associating cultural orientations and cultural values with bilingual brokering profiles, and (3) associating bilingual brokering profiles with developmental outcomes. Covariates for RQ2 are adolescents' demographic information measured at W1, including adolescent age, gender, nativity, family income, and parents' highest education level. Covariates for RQ3 are adolescents' depressive symptoms, anxiety, delinquent behaviors, and demographic information, all measured at W1.



guide such hypotheses. Thirdly, the current study seeks to confirm the associations between language broker profiles and adolescents' developmental outcomes, including depressive symptoms, anxiety, and delinquent behaviors. We hypothesize that the first group—characterized by high bilingual proficiency, high brokering frequency, more positive brokering experiences, and fewer negative brokering experiences—will exhibit the best developmental outcomes (i.e., fewer internalizing symptoms and less delinquency) compared to the other three groups, while the third group—characterized by low self-report bilingual proficiency, moderate brokering frequency, and high levels of both positive and negative brokering experiences—will be the most vulnerable out of four groups to developmental problems.

## METHOD

### Participants

Data for the present study come from a three-wave longitudinal project conducted in central Texas (Wave 1: 2012–2015; Wave 2: 2013–2016; Wave 3: 2017–2020). The in-person data collection of the third wave started in 2017 and terminated in early March 2020 because of the COVID-19 pandemic. Participants are 604 Mexican-origin adolescents (54% female,  $N=328$ , 76% *US-born*,  $N_{us}=455$ ) in the age range of 11.00 to 15.00 ( $M_{age}=12.92$ ,  $SD=0.92$ ) at Wave 1. The median and mean household income was between \$20,001 and \$30,000, and the average of the highest parent education level was some middle/junior high school. Among the 604 Mexican-origin adolescents who participated at Wave 1, a total of 483 remained at Wave 2 ( $M_{age}=13.72$ ,  $SD=0.90$ ) and 334 remained at Wave 3 ( $M_{age}=17.62$ ,  $SD=1.05$ ). Attrition analyses based on the independent  $t$ -test were conducted to examine whether there were any significant differences in the aforementioned demographic variables between adolescents who remained and adolescents who left the project. The findings showed that adolescents whose parents had a higher education level were more likely to continue participating at Wave 2 ( $t_{mother}(591)=2.41$ ,  $p<.05$ ;  $t_{father}(291)=3.13$ ,  $p<.01$ ). Adolescents were more likely to remain at Wave 3 if they were younger ( $t_{age}(481)=2.97$ ,  $p<.01$ ) at Wave 2 (left at Wave 3:  $M_{Wave\ 2\ age}=13.88$ ; remained in Wave 3:  $M_{Wave\ 2\ age}=13.63$ ).

### Procedure

The initial participants were recruited via school presentations, public records, and community recruitment. A screener survey was used to determine study eligibility. If parents were of Mexican origin and had a child in middle school who translated for at least one parent, then the family qualified for participation. A visit to the

family's home was scheduled for families who decided to participate. Parents and adolescents were interviewed in separate rooms without being able to hear one another. Parents provided informed consent, and adolescents provided informed assent before completing questionnaires. Bilingual interviewers administered the questionnaires by reading questions aloud to participants and recording participants' responses (both for questionnaires and the translation task) on a laptop computer. Questionnaires were prepared in English and Spanish so that participants could choose the language they were more comfortable with. The English questionnaires were first translated into Spanish and then back-translated into English. Wave 2 and 3 data were collected using similar procedures during home visits. Participating families were contacted about 1 year later for Wave 2 data collection and then about 4 years later for Wave 3 data collection. Families were compensated \$60 at Wave 1, and \$90 each at Waves 2 and 3.

### Measures

At Wave 3, a total of 16 indicators of adolescent brokering profiles were assessed to correspond with the Tripartite Framework of Language Use (Kim et al., 2020): (1) language skills (a. objective language brokering proficiency, including translation accuracy and speed, as well as vocabulary knowledge; b. self-reported language proficiency); (2) the practice of language skills (language brokering frequency); and (3) subjective experiences (Kim et al., 2020).

#### Translation task assessing accuracy and speed

A translation task was created at Wave 3 to assess participants' ability to identify Spanish sentences translated correctly or incorrectly from English. A total of 36 sets of sentences were selected from three types of documents that language brokers are likely to encounter in everyday life. The sentences were from actual documents typically sent home from school, from the Free Application for Federal Student Aid (FAFSA) application form, and from the Application for Naturalization from the U.S. government (NAT). From each document, 12 English sentences were selected and divided into two groups based on difficulty (i.e., easy and hard), taking into account the complexity of sentence structure and vocabulary. Within each of the two difficulty levels, six sets (three sets of correctly translated sentences and three sets of incorrectly translated sentences) were included for three types of documents (school, FAFSA, NAT), for a total of 36 sets of sentences. The difficulty levels (i.e., easy and hard) were determined on the basis of two readability indicators: the Flesch Reading Ease tests (easy:  $M=66.29$ ,  $SD=17.07$ ; hard:  $M=41.93$ ,  $SD=17.07$ ;

$t=3.608$ ,  $p=.001$ ) and Flesch–Kincaid Grade Level (easy:  $M=6.81$ ,  $SD=2.62$ ; hard:  $M=9.84$ ,  $SD=3.27$ ;  $t=-3.609$ ,  $p=.004$ ).

