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## Chinese American Adolescents' Perceptions of the Language Brokering Experience as a Sense of Burden and Sense of Efficacy

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### Abstract

Children of immigrants who do translations and who interpret for others using their heritage language and English are known as language brokers. Although prior research suggests that children of immigrants' perceptions of the language brokering experience vary greatly—from feeling a sense of efficacy to feeling a sense of burden—what remains unanswered in the literature is identification of the antecedents and processes that help to explain the varying psychological experience of language brokers. Using data from a two-wave prospective longitudinal study of 256 Chinese American adolescents, the present study tested potential mechanisms that may be responsible for adolescents' perceptions of the language brokering experience as a sense of burden or sense of efficacy. The results demonstrate that adolescents' Chinese orientation sets in motion a family process that is linked to variations in the perceptions of adolescents' language brokering experience. Adolescents who are more Chinese oriented have a stronger sense of familial obligation, and these adolescents are more likely to perceive that they matter to their parents. Adolescents' perceived sense of mattering to parents, in turn, is associated positively with a sense of efficacy, and negatively with a sense of burden as language brokers. Those adolescents who are less Chinese oriented have a weaker sense of familial obligation, and these adolescents are more likely to feel a sense of alienation from their parents. Adolescents' sense of perceived alienation from parents, in turn, is associated with a sense of burden as language brokers. Implications for developing interventions for children who act as language brokers for their parents are discussed.

### Keywords

Language brokering; Cultural orientation; Parent; child relationship; Chinese American; Children of immigrants

### Introduction

Children of immigrants who do translation and who interpret for other people between their heritage and the English languages are known as language brokers (McQuillan and Tse 1995). Although the literature on language brokering is limited, prior research suggests that children of immigrants' perceptions of the language brokering experience vary greatly—from feeling a sense of efficacy (e.g., feeling proud, helpful, and useful) to feeling a sense of burden (e.g., feeling embarrassed, burdened, and uncomfortable) as language brokers (McQuillan and Tse 1995; Tse 1996). Studies show that children who act as language brokers demonstrate more internalizing symptoms (Chao 2006) and perceive more family conflicts with parents (Jones

and Trickett 2005; Trickett and Jones 2007). Other studies, however, show positive outcomes in child language brokers, such as high academic performance and academic self-efficacy (Buriel et al. 1998; Dorner et al. 2007), and positive parent–child relationships (because of communicating and interacting with parents as language brokers) (Chao 2006). These studies relied on the frequency or type of language brokering and its effects on child outcomes. It may be that capturing the psychological meaning of language brokering can be useful for understanding how and why some children of immigrants become *negatively affected* as language brokers, while others *benefit*. Unlike previous research on language brokering, the present investigation focuses on studying the language brokering construct as the dependent variable to test potential antecedents and processes that may be responsible for a sense of efficacy and/or a sense of burden in children of immigrants' psychological experience as language brokers.

The present investigation proposes to test mediational models using two waves of a prospective longitudinal study of Chinese American adolescents. When the adolescents were in middle school and high school, the present study tests the role of the adolescents' orientation toward the Chinese culture and family mediators (sense of familial obligation and the quality of perceived relationships with parents) as potential mechanisms that may help to explain the variations in the adolescents' perceptions of the language brokering experience while in high school. Although past research demonstrates associations (mostly correlational) between two or more of the study variables in the present investigation's proposed theoretical models (Fuligni et al. 1999; Love and Buriel 2007; Oetting and Beauvais 1990; Weisskirch 2007), there does not appear to be research examining all the variables (Chinese orientation, sense of familial obligation, perceived relationship with parents, and language brokering) together in one theoretical model. The longitudinal nature of the data in the present investigation allows the use of autoregressive and cross-lagged techniques to statistically control for prior level of the dependent variables—confounding variables that could bias the estimates of the effects from the independent to the dependent variables (Gershoff et al. in press; MacCallum and Austin 2000). Using such a study design, it is possible to investigate the mediational chains within the same wave as well as across the two waves of data (MacKinnon et al. 2007). This technique allows inference for the directional influences of the main study variables.