During the translation task, participants were presented with an English sentence, followed by a Spanish translation, on the screen of a laptop. After participants read the English sentence, they pressed the spacebar to continue to the Spanish translation. If the translation that appeared was judged to be accurate, the participant pressed the key with the “Y” sticker. If participants judged the translation to be incorrect, they pressed the key with the “N” sticker. Given that we were trying to simulate a real-life translation task for our brokers, and given the semantic complexity of the translated sentences, there was no time limit for how long sentences and their translations were presented on the screen, to give participants ample time to read and respond. Once participants pressed their selected key, the E-prime software recorded their reaction time for each pair of translation sentences. The length of the English sentences ranged from 6 to 16 words ( $M=10.86$ ;  $SD=2.79$ ), while the length of the Spanish sentences ranged from 7 to 20 words ( $M=11.55$ ;  $SD=2.86$ ). Accuracy and reaction time (in milliseconds) for each translation were recorded. The average reaction time for reading the English sentence was 6005.12 ms ( $SD=2240.39$ ). A higher percentage of correctly identified translations reflected higher accuracy of language brokering. The manipulation test showed that adolescents had a higher level of accuracy for easy sentences ( $M=0.82$ ;  $SD=0.14$ ) compared to hard sentences ( $M=0.72$ ;  $SD=0.13$ ),  $t(333)=14.63$ ,  $p<.001$ , whereas they had longer reaction times ( $M=5059.11$  ms;  $SD=1400.35$ ) for easy sentences compared to hard sentences ( $M=4435.72$  ms;  $SD=1289.11$ ),  $t(331)=15.67$ ,  $p<.001$ . It is possible that the shorter reaction time for hard sentences may be due to adolescents giving up more easily, whereas they may have taken the time needed to judge the accuracy of the translation when presented with easy sentences. The significant differences in accuracy and reaction time between easy sentences and hard sentences indicate good validity. For examples of actual test items, see Table S6.

## Vocabulary knowledge

Adolescents' vocabulary knowledge was measured at Wave 3 using the Expressive One-Word Picture Vocabulary Test-4 (Martin & Brownell, 2011). The test consists of a total of 180 pictures depicting objects, actions, and concepts that are encountered in everyday life; it has been validated for use with participants aged 2–80. The starting picture varies depending on the participant's age, and the pictures were presented in increasing order of difficulty. Participants would state out loud the word to name the picture, and interviewers would record their responses on a scoring form. Adolescents were able to

respond in either English or Spanish to each picture, and their standardized vocabulary score was used for analysis. The measure has been normed for use with Spanish–English bilinguals, with a median internal consistency reliability of .95 across ages (Martin & Brownell, 2011).

## Self-reported English and Spanish proficiency

Adolescents' self-reported English and Spanish proficiency were separately assessed at Wave 3 for reading, writing, and speaking, and understanding ( $\alpha_{\text{English}}=.84$ ;  $\alpha_{\text{Spanish}}=.80$ ) using six items in total. The five-point response scale ranged from 1 (not well) to 5 (extremely well). The items were, “How well do you speak and understand English/Spanish?”, “How well do you read in English/Spanish?”, and “How well do you write in English/Spanish?”

## Language brokering frequency

Also at Wave 3, adolescents reported how often they translated for their mother and father in general, respectively, on a scale of 1 (never) to 6 (every day).

## Subjective language brokering experiences

Adolescents' subjective language brokering experiences for mothers and fathers at Wave 3 were measured separately for positive and negative brokering experiences using items adopted from a previous study (Kim et al., 2020). *Positive language brokering experiences* included *language brokering centrality* (e.g., “Being a translator for my mother/father is important to who I am”;  $\alpha_{\text{mother}}=.87$ ;  $\alpha_{\text{father}}=.93$ ; 3 items), *linguistic benefits* (e.g., “I strengthen my Spanish vocabulary when I translate for my mother/father”;  $\alpha_{\text{mother}}=.85$ ;  $\alpha_{\text{father}}=.90$ ; 3 items), *socioemotional benefits* (e.g., “I feel independent and mature when I translate for my mother/father”;  $\alpha_{\text{mother}}=.75$ ;  $\alpha_{\text{father}}=.83$ ; 4 items), *language brokering efficacy* (e.g., “I am good at translating for my mother/father”;  $\alpha_{\text{mother}}=.87$ ;  $\alpha_{\text{father}}=.89$ ; 4 items), and *language brokering positive emotions* (e.g., enthusiastic, excited, happy;  $\alpha_{\text{mother}}=.88$ ;  $\alpha_{\text{father}}=.91$ ; 3 items). *Negative language brokering experiences* included *language brokering negative feelings* (e.g., “I feel desperation when my mother/father asks me to translate for her/him”;  $\alpha_{\text{mother}}=.74$ ;  $\alpha_{\text{father}}=.78$ ; 4 items), *language brokering negative emotions* (e.g., angry when translating for your mother/father;  $\alpha_{\text{mother}}=.69$ ;  $\alpha_{\text{father}}=.73$ ; 4 items), *language brokering stress* from translating specific items (e.g., “How stressful is it to translate from English to Spanish bills for your mother?”;  $\alpha_{\text{mother}}=.87$ ;  $\alpha_{\text{father}}=.89$ ; 11 items). For each measure, adolescents reported how much they agreed with each statement on a rating scale ranging from 1 (*strongly disagree*)

to 5 (*strongly agree*), except for the positive emotions and negative emotions measure, where adolescents reported how much they agreed with each statement on a scale ranging from 1 (*never*) to 7 (*always*). Higher mean scores reflect higher levels of adolescents' positive or negative language brokering experiences.

## Cultural orientation

Adolescents' *cultural orientation* was measured using a 20-item scale of the Vancouver Index of Acculturation (Ryder et al., 2000). Adolescents rated their acculturation (10 items) and enculturation (10 items) at Waves 1, 2, and 3 on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items included statements for acculturation such as, "I often follow traditions of the U.S. culture," and statements for enculturation, such as "I often follow traditions of the Mexican culture." Higher mean scores reflect higher levels of acculturation (Waves 1–3:  $\alpha = .84$ –.88) and enculturation (Waves 1–3:  $\alpha = .87$ –.89).