### **Sense of Burden or Sense of Efficacy in Children of Immigrants' Perceptions of the Language Brokering Experience**

Some researchers suggest that language brokering can be emotionally challenging and demanding for many children of immigrants (e.g., Tse 1995; Weisskirch and Alva 2002). In these studies, many participants feel a sense of burden and experience psychological distress when language brokering. They also report feelings of frustration, stress, anger, and anxiety because of the responsibilities and pressures associated with language brokering. For children of immigrants, the negative psychological experience of language brokering often places them in a vulnerable position for a host of risky health and social problems (Chao 2006). The language brokering literature also reveals many potential benefits for children of immigrants who are language brokers. Some participants in the studies believe that the responsibilities of language brokering help boost their confidence, and increase their self-esteem, independence, and sense of social maturity (McQuillan and Tse 1995). While the evidence suggests that language brokering can be potentially harmful or beneficial for children of immigrants who are language brokers, what remains unanswered in the literature is why the psychological meaning of language brokering differs so greatly among children of immigrants. In addition, the potential mechanisms and processes that may be responsible for the variations in these children's perceptions of the language brokering experience, such as perceiving a sense of burden or efficacy as language brokers, is relatively unknown. By uncovering some of these mechanisms and processes, findings from the present investigation can be useful in identifying

identifiable mediators to implement in interventions to improve the well-being of children of immigrants who are language brokers.

### **The Role of Chinese Orientation and Family Mediators in Understanding the Variations in Chinese American Adolescents' Perceptions of the Language Brokering Experience**

The present investigation proposes to test a theoretical model where the orderings of the constructs are identified a priori based on prior research. Specifically, the present investigation posits that Chinese American adolescents' Chinese orientation is the impetus for the variations in their perceptions of the language brokering experience. Previous research shows that Chinese American adolescents' Chinese orientation is closely linked to the adolescents' sense of familial obligation (Fuligni et al. 1999). The adolescents' strong or weak sense of familial obligation has different implications for the quality of their perceived relationships with parents (Fuligni et al. 2002) and this, in turn, may be related to adolescents' perceptions of the language brokering experience (Love and Buriel 2007; Weisskirch 2007).

#### **Relationships among Study Constructs**

According to Fuligni et al. (1999), familial obligation is a core construct that reflects Chinese American adolescents' heritage cultural values regarding the importance of the family. In their study with Chinese American adolescents, Fuligni et al. (1999) found that adolescents who are more Chinese oriented are more likely to place greater importance on fulfilling familial obligations. Based on Fuligni et al.'s findings (1999), it is possible that the Chinese American adolescents who are more Chinese oriented are likely to believe that fulfilling familial obligations is an important part being Chinese. When examining Chinese American adolescents' perceptions of the language brokering experience when acting as language brokers for their parents, it is important to consider constructs in a theoretical model that measure the degree to which the adolescents are willing to assist the family, and the potential ways that differentiate those who feel strongly about fulfilling familial obligations and those who do not. Adolescents' Chinese orientation may be what propels adolescents to feel a stronger sense of familial obligation and to believe in the importance of assisting the family.

As the present investigation examines Chinese American adolescents' perceptions of the language brokering experience when language brokering for their mothers and fathers, the present investigation considers how the quality of the adolescents' perceived relationship with their parents may affect the language brokering experience. Studies show that children who assume more responsibilities to fulfill familial obligation are more likely to have positive relationships with their parents (Fuligni et al. 1999, 2002; Walsh et al. 2006). In present study, adolescents who perceive positive relationships with their parents is operationalized as perceived mattering to parents (the adolescents feel that they matter to their parents). According to Fuligni and colleagues' studies, Chinese American adolescents who have a strong sense of familial obligation are more likely to perceive that they matter to their parents. Elliott et al. (2004) state that children who feel that they matter to their parents are more likely to recall receiving support from their parents and making joint-decisions with their parents. If so, Chinese American adolescents who perceive that they matter to their parents may feel more competent when performing language brokering tasks for them. Indeed, Love and Buriel (2007) find that Mexican American adolescents who perceive positive relationships with their parents are better able to cope with the demanding and challenging aspects of language brokering.

Chinese American adolescents who have a weak sense of familial obligation are likely to have fewer opportunities to interact with their parents. Due to the loose ties to their families and to their parents, these adolescents may be more likely to feel a sense of alienation from their parents. Adolescents who perceive a sense of alienation from parents may feel that their parents

are detached from them and unresponsive to their needs and concerns (e.g., Armsden and Greenberg 1987). For this reason, they may not garner the help and support they need from their parents to perform language brokering tasks which, in turn, negatively affect the adolescents' perceptions of the language brokering experience. Indeed, Weisskirch (2007) finds that Mexican American adolescents who perceive poor relationships with their parents also report feeling a sense of burden when language brokering for their parents. In the present investigation, adolescents who perceive poor relationships with their parents (operationalized as perceived alienation from parents) are expected to relate to a stronger sense of burden and a weaker sense of efficacy in their experience as language brokers.

One limitation of the aforementioned research is that the associations among the study variables are typically correlational. Thus, the present investigation also explores alternative direction of influence among the main study variables. Specifically, two alternative models are tested. First, adolescents who feel alienation from their parents are less likely to feel a strong sense of familial obligation and be less Chinese oriented. The low Chinese orientation suggests a lack of desire to help the family, such that language brokering tasks become more of a burden and not a source of efficacy for language brokers. Second, because of the shared Chinese cultural values between adolescents and parents, adolescents who are more Chinese oriented are less likely to feel alienation from their parents. If so, adolescents who rate themselves as low on perceived alienation from parents are more likely to feel connected to their parents and are more likely to place high importance on fulfilling familial obligations. A strong sense of familial obligation is likely to motivate Chinese American adolescents to assist their parents with language brokering tasks, providing a sense of efficacy and a low sense of burden in their experience as language brokers.

## The Current Study

Building on the scholarships of previous researchers, the following hypotheses are tested. First, Chinese American adolescents who are more Chinese oriented are likely to have a greater sense of familial obligation even after controlling for their earlier levels of Chinese orientation and sense of familial obligation. Second, those who have greater sense of familial obligation are likely to feel that they matter to their parents. Those who have a weaker sense of familial obligation are likely to feel alienated from their parents. Third, this variation in perceived relationships with parents, in turn, is expected to relate to the experiences of Chinese American adolescents' language brokering. Two scales for the language brokering experience are used: adolescents' sense of burden and sense of efficacy. A sense of perceived mattering to parents is expected to associate *positively* with their sense of efficacy and *negatively* with a sense of burden when language brokering for their parents. In the model involving perceived alienation from parents, a sense of perceived alienation from parents is expected to associate *negatively* with the adolescents' sense of efficacy as language brokers and *positively* with sense of burden as language brokers.

The present study links the associations tested above in one theoretical model and tests for mediated pathways to understand Chinese American adolescents' perceptions of the language brokering experience. The study focuses on the adolescents' perceptions of the language brokering experience in high school by testing how the adolescents' Chinese orientation during the period of both middle school and high school influence their sense of familial obligation over the same time period. The sense of familial obligation is then linked to adolescents' perceptions of the quality of relationships with parents (tested separately for perceived mattering to parents and perceived alienation from parents) over the same time period which, in turn, is expected to relate to adolescents' perceptions of the language brokering experience (sense of efficacy and/or burden).

The present investigation also tests a theoretical model where Chinese American adolescents' perceived mattering to parents and perceived alienation from parents are included in the same model. By testing a model that includes both constructs, it becomes possible to determine whether the significant mediational and direct effects from the separate models (one involving perceived mattering to parents and the other involving perceived alienation from parents) still hold even when the two constructs of the quality of the parent-child relationship are included in the same theoretical model.

In testing all of the proposed mediational models, autoregressive relationships among the same variables over time, concurrent relationships between the variables at the same time, and cross-lagged relationships between the variables over time are tested. For the two alternative models, tests of indirect effects examine the following mediational pathways. First, adolescents who feel alienated from their parents are likely to have a weak sense of familial obligation, which is linked to lower levels of Chinese orientation. Chinese orientation, in turn, is expected to relate to their perceptions (efficacy and burden) of the language brokering experience. Second, adolescents who are more Chinese oriented are less likely to feel alienation from their parents, which is linked to placing less importance on familial obligations. The sense of familial obligation, in turn, is expected to relate to their perceptions (efficacy or burden) of the language brokering experience.

Based on the literature on Chinese American parenting where the father in the family is likely to sustain a more disciplinary and authoritarian role and the mother a more nurturing role (Chao 2001; Kim and Wong 2002), adolescents in these families are likely to have different experiences when performing language brokering tasks for each parent. For this reason, separate analyses are conducted when assessing the adolescents' experiences when language brokering for mothers versus fathers.

## Method

### Participants

Chinese American adolescents residing in metropolitan areas of Northern California participated in a two wave-longitudinal study. Wave 1 data collection occurred when the participants were in early adolescence (7th or 8th grade), and wave 2 in middle adolescence (11th or 12th grade). The original sample consists of 444 adolescents. Given that the focus of this study is on adolescents' perceptions of the language brokering experience, only those participants who report language brokering for their parents are included in the present investigation. At wave 2, a total of 256 adolescents report translating for either their mother or father.

*T*-tests results reveal significant differences between the sample of translators in the present study and non-translators excluded from the study. For example, compared to non-translators, participants who translate for either their mothers or fathers are more Chinese oriented, are more likely to perceive alienation from parents, and are more fluent in speaking and understanding Chinese. Compared to non-translators, adolescents who translate for their fathers are less fluent in speaking and understanding English.