## Cultural values

Adolescents' Mexican cultural values and U.S. cultural values were measured separately. Adolescents' Mexican cultural value of family obligation was measured using a 13-item familial obligation measure (Fuligni et al., 1999), while adolescents' U.S. cultural value of independence was measured using a two-item scale adapted from the independence and self-reliance subscale of the Mexican American Cultural Values Scale (Knight et al., 2010). On a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), adolescents self-reported their endorsement of statements related to the cultural value of family obligation (e.g., "Treat your parents with respect") and their endorsement of statements related to the U.S. cultural value of independence (e.g., "People should be allowed to make their own decisions") at Waves 1, 2, and 3. Higher mean scores show a higher level of family obligation (Waves 1–3:  $\alpha = .83$ –.88) and higher levels of independence (Waves 1–3:  $\alpha = .79$ –.80).

## Adolescent outcomes

Adolescents' *depressive symptoms* were measured at Waves 1 and 3 with the 20-item Center for Epidemiologic Studies of Depression Scale (Radloff, 1977). Adolescents were asked to report their depressed mood on a 4-point scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). A sample item from this measure is "I felt people disliked me". Higher mean scores reflect a higher level of depressive symptoms ( $\alpha_{\text{wave1}} = .83$ ;  $\alpha_{\text{wave3}} = .87$ ). Adolescents' *anxiety* at Waves 1 and 3 was measured by four items adopted from prior studies (Reynolds &

Richmond, 1997). Adolescents self-reported how often they were bothered by the following problems over the last 2 weeks: (1) feeling nervous, (2) worrying about what is going to happen, (3) trouble relaxing, and (4) becoming easily annoyed or irritable, on a scale of 1 (*not at all*) to 5 (*nearly every day*). Higher mean scores reflect higher levels of anxiety ( $\alpha_{\text{wave1}} = .75$ ;  $\alpha_{\text{wave3}} = .81$ ). Adolescents' *delinquency* was measured at Waves 1 and 3 using 13 items adapted from the Youth Self-Report (Achenbach & Rescorla, 2001) (Table S7). Adolescents rated their own problem behaviors during the past 6 months using a scale ranging from 0 (*not true*) to 2 (*often true or very true*). A sample item is "I drink too much alcohol or get drunk". Higher mean scores indicated higher levels of delinquency ( $\alpha_{\text{wave1}} = .76$ ;  $\alpha_{\text{wave3}} = .72$ ).

## Analytical plan

Data analyses were conducted in three steps using Mplus 8.6 (Muthén & Muthén, 1998–2021) using full-information maximum likelihood estimation method to handle missing data. First, to identify language brokering profiles, we used the data for those who participated in Wave 3 ( $N = 334$ ) to conduct latent profile analyses (LPA) for translating for mother and father, separately, using the standardized scores for 16 key study indicators of language brokering profiles, including seven language proficiency measures (five objective and two self-reported measures), one language brokering frequency measure, and eight subjective language brokering measures. As shown by previous research, sample sizes greater than 250 offer sufficient power for LPA based on 15 indicators (Tein et al., 2013). According to Nylund et al. (2007), a certain solution for LPA is better than the rest if it has (1) smaller values for the Akaike information criteria, Bayesian information criteria (BIC), adjusted BIC among classes; (2) a statistically significant Lo–Mendell–Rubin test (indicating that the  $k$ -class solution is better than the  $k-1$ -class solution); and (3) substantial meanings for each class. The optimal solution for each set of LPA was selected based on a holistic evaluation of the criteria above. Adolescents who did not translate for a specific parent were excluded from the LPA for translating for that parent.

Second, to investigate the link from developmental trajectories of cultural orientation and cultural values to language brokering profiles, we addressed this research goal in three steps. We first established longitudinal invariance of each cultural orientation and cultural value variable following the procedure recommended by Little (2013). Then, we conducted unconditional latent growth curve models (LGCs) with an analytical sample size of 604 for each cultural orientation and value variable, separately. The latent intercepts and slopes for those who completed Wave 3 ( $N = 334$ ) were saved out as factor scores and related



to language brokering profiles using the R3STEP option in Mplus (Muthén & Muthén, 1998–2021). Demographic variables (i.e., adolescent age, gender, and nativity) were also included as covariates using the R3STEP option.

Third, to confirm whether the language brokering profiles were associated with adolescent developmental outcomes at Wave 3 in the expected direction, we conducted a Wald test (Nylund et al., 2006) to make comparisons of the intercepts of Wave 3 developmental outcome variables across language brokering profiles for translating for mother and father, separately. Adolescents' developmental outcomes at Wave 1 and demographic variables—including adolescent age, gender, nativity, family income, and parents' highest education level measured at Wave 1—were modeled as covariates. The analytical sample size for Step 3 is 334 (i.e., those who remained in the study at Wave 3).

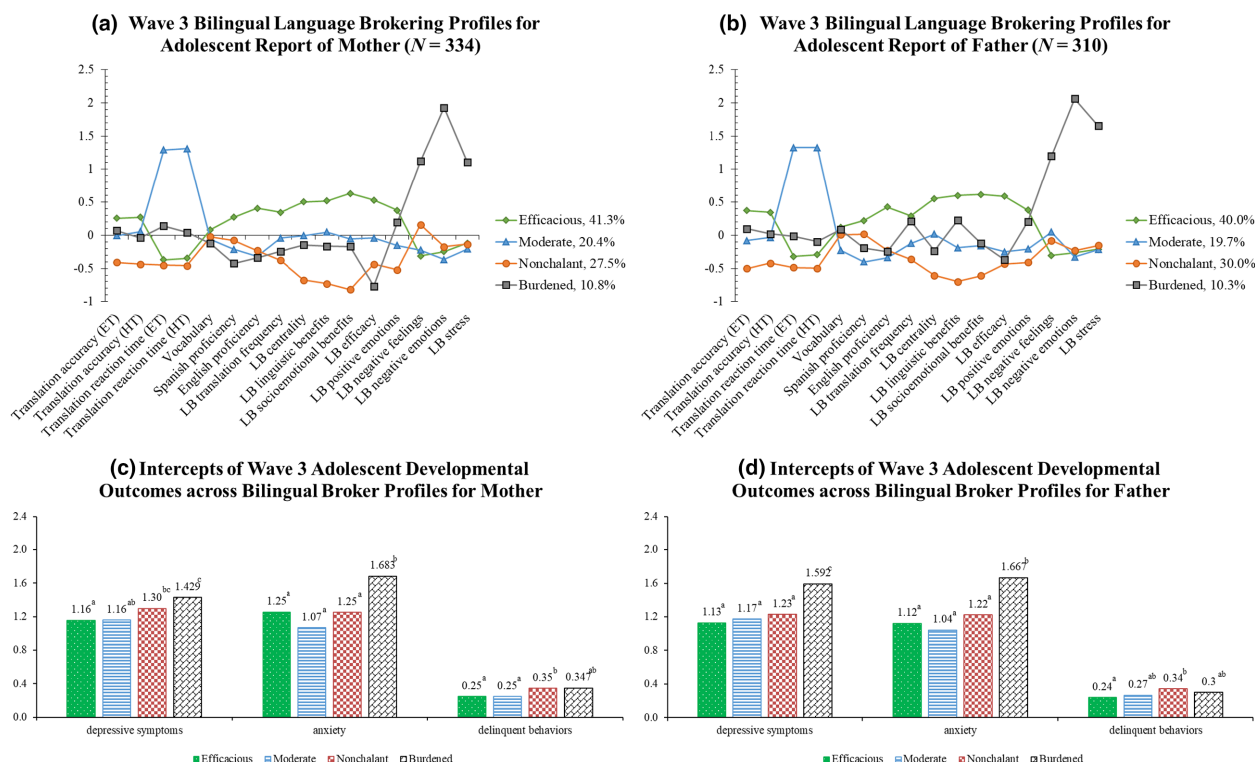
## RESULTS

### Language brokering profiles

The descriptive information (Table S1) and correlations (Tables S2.1–S2.3) between study variables are presented in Supporting Information. The optimal solutions for

language brokering profiles for adolescent reports of translating for mother and father were determined based on an evaluation of both the fit indices (Table S3) and substantive meaning of the profiles. Four language brokering profiles emerged; these are similar to, but not the same as, those found by Kim et al. (2020): the *efficacious* group (mother: 31.4%; father: 41.3%), the *conservative* group (mothers: 20.7%; father: 19.0%), the *nonchalant* group (mother: 27.2%; father: 19.7%), and the *burdened* group (mother: 10.8%; father: 10.0%). Compared to Kim et al. (2020), the major differences are the emergence of the *burdened* group and the different patterns related to the new objective language proficiency measures for each subgroup.

Different language broker profiles demonstrated statistically significant differences in the raw scores of language proficiency, brokering frequency, and subjective brokering experiences, even though some groups appear to have scored in similar ranges, suggesting that there are distinct subgroups of language brokers within a seemingly homogenous sample (see Table S4 for details). Specifically, for translating for mother (Figure 2A), the *efficacious* group scored high on the objective measures of language proficiency (i.e., shorter translation reaction time and high translation accuracy) and also self-reported the highest level of language proficiency out of all four groups. The *efficacious* brokers reported high



**FIGURE 2** The upper panels display the mean levels of the indicators of language brokering profiles for adolescents' reports of translating for mother (panel a) and father (panel b) at Wave 3. The lower panels present the intercept differences of Wave 3 adolescent developmental outcomes across Wave 3 bilingual brokering profiles for mother (panel c) and father (panel d). For each indicator of developmental outcomes, intercepts with different subscripts were significantly different from each other at the .05 level after Benjamini–Hochberg correction. ET, easy trials in the translation task; HT, hard trials in the translation task; LB, language brokering.



levels of translation frequency and overall positively appraised their subjective brokering experiences (i.e., high brokering centrality and positive brokering experiences, low levels of negative brokering experiences). The *conservative* brokers had moderate scores on all aspects of language brokering, except that they had the longest reaction time in the translation task and reported low levels of negative experiences. The *nonchalant* group had the lowest accuracy, a shorter reaction time in the translation task than the *conservative* and *burdened* groups, moderate scores for the vocabulary test, and low to moderate levels of self-reported language proficiency. The *nonchalant* brokers also had low translation frequency, low levels of brokering centrality and positive brokering experiences, and moderate levels of negative brokering experiences. The *burdened* brokers, while performing at average levels on the objective language proficiency measures, self-reported relatively low language proficiency. The *burdened* group also reported relatively low levels of translation frequency and low levels of positive brokering experiences, although they had relatively high levels of positive emotions. The *burdened* brokers also had the highest level of negative brokering experiences out of all four groups. The same language brokering profiles that emerged for translating for mother also emerged for translating for father; characteristics for each are similar to those described above (see Figure 2B for details). Overall, most groups had medium to high levels of language proficiency and translation frequency, and modestly positive subjective brokering experiences, but statistically meaningful differences emerged between the profile groups.