Of the 256 adolescent participants at wave 2, 61% are female. Most of them are born in the US (70%), while almost all of their parents (98.60% of fathers, 99.6% of mothers) are born outside of the US. The majority of the participants' parents come from Guangdong province of southern China or Hong Kong. Most of the adolescents are fluent in speaking/understanding and reading/writing English. The language fluency items are self-rated on a response scale of 1 (not well at all) to 5 (extremely well). At wave 2, the mean for the adolescents' Chinese speaking and understanding abilities is 3.73 (SD = 0.89), and the mean for the adolescents'

Chinese reading and writing abilities is 2.33 (SD = 1.21). The mean for the adolescents' English speaking and understanding abilities is 4.17 (SD = 0.82), and the mean for the adolescents' English reading and writing abilities is 4.02 (SD = 0.94). Only 13% of the fathers and 5% of the mothers speak and understand English very well or extremely well. The percentage of fathers and mothers able to read and write English very well or extremely well are 11 and 4%, respectively. About 83% of fathers and 92% of the mothers report primarily speaking in Chinese with their adolescents. On average, mothers and fathers completed some high school. Most of the families have a median income in the range of \$30,001 to \$45,000.

## Procedure

After the school districts in northern California gave their consent to conduct the study, seven middle schools with a substantive population of Asian American students (at least 20% of student body) were contacted to participate. Wave 1 data collection occurred in year 2002, and wave 2 in year 2006. In wave 1, eligible Chinese American students were identified with the help of school administrators at each school. In total, 47% of the identified students agreed to participate and subsequently received questionnaire packets. Of those participants who received questionnaires, 76% completed the surveys. Four years later (year 2006), adolescents who completed the wave 1 questionnaires were invited for a follow-up study. About 79% of the wave 1 adolescent participants completed the wave 2 questionnaires. In both waves of data collection, participants had the option of completing the questionnaires in the English or Chinese version. In order to ensure comparability of the two versions, the questionnaires were first translated to Chinese and then back translated to English. Inconsistency between the Chinese and English versions was resolved by two bilingual research assistants with careful consideration of culturally appropriate meaning of the items.

An attrition analysis is conducted to examine whether those who dropped out of the study after wave 1 are significantly differed from those who remained at wave 2, with respect to parental education, family income, parent and child immigration status, child age, parent marital status, and parental age. It appears that compared to girls, boys are less likely to have participated at wave 2,  $\chi^2(1) = 16.1, p < 0.001$ . To account for this difference, the gender of adolescents is included as a covariate for all analyses. In order to ensure that the findings are robust regardless of demographic characteristics, parental education, parental income, child immigration status, and child age are included as covariates in all analyses. The analyses also include a covariate for adolescents' frequency of language brokering, to ensure that the study findings would be robust regardless of the variation around the frequency of language brokering.

## Measures

**Chinese Orientation**—At both waves 1 and 2, adolescents' Chinese orientation is assessed using 10 items from the Vancouver Index of Acculturation (Ryder et al. 2000). On a response scale ranging from 1 (strongly disagree) to 5 (strongly agree), this scale assesses the adolescents' participation in Chinese cultural activities, affiliation with Chinese people, endorsement of Chinese values and behaviors, and preference for Chinese entertainment. Sample items are: "I believe in Chinese cultural values," "I often behave in ways that are typical of the Chinese culture," and "It is important for me to develop and maintain Chinese cultural practices." According to Ryder et al. (2000), the VIA is a valid instrument for use with Chinese samples. In Ryder et al. (2000)'s study, this subscale show high internal consistency and good validity with the Chinese sample. For the Chinese American adolescents in the current study, the Chinese orientation scale shows an alpha of 0.84 in wave 1; the alpha in wave 2 is 0.87.

**Sense of Familial Obligation**—Chinese American adolescents' sense of familial obligation is assessed at wave 1 and 2 using a condensed version of Fuligni et al's familial obligation measure (1999). On a response scale ranging from 1 (not at all important) to 5 (very

important), participants responded to 13 items about their attitudes toward current assistance to the family, the importance of respecting and following the wishes of parents, and their obligation to support and be near their families in the future. Sample items included, “Treat your parents with respect,” “Do well for the sake of your family,” and “Help your parents financially (give them money) in the future when you get older.” In several studies, Fuligni and colleagues demonstrate that the familial obligation measure shows good reliability and validity with Chinese/Asian adolescents (Fuligni et al. 1999, 2002). Participants’ responses on this measure in the current study yields Cronbach’s alphas of 0.89 for wave 1 and 0.91 for wave 2.

**Perceived Mattering to Parents**—Chinese American adolescents’ perceived mattering to mothers and fathers is assessed in wave 2 only using a condensed version of Marshall’s mattering scale (Marshall 2001). Adolescents answered four questions regarding their perceived sense of mattering to their fathers and mothers on a scale ranging from 1 (never) to 7 (always). Sample items included: “Let you know you matter” and “Let you know you are special.” Chinese American adolescents’ responses on this measure yield Cronbach’s alpha of 0.93 for mothers, and an alpha of 0.94 for fathers.