## Cultural orientation, cultural values, and language brokering profiles

### Developmental trajectories of cultural orientation and cultural values

A construct needs to be at least partially invariant at the structural level across time points to meet the assumption for LGCM (Little, 2013). Thus, we first evaluated whether Mexican/U.S. orientation, family obligation, and independence were structurally invariant across time. The model fit was compared among three measurement models for each variable: (1) a configural model with freely estimated factor loadings and item intercepts; (2) a metric invariance model with factor loadings constrained to be equal across waves; and (3) a scalar invariance model with both factor loadings and item intercepts constrained to be equal across waves. Partial scalar invariance is met when the majority of loadings and intercepts are invariant across time points (Little, 2013). Any given pair of models is considered significantly different from each other if two or more of the following criteria are met:  $\Delta\chi^2$  is significant ( $p < .05$ ),  $\Delta$  comparative fit

index  $\geq .01$ , and  $\Delta$  root mean square error of approximation  $\geq .01$  (Widaman et al., 2010). All cultural orientation and cultural value variables achieved metric invariance and partial scalar invariance, indicating that adolescent-reported Mexican orientation, U.S. orientation, family obligation, and independence were partially invariant on a structural level across the three waves. Details for model fit indices are presented in Table S5.

With partial structural invariance achieved, LGCMs were fitted for each cultural orientation or value separately. The model fit for the unconditional LGCMs with both random intercepts and random slopes (model a) is significantly better than the fit for the unconditional LGCMs with random intercepts only (model b). Therefore, we proceeded to further analyses with the latent intercepts and slopes obtained from model a. Adolescents reported relatively high levels of baseline Mexican orientation ( $b = 3.874$ ,  $SE = .022$ ,  $p < .001$ ), U.S. orientation ( $b = 3.745$ ,  $SE = .019$ ,  $p < .001$ ), family obligation ( $b = 4.232$ ,  $SE = .022$ ,  $p < .001$ ), and independence ( $b = 3.538$ ,  $SE = .027$ ,  $p < .001$ ) in early adolescence. Mexican orientation ( $b = 0.043$ ,  $SE = .006$ ,  $p < .001$ ), U.S. orientation ( $b = 0.019$ ,  $SE = .006$ ,  $p = .002$ ), and independence ( $b = 0.077$ ,  $SE = .009$ ,  $p < .001$ ) increased, while family obligation ( $b = -0.024$ ,  $SE = .006$ ,  $p < .001$ ) decreased, over time. The variances for all latent intercepts were significantly different from zero. The factor scores for all latent intercepts and slopes were saved out for subsequent analyses. Because none of the variances of latent slopes were significantly different from zero, the latent slopes were not included in the subsequent analyses. Figure S1 provides estimates of the unconditional LGCMs.

## Linking cultural orientations and cultural values to language broker profiles

We examined the link from the initial levels for cultural orientations and cultural values to language brokering profiles using the R3STEP option in Mplus. The Benjamini–Hochberg correction was used to account for multiple comparisons and identified significant findings at the .05 level (Benjamini & Hochberg, 1995).

Results reveal that adolescents' developmental patterns for Mexican orientation, unlike those for U.S. orientation or values, were significantly associated with adolescents' language brokering profiles in late adolescence. For profiles for translating for mothers, adolescents with higher initial levels of Mexican orientation were more likely to identify as *efficacious* than *conservative* ( $\beta = 1.854$ ,  $OR = 6.382$ , 95% CI [1.453, 28.032]) or *nonchalant* ( $\beta = 2.686$ ,  $OR = 14.678$ , 95% CI [3.541, 60.852]). Adolescents with higher initial levels of Mexican orientation were also more likely to identify as *burdened* than *nonchalant* ( $\beta = 2.462$ ,  $OR = 11.725$ , 95% CI [1.968, 69.852]). Female adolescents, versus male adolescents, were more likely to be *efficacious*

than *nonchalant* ( $\beta=1.451$ ,  $OR=4.267$ , 95% CI [1.982, 9.185]). Female adolescents, versus male, were also more likely to be *burdened* than *nonchalant* ( $\beta=1.616$ ,  $OR=5.032$ , 95% CI [1.833, 13.812]).

For language brokering profiles for translating for fathers, adolescents with higher initial levels of Mexican orientation were more likely to be *efficacious* than *conservative* ( $\beta=2.630$ ,  $OR=13.871$ , 95% CI [2.387, 80.616]) or *nonchalant* ( $\beta=3.310$ ,  $OR=27.395$ , 95% CI [6.405, 117.176]).

## Language brokering profiles and adolescent developmental outcomes

Adolescents' self-reported developmental outcomes at Wave 3 varied significantly across language brokering profiles for adolescent-reported translating for mother, even after controlling for demographic information and adolescents' developmental outcomes at Wave 1 (Figure 2C). Specifically, the *burdened* brokers reported higher levels of depressive symptoms and anxiety than the *efficacious* and *conservative* brokers. The *burdened* brokers also had higher levels of anxiety than the *nonchalant* brokers. The *nonchalant* brokers reported higher levels of depressive symptoms and delinquent behaviors than the *efficacious* brokers. The *nonchalant* brokers also reported higher levels of delinquent behaviors than the *conservative* brokers. Similar group differences emerged for language brokering profiles for adolescent-reported translating for father, with two exceptions (Figure 2D). First, for depressive symptoms, the *nonchalant* brokers scored similar to the *efficacious* group and had significantly lower levels than the *burdened* group. Second, the *conservative* brokers scored similar to the *nonchalant* brokers on delinquent behaviors.