**Perceived Alienation from Parents**—Chinese American adolescents’ perceived alienation from parents is assessed using the alienation from parents subscale of Armsden and Greenger’s Inventory of Parent and Peer Attachment (IPPA) (1987). This measure is assessed in waves 1 and 2. Ying et al. (2007) find that the IPPA show good reliability and validity with a Chinese American sample. On a response scale of 1 (almost or never true) to 5 (almost always or always true), participants answered eight questions assessing their perceived alienation from parents and isolation. Sample items include “I have to rely on myself when I have a problem to solve,” “I don’t know whom I can depend on these days,” and “My parents don’t understand what I’m going through these days.” Participants’ responses on this measure yield Cronbach’s alphas of 0.84 in wave 1; the alpha in wave 2 is 0.86.

**Perceptions of the Language Brokering Experience**—Chinese American adolescents’ perceptions of the language brokering experience are only assessed at wave 2. Several items are adapted from McQuillan and Tse (1995) and Tse (1996), and some items are developed for the purpose of this study. On a response scale ranging from 1 (strongly disagree) to 5 (strongly agree), this measure assesses adolescents’ sense of burden and sense of efficacy as language brokers for mothers and fathers.

Exploratory and confirmatory analyses (EFA and CFA) are conducted to determine the factor structure of the language brokering items using Mplus version 5.1 (Muthen and Muthen 2006). The fit of the models to the data is evaluated using the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean residual (SRMRs). Good model fit is represented by CFI values of 0.95 or above, RMSEA values of 0.06 or below, and SRMR values of less than or equal to 0.08 (Hancock and Freeman 2001), with 0.90 representing the lower bound for an acceptable CFI value and 0.08 representing the upper bound for an acceptable RMSEA value (Quintana and Maxwell 1999).

For the five-item sense of burden and the three-item sense of efficacy scales, EFA results demonstrate that the model fit is acceptable for a two-factor solution (mothers:  $\chi^2(13) = 43.51$ ,  $p = 0.00$ , CFI = 0.95, RMSEA = 0.10, SRMR = 0.03; fathers:  $\chi^2(28) = 708.46$ ,  $p = 0.00$ , CFI = 0.94, RMSEA = 0.11, SRMR = 0.04). The two-factor solution shows only two eigenvalues above the recommended threshold of 1.00 (Gorsuch 1983). Subsequent factor solutions show eigenvalues below 1.00.

CFA is conducted to test whether the EFA solution of two distinct scales can be confirmed. CFA model fits were excellent for mothers ( $\chi^2(17) = 18.60, p = 0.35, CFI = 1.00, RMSEA = 0.02,$  and  $SRMR = 0.04$ ) and for fathers ( $\chi^2(18) = 31.67, p = 0.02, CFI = 0.98, RMSEA = 0.06,$  and  $SRMR = 0.04$ ). Sample items for the sense of burden scale are as follows: “It is stressful to translate,” “Translating takes time away from other things I want to do,” and “Translating is a burden.” The three items for the sense of efficacy scale are: “Translating makes me feel independent and mature,” “I feel useful when I translate,” and “I feel competent and capable when I translate for my parents.” Participants’ responses on the sense of burden scale show Cronbach’s alpha of 0.83 for mothers and 0.86 for fathers. The Cronbach’s alpha for the sense of efficacy scale when language brokering for mothers and fathers is 0.77.

**Frequency of Language Brokering**—Chinese American adolescents’ frequency of language brokering for their mothers and fathers is assessed separately. The question has a response scale from 1 to 5, with 1 representing “Never,” 3 representing “A few times a month,” and 5 representing “Daily.”

## Results

### Data Analytic Strategy

Structural equation modeling (SEM) is used to test the hypothesized models. The advent of SEM allows for the simultaneous estimation of all paths in the hypothesized models in order to control for all potential relations among the variables in the calculation of any given path (Martens and Haase 2006). None of the variables exceeded the cutoffs for skewness ( $>2$ ) and kurtosis ( $>7$ ) identified by West et al. (1995) as violating normal distribution of the study variables. The full information maximum likelihood (FIML) estimation method is used to handle missing data. This method allows for the use of all available data to generate maximum likelihood-based parameters and fit estimates. In all analyses, the same criteria outlined previously to determine model fit (Hancock and Freeman 2001; Quintana and Maxwell 1999) is used.

Traditionally, the first step in mediation testing involves establishing a significant relationship between the exogenous and endogenous variables (Baron and Kenny 1986). More recently, Shrout and Bolger (2002) argue that when the association between the exogenous and endogenous variables is distal or weak, the first step in Baron and Kenny’s (1986) approach can be skipped to avoid making a type II error. Rather, the focus should be on demonstrating significant relationships between each of the linked constructs in the mediated pathway. The current study follows this recommendation and reports significant mediated (indirect) effects, which are calculated using the delta method for estimating standard errors in Mplus (Muthen and Muthen 2006). Following the recommendation of MacKinnon et al. (2007), point estimates are reported as well as 95% confidence intervals for all significant indirect effects.

### Descriptive Statistics and Correlational Analyses

Table 1 contains the zero-order correlations, means, and standard deviations among all of the variables used in testing the theoretical models. Table 1 shows that 20 out of 36 correlations (for the main study variables) are significant for mothers, and 20 out of 36 correlations are significant for fathers. However, the same set of correlations is not necessarily significant across mothers and fathers. For example, the correlation between Chinese orientation at wave 2 and perceived mattering to parents at wave 2 is significant for mothers but not for fathers. The correlation between familial obligation at wave 1 and sense of efficacy as language brokers at wave 2 is significant for fathers but not for mothers.



All stability (same construct over time) correlations are significant. For example, Chinese orientation at wave 1 and wave 2 are significantly correlated. The same pattern is also evident for measures of familial obligation and perceived alienation from parents. While most of the concurrent relationships across study variables are significant, correlations between perceived alienation from parents at wave 2 and sense of efficacy at wave 2 are not significant. As for cross-wave relationships, half of the correlations are significant and half are not. For instance, the correlation between Chinese orientation at wave 1 and familial obligation at wave 2 is significant, but the correlation between Chinese orientation at wave 2 and familial obligation at wave 1 is not significant.

Paired sample *t*-tests show that Chinese American adolescents differ in their perceptions of sense of burden and efficacy as language brokers for their mothers versus fathers. Compared to language brokering for their fathers, adolescents are more likely to perceive a sense of burden when language brokering for their mothers (for mothers:  $M = 2.73$ ,  $SD = 0.95$ ; for fathers:  $M = 2.65$ ,  $SD = 1.02$ ),  $t(231) = 2.12$ ,  $p < 0.05$ . Adolescents also report a stronger sense of efficacy when language brokering for their mothers (for mothers:  $M = 3.15$ ,  $SD = 0.84$ ; for fathers:  $M = 3.02$ ,  $SD = 0.90$ ),  $t(231) = 4.45$ ,  $p < 0.01$ .

### Tests for Mediated Effects with Perceived Mattering to Parents

Figure 1 shows the hypothesized model for testing the following mediated pathway: adolescents' Chinese orientation to sense of familial obligation to perceived mattering to parents to perceptions of the language brokering experience (sense of efficacy and sense of burden). This model is estimated twice, first, when language brokering for mothers and, second, when language brokering for fathers. In all SEM models, the sample size is 252 (the number of adolescents who report translating for mothers) for models involving mothers, and 234 (the number of adolescents who report translating for their fathers) for models involving fathers. Fit indices reveal good model fit for both models: mothers,  $\chi^2(6) = 6.83$ ,  $p = 0.34$ ; CFI = 1.00; RMSEA = 0.02; SRMR = 0.01, and fathers,  $\chi^2(6) = 4.78$ ,  $p = 0.57$ ; CFI = 1.00; RMSEA = 0.00; SRMR = 0.01.

The resulting standardized coefficients for the tested models are provided in Fig. 1. The top coefficients represent model results involving mothers, and the bottom coefficients are for fathers. The first mediational test focuses on adolescents' sense of efficacy as the endogenous variable. As delineated by Path A (Chinese orientation w1 → Chinese orientation w2 → familial obligations w2 → perceived mattering to parents w2 → sense of efficacy w2) in Fig. 1, this indirect path is significant in both the models involving mothers ( $\beta = 0.012$ , 95% CI: 0.003, 0.020) and fathers ( $\beta = 0.009$ , 95% CI: 0.002, 0.016). In addition, this Path A contains another significant mediated segment B (for wave 2 constructs only). This mediated Path B in Fig. 1 (Chinese orientation w2 → familial obligations w2 → perceived mattering to parents w2 → sense of efficacy w2) is significant for both the models involving mothers ( $\beta = 0.035$ , 95% CI: 0.013, 0.058) and fathers ( $\beta = 0.024$ , 95% CI: 0.006, 0.043). For the estimated model involving mothers, there is one additional significant mediated path: Path E (Chinese orientation w1 → familial obligation w1 → familial obligation w2 → perceived mattering to parents w2 → sense of efficacy w2),  $\beta = 0.008$ , 95% CI: 0.002, 0.015.