## DISCUSSION

Despite recognizing the heterogeneity of language brokering experiences among bilinguals, the literature has rarely utilized both subjective and objective measures of bilingual proficiency to understand bilingual experiences in brokers (Surrain & Luk, 2019). The Tripartite Framework of Language Use in Immigrant Families (Kim et al., 2020) was, therefore, extended to add objective assessments of (1) vocabulary knowledge and (2) translation accuracy and reaction time to the already-existing self-report features of the framework. The current study's more nuanced multidimensional framework better captures the range of skills (by including objective bilingual skills), practices, and subjective experiences that are relevant to adolescents when they engage in real-time language brokering for their immigrant fathers and mothers and recognizes that brokering experiences with fathers and mothers in late adolescence could

vary due to brokers' endorsement of traditional Mexican cultural values in early adolescence. Recognizing the social and cultural nature of language brokering in naturalistic settings, this study also examined the association between early adolescents' endorsement of cultural orientations and values, as well as changes in cultural orientations and values over the course of adolescence, with membership in distinct language brokering profiles associated with varied developmental outcomes in late adolescence. Findings show that preservation of Mexican orientation, rather than endorsement of U.S. orientation and values, was a critical contributor to language brokering profiles characterized by high levels of emotional engagement (i.e., *efficacious* and *burdened* brokers). *Efficacious* brokers, a group with advanced vocabulary, shorter reaction time and accurate translation skills, high levels of self-reported proficiency, and more positive brokering experiences, were the most resilient in terms of their developmental outcomes. The *burdened* brokers, a group with average levels of objective bilingual proficiency skills, low levels of self-reported proficiency skills, and mixed brokering experiences (i.e., high in both positive and negative emotions) were the most vulnerable group.

## Inclusion of objective assessment of language proficiency skills in brokering profiles

The present investigation goes beyond the traditional approach of employing self-reported measures of language proficiency to also include an objective assessment of proficiency skills (i.e., vocabulary knowledge, translation accuracy, and reaction time) in language brokers. This dual focus, together with other interconnected components, including brokering frequency and subjective brokering experiences (e.g., efficacy, emotions, and stress), allowed us to investigate the variations in language brokering profiles. Four language brokering profiles (i.e., *efficacious*, *conservative*, *nonchalant*, and *burdened*) were identified for translating for fathers and mothers, indicating a within-family consistency in the development of language brokering profiles. Corresponding to findings in prior research (Gullifer et al., 2021; Kim et al., 2020), the largest group of language brokers (i.e., *efficacious*) in this study demonstrated high levels of bilingual skills in the objective assessment. When adolescents engage in more language brokering activities, the frequent practice may also allow them to develop greater linguistic competency (Dorner et al., 2007)—for example, enhanced vocabulary knowledge, as well as shorter translation reaction times, and higher translation accuracy. A strong sense of efficacy may relate to their endorsement of more positive emotions and less negative emotions and feelings, providing them with consistent motivation and the confidence they need to develop into *efficacious* brokers (Corona et al., 2012).



*Burdened* brokers, who were similar to *efficacious* brokers in terms of endorsing positive emotions, may also be emotionally motivated and engaged in language brokering for their immigrant parents. However, those in the *burdened* group showed significantly higher levels of negative feelings, emotions, and stress related to their language brokering experiences than adolescents in any of the other three profiles, although they had relatively moderate levels of performance in the objective assessment of language proficiency. Previous research has suggested that language brokering is an emotional experience (López et al., 2019), and that emotions vary depending on how brokers feel toward experiences that involve varied levels of bilingual ability. Perhaps, then, in brokering situations that require more advanced vocabulary, shorter translation reaction time, and higher translation accuracy, *burdened* brokers may feel less confident about accomplishing translation tasks, as evidenced by the lower levels of efficacy and self-reported bilingual proficiency skills of this group compared to other profiles.

The second largest group (*nonchalant*) was found to be emotionally detached about language brokering for their immigrant parents. The *nonchalant* brokers showed a contradictory pattern in the objective assessment of bilingual proficiency (shorter reaction time but low accuracy in the translation tasks, regardless of whether sentences were easy or difficult). Previous research found that recognition of linguistic benefits is the key for adolescents to stay motivated during translation tasks (López et al., 2019). Among the four language brokering profiles, *nonchalant* brokers demonstrated the lowest level of linguistic benefits, suggesting that the *nonchalant* group lacks the motivation to go beyond speed-oriented brokering strategies. With low accuracy in brokering tasks, they may have more difficulty maintaining confidence in being effective language brokers, which perhaps explains why they were less likely to have positive emotions about their brokering experiences.

The *conservative* profile also showed low levels of emotional attachment to language brokering. It is noteworthy that the *conservative* brokers had the longest reaction time in the objective assessment despite demonstrating moderate levels of vocabulary knowledge and accuracy in the translation tasks. This group seemed to adopt more conservative strategies so as to create less emotional burden, as they reported low levels of stress and negative emotions regarding their language brokering experiences.

Collectively, study findings are in line with the framework which recognizes the reciprocal influence of bilingual proficiency and emotions tied to brokering experiences (López, 2020). Given that adolescent brokers' emotions may relate to their perceptions of proficiency in language brokering, intervention programs designed to advance adolescent brokers' bilingual proficiency skills may help reframe brokers' emotional experiences

of language use, building a greater sense of efficacy and confidence as brokers.

## Mexican orientation and cultural values as a contributor to language broker profiles

Prior research shows that internalization of cultural values could begin to emerge and take shape in early adolescence (Daniel et al., 2012). As the current study is one of the first empirical studies to adopt a longitudinal approach in exploring the initiation and changes of cultural orientations and values over the course of adolescence, study findings may shed light on how these socio-cultural contributors later develop into distinct language broker profiles. Adherence to a Mexican cultural orientation, rather than to U.S. cultural orientation and values in early adolescence, was associated with the formation of distinct language brokering profiles in late adolescence. This confirms the prior research suggesting that Mexican American early adolescents who endorse their heritage culture are encouraged to help other family members without regard for self-reward (Armenta et al., 2011). The lack of associations between U.S. cultural orientation and values and varied brokering profiles is contrary to the hypothesis that the endorsement of U.S. cultures may be beneficial for language brokering (Kam & Lazarevic, 2014). One possible reason is that the variability of U.S. cultural orientation was generally small in our sample of adolescent brokers, possibly limiting the ability to detect significant associations with distinct brokering profiles in late adolescence. Future research should investigate further how U.S. cultural orientation and values may associate with the formation of various brokering profiles using a nationally representative sample.