The second mediational test is similar to the first but is estimated by using a different endogenous variable—the adolescents' sense of burden as language brokers. As delineated by Path C (Chinese orientation w1 → Chinese orientation w2 → familial obligation w2 → perceived mattering to parents w2 → sense of burden w2) in Fig. 1, this indirect path is significant in both the models involving mothers ( $\beta = -0.009$ , 95% CI: -0.016, -0.002) and fathers ( $\beta = -0.008$ , 95% CI: -0.015, -0.001). In addition, this Path C contains another significant mediated segment D (for wave 2 constructs only). This mediated Path D in Fig. 1 (Chinese orientation w2 → familial obligations w2 → perceived mattering to parents w2 →

sense of burden w2) is significant in both the models involving mothers ( $\beta = -0.027$ , 95% CI:  $-0.046, -0.008$ ) and fathers ( $\beta = -0.021$ , 95% CI:  $-0.039, -0.004$ ). For the estimated model involving mothers, there is one additional significant mediated path: Path F (Chinese orientation w1  $\rightarrow$  familial obligation w1  $\rightarrow$  familial obligation w2  $\rightarrow$  perceived mattering to parents w2  $\rightarrow$  sense of burden w2),  $\beta = -0.006$ , 95% CI:  $-0.012, -0.001$ .

Collectively, the mediational analyses indicate that the paths from Chinese orientation at wave 1 or wave 2 which is ultimately linked to adolescents' sense of efficacy as language brokers at wave 2 are mediated by adolescents' sense of familial obligation at wave 2 (or from familial obligation at wave 1 to 2) and their perceived mattering to parents at wave 2. The same patterns are evident in the paths from Chinese orientation at wave 1 or wave 2, which is ultimately linked to a sense of burden at wave 2.

### Tests for Mediated Effects with Perceived Alienation from Parents

The second hypothesized model (Fig. 2) is similar to the first hypothesized model, but examines adolescents' report of perceived alienation from parents instead of perceived mattering to parents (Fig. 1). The exogenous and endogenous variables are the same as before, as well as the familial obligation variable as a mediating variable. Figure 2 shows the hypothesized model for testing the following mediated pathway: adolescents' Chinese orientation to sense of familial obligation to perceived alienation from parents to perceptions of the language brokering experience (sense of efficacy and sense of burden). The model is estimated twice: first, when brokering for mothers and, second, when brokering for fathers. Fit indices reveal good model fit for both models: mothers,  $\chi^2(8) = 8.57$ ,  $p = 0.38$ ; CFI = 1.00; RMSEA = 0.02; SRMR = 0.02; fathers,  $\chi^2(8) = 5.82$ ,  $p = 0.67$ ; CFI = 1.00; RMSEA = 0.00; SRMR = 0.01.

The resulting standardized coefficients for the tested models are provided in Fig. 2. As before, the top coefficients represent model results involving mothers, and the bottom coefficients are for fathers. The first test examines indirect effects with adolescents' sense of efficacy as the endogenous variable. No mediated pathways are statistically significant in models involving mothers or fathers.

The second mediational test is similar to the first but is estimated by using a different endogenous variable, the adolescents' sense of burden as language brokers. As delineated by Path G (Chinese orientation w1  $\rightarrow$  Chinese orientation w2  $\rightarrow$  familial obligation w2  $\rightarrow$  perceived alienation from parents w2  $\rightarrow$  sense of burden w2) in Fig. 2, this indirect path is significant in both the models involving mothers ( $\beta = -0.007$ , 95% CI:  $-0.014, -0.001$ ) and fathers ( $\beta = -0.007$ , 95% CI:  $-0.014, -0.001$ ). In addition, this Path G contains another significant mediated segment I (for wave 2 constructs only). This mediated Path I in Fig. 2 (Chinese orientation w2  $\rightarrow$  familial obligation w2  $\rightarrow$  perceived alienation from parents w2  $\rightarrow$  sense of burden w2) is significant for both the models involving mothers ( $\beta = -0.022$ , 95% CI:  $-0.039, -0.006$ ) and fathers ( $\beta = -0.021$ , 95% CI:  $-0.037, -0.004$ ). Also as delineated by Path H (Chinese orientation w1  $\rightarrow$  familial obligation w1  $\rightarrow$  perceived alienation from parents w1  $\rightarrow$  perceived alienation from parents w2  $\rightarrow$  sense of burden w2) in Fig. 2, this indirect path is significant in both the models involving mothers ( $\beta = -0.010$ , 95% CI:  $-0.018, -0.002$ ) and fathers ( $\beta = -0.008$ , 95% CI:  $-0.015, -0.001$ ).

These mediational analyses show that the hypothesized pathway from Chinese orientation at wave 1 or wave 2 to adolescents' sense of efficacy as language brokers at wave 2 are not significantly mediated. However, adolescents' sense of familial obligation and perceived alienation from parents do appear to mediate the path from Chinese orientation at wave 1 or wave 2 which is ultimately linked to a sense of burden at wave 2.