Overall, a stronger sense of Mexican orientation in early adolescence was associated with a language broker profile that was characterized by emotional engagement in language brokering (i.e., *efficacious* or *burdened*) as opposed to emotional detachment (i.e., *conservative* or *nonchalant*). That is, high initial levels of Mexican orientation were associated with being *efficacious* rather than *conservative* or *nonchalant* brokers when translating for both fathers and mothers. Meanwhile, high levels of Mexican orientation in early adolescence were also related to higher likelihood of being in the *burdened* group relative to the *nonchalant* group, but only when translating for mothers. Within-family consistency emerged in this study sample, indicating that preservation of Mexican orientation may strengthen early adolescents' emotional ties to their family members (e.g., fathers and mothers), possibly leading to an engagement in language brokering (Tilghman-Osborne et al., 2016). However, study findings suggested that high endorsement of Mexican orientation in early adolescence may also pave the way for



the development of a *burdened* profile in late adolescence when translating for mothers. This may be partly related to adolescents' perceptions of brokering experiences (e.g., feeling efficacious or stressed) when they engaged in language brokering for family members (Dorner et al., 2008). For instance, when adolescents take on adult tasks, such as reading legal documents to a parent, those who rate their bilingual proficiency skills highly, and who feel more confident about language brokering, may be more likely to have an *efficacious* profile. On the other hand, adolescent brokers who feel less confident about their bilingual proficiency skills, and who view language brokering as a stressful experience, may be more likely to have a *burdened* profile. For this reason, future research should identify potential factors that may play a significant role in the development of divergent language brokering profiles (i.e., *efficacious* or *burdened*) by late adolescence, particularly in the case of translating for mothers. It is important to note that while higher initial levels of Mexican orientation were associated with a higher likelihood of being in the *burdened* group compared to the *nonchalant* group when translating for mothers, this association was not observed for fathers. One possible reason is that in Mexican-origin immigrant families, mothers are the most important socializing agents for adolescents (Umaña-Taylor et al., 2013). It is likely that adolescents have more opportunities to engage in a wide range of language brokering tasks for their mothers, which may require more emotional engagement compared to translating for their fathers.

The present investigation also examined the change/stability of Mexican and U.S. cultural orientation and values from early to late adolescence. While adolescents' cultural orientations/values continue to develop over this time period, no significant changes were observed during the course of adolescence. It is possible that parents, who are critical socializing agents for adolescents in early adolescence, may become less influential over the course of adolescence. Correspondingly, peers may become increasingly significant sources of influence as adolescents spend more time socializing with their peers to acquire culturally valued goals and behaviors (Smetana et al., 2015). However, the current study did not examine how peers may shape adolescents' cultural orientation and values during adolescence. Peers can have a profound impact in later adolescence, when adolescents may develop varied language brokering statuses and relevant strategies, making this a possible direction for future research and intervention efforts. Additionally, given the lack of variability in our current study sample, we did not proceed to test for how changes in cultural orientations/values would be related to language brokering profiles. Nevertheless, our findings highlight the importance of endorsing Mexican orientation in early adolescence in the formation of language brokering profiles later in

adolescence. This aligns with the perspective that early adolescence is a developmental period when culturally relevant values are internalized, as ethnic identity begins to take shape (Armenta et al., 2011). Intervention efforts aiming to foster a strong sense of heritage orientation in early adolescence would, therefore, be important.

### Developmental outcomes: Implications for language brokers' adjustment

Although past studies have found associations between language brokering and adolescents' adjustment outcomes (Weisskirch, 2017), they have rarely recognized how heterogeneous experiences of language brokering, as practiced in immigrant communities in real time, may relate to late adolescents' developmental outcomes (García Coll et al., 1996). The current study extended prior research (Kim et al., 2020) by examining Mexican-origin adolescents' adjustment variations related to their bilingual language use in their daily lives. Overall, the *efficacious* brokers were found to be the most resilient whereas the *burdened* and *nonchalant* brokers were the most vulnerable to psychological and behavioral adjustment difficulties. The *conservative* brokers seemed to demonstrate average levels of developmental outcome indicators.

Consistent with our hypothesis, the *efficacious* brokers reported fewer negative developmental outcomes in late adolescence compared to *burdened* and *nonchalant* brokers. Motivated by a strong emotional endorsement of the need to support their immigrant families, the *efficacious* brokers may assume that language brokering is a way to fulfill their obligation to the family. With high levels of language proficiency skills, which indicate their ability to code-switch easily, *efficacious* brokers may be better able to cope with the demanding and challenging aspects of brokering tasks and more likely to endorse fewer negative emotions, such as feeling nervous, worried, and stressed, and more positive emotions, such as feeling happy, proud, and accomplished while language brokering (Dorner et al., 2007; Weisskirch, 2006). Perhaps their positive brokering experiences help the *efficacious* brokers become the most resilient group, with low levels of internalizing and externalizing symptoms when it comes to developmental outcomes.

Understanding that adolescence is a sensitive period for developing mental health and behavioral problems (Fuhrmann et al., 2015), the current investigation is one of very few studies that have examined how language broker profiles may relate to both internalizing symptoms and delinquency. The *burdened* group reported high levels of internalizing symptoms, including depressive symptoms and anxiety, while the *nonchalant* group indicated a higher likelihood of engaging in delinquent behaviors. In relation to the *nonchalant*



brokers, the *burdened* brokers may feel more emotionally attached to their parents and have a greater desire to help them (Tilghman-Osborne et al., 2016). Perhaps, when *burdened* brokers are expected to assist their families with language brokering tasks beyond their linguistic capabilities, they are more likely to feel anxious (Kam & Lazarevic, 2014) and depressed because of feelings of helplessness (Rainey et al., 2014). It is also possible that adolescent brokers who had more depressive symptoms and higher anxiety may have also viewed their brokering experiences as more *burdened* and negative (Shen et al., 2020), such that by late adolescence they were more likely to identify as *burdened* brokers. Future research could examine the directionality of the associations between brokering experiences and internalizing symptoms to better account for developmental outcomes in adolescent brokers. *Nonchalant* brokers have been found to be emotionally detached or have loose ties to their families; they may also be less likely to engage in brokering activities and may report a weaker sense of brokering efficacy (Kim et al., 2020). This may explain the greater susceptibility to delinquent behaviors in adolescent brokers (Kam, 2011) with a *nonchalant* profile.

Similar findings for the associations between language broker profiles and developmental outcomes emerged for adolescents, whether they were translating for immigrant fathers or mothers. However, one notable difference was that, when they translated for fathers, the *nonchalant* brokers reported levels of depressive symptoms similar to those reported by the *efficacious* brokers, whereas when they translated for mothers, the *nonchalant* brokers reported higher levels of depressive symptoms than the *efficacious* brokers. This difference could be attributed to the varied parental socialization experiences in traditional Mexican American families (Paquette, 2004), where adolescents may have different language brokering experiences with their mothers and fathers based on the content, requirements, and expectations of the translation task (Updegraff & Umaña-Taylor, 2015). It is possible that translating tasks for fathers are relatively direct, and it is easy to fulfill their instrumental needs (e.g., making a payment and scheduling a medical appointment), whereas mothers may require more emotional engagement beyond speed-oriented brokering strategies. Therefore, *nonchalant* brokers may experience levels of language brokering stress and depressive symptoms similar to those experienced by *efficacious* brokers while translating for fathers. As there is limited literature on the specific processes through which adolescents' identification of brokering status and their experiences of translating for their father and mother may link to their developmental outcomes, more research is needed to inform intervention efforts.

As a whole, our study supports the notion that bilingualism is a heterogeneous experience, and therefore

interventions should focus not only on helping *burdened* brokers bolster their sense of efficacy and confidence but also on promoting positive experiences and mitigating negative experiences in language brokering. We particularly call for activities or intervention programs that could support *burdened* brokers to develop skills that will enable them to function better in more diverse situations (Gort, 2008), which may also help boost their confidence. For *nonchalant* brokers who lack the motivation to engage in brokering activities, our analyses call for a family-based program that promotes positive interaction and feedback between adolescent brokers and their immigrant parents.

## Limitations and future directions

Although the current study integrates both self-reported and objective assessments of language brokers' bilingual proficiency skills, we recognize the limitations of utilizing only three aspects (i.e., reaction time, translation accuracy, and vocabulary knowledge) of objective language proficiency. A more standardized test of proficiency to assess the cognitive aspect of adolescents' brokering skills is called for. In addition, as our study only measured proficiency skills in written form, future research should consider an assessment in real-time oral form, which may provide a more comprehensive overview of language brokers' experiences in naturalistic settings. Second, our sample was recruited in Mexican-origin concentrated neighborhoods in central Texas, where adolescents are more likely to be embedded in environments with strong levels of heritage culture. Therefore, future researchers interested in revealing the association of cultural orientations and values with language brokers' outcomes are advised to recruit participants across ethnically diverse neighborhoods and around the country. Additionally, while language brokering for parents is one critical translation duty that adolescents take on, they may also be responsible for translating for extended family members. Future studies could further investigate the contributors and outcomes of language brokering for different family members in varied contexts. Lastly, the current study focused on the concurrent association of language brokering profiles and adolescent outcomes, and future studies could further investigate the long-term influence of brokering experiences on youth development using longitudinal data.

## CONCLUSION

The current study contributed to the field by expanding the Tripartite Framework of Language Use in Immigrant Families (Kim et al., 2020) and by taking a dual-focus perspective on language proficiency skills to untangle the variations in language brokering profiles

among Mexican-origin adolescent brokers. In recognition of the socio-cultural nature of language brokering in naturalistic settings, this study (1) adopted a longitudinal approach to assess adolescents' endorsement of cultural orientations and values, both as contributors in early adolescence and across the course of adolescence, to understand how distinct language brokering profiles are formed; and (2) revealed the varied developmental outcomes identified in late adolescence among this group of bilinguals. As a whole, results suggest that early adolescent Mexican orientation was related to adolescents' membership in one of four profiles. Distinguishing between adaptive (i.e., *efficacious*) and risk (i.e., *burdened* and *nonchalant*) profile membership in terms of developmental outcomes requires paying attention to brokers' emotional experiences, coupled with a dual focus on bilingual proficiency indicators (i.e., self-reported and objective assessment of language proficiency skills). Integrating the socio-cultural contributors and developmental outcomes, future interventions should focus on supporting young brokers by fostering a strong sense of culturally oriented motivation and by increasing their efficacy/language skills to reframe their brokering experiences.


#### FUNDING INFORMATION

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#### DATA AVAILABILITY STATEMENT

The data, analytic code, and materials necessary to reproduce the analyses presented here are not publicly accessible. Data are available from the first author upon reasonable request. The analyses were not preregistered.

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## SUPPORTING INFORMATION

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