## Relationships among Control Variables and Main Study Variables in Hypothesized Models 1 and 2

When examining the results for evidence of significant effects of control variables on the main study variables in the hypothesized models 1 and 2, a number of significant effects are found. The less education the adolescents' mothers and fathers have, the more likely the adolescents are to report experiencing high levels of burden when language brokering for mothers and fathers. Boys report feeling less burdened than girls when translating for their mothers and fathers. Also, adolescents who report feeling more burdened when language brokering for their mothers and fathers also report language brokering more frequently. Adolescents who are born in the US are less likely to perceive mattering to parents but more likely to perceive alienation from parents in the models involving mothers only. Adolescents whose mothers have higher incomes are less likely to perceive alienation from parents. Those who have a strong sense of familial obligation also report translating more frequently for their mothers. As for fathers, adolescents are more likely to perceive mattering to parents the higher the educational levels of fathers.

## Tests for Mediated Effects with Perceived Alienation from Parents and Mattering in the Same Model

Figure 3 shows the hypothesized model testing the following mediated pathway: adolescents' Chinese orientation to sense of familial obligation to perceived sense of alienation and mattering from their parents to perceptions of the language brokering experience (sense of burden and sense of efficacy). This model is estimated twice: first, when language brokering for mothers and second, when language brokering for fathers. Fit indices reveal good model fit for both models: mothers,  $\chi^2(17) = 30.56, p = 0.02$ ; CFI = 0.96; RMSEA = 0.06; SRMR = 0.03, and fathers,  $\chi^2(17) = 25.60, p = 0.08$ ; CFI = 0.97; RMSEA = 0.05; SRMR = 0.03.

Model results show that when the adolescents' perceived sense of alienation and mattering from their parents are tested together in one hypothesized model, Paths A, B, and E from Fig. 1 and paths G, H, and I from Fig. 2 remain as significant mediated paths in Fig. 3. However, Path G in Fig. 3 is only significant in the model involving mothers, but this same path is significant in both models involving mothers and fathers in Fig. 2, when the adolescents' perceived sense of mattering is not controlled. No new paths emerged in Fig. 3.

## Tests of Alternative Theoretical Models

Two alternative hypothesized models are tested. Fit indices for the first model [Perceived alienation from parents → familial obligation → Chinese orientation → perceptions of the language brokering experience (sense of burden and sense of efficacy)] reveal good model fit for both models involving mother and fathers: mothers,  $\chi^2(8) = 9.33, p = 0.32$ ; CFI = 0.99; RMSEA = 0.03; SRMR = 0.02, and fathers,  $\chi^2(8) = 6.08, p = 0.64$ ; CFI = 1.00; RMSEA = 0.00; SRMR = 0.01. However, no mediated pathways in the order they are placed in the hypothesized model are significant in either model involving mothers or fathers. Fit indices for the second model [Chinese orientation → perceived alienation from parents → familial obligation → perceptions of the language brokering experience (sense of burden and sense of efficacy)] reveal poor model fit for both models involving mothers and fathers: mothers,  $\chi^2(8) = 69.76, p = 0.00$ ; CFI = 0.74; RMSEA = 0.18; SRMR = 0.05, and fathers,  $\chi^2(8) = 62.10, p = 0.00$ ; CFI = 0.75; RMSEA = 0.17; SRMR = 0.05. Similar to the first model, no mediated pathways in the order they are placed in the hypothesized model are significant in either model involving mothers or fathers.

## Discussion

The present investigation represents one of the few studies to examine Chinese American adolescents' perceptions of the language brokering experience when language brokering for their mothers and fathers, as well as one of the first efforts to learn about the antecedents and processes that might be responsible for the different language brokering experience that children of immigrants experience. Using data from two waves of a prospective longitudinal study, the present research sheds light on the role of Chinese American adolescents' Chinese orientation and family mediators (sense of familial obligation and the perceived quality of the parent-child relationship) on their perceptions of the language brokering experience (sense of burden and sense of efficacy). As mentioned earlier, past research has examined correlations between two or more of the main study variables used in the present study. This study extends previous research by testing the relationships among the main study variables in one theoretical model to develop a process model for understanding the variations in Chinese American adolescents' perceptions of the language brokering experience.

Overall, the current study yields support for a model where Chinese American adolescents' Chinese orientation sets in motion a family process that helps to explain the variations in their perceptions of the language brokering experience when language brokering for mothers and fathers. Evidence reveals that when Chinese American adolescents are more Chinese oriented they ultimately feel a sense of efficacy as language brokers for their mothers and fathers, and that these relations are partially explained by the importance they place on familial obligation and the perceptions that they mattered to their parents even when controlling for prior levels of the exogenous and mediating variables. On the other hand, when Chinese American adolescents are less Chinese oriented they ultimately feel a sense of burden as language brokers for their mothers and fathers, and these relations are partially explained by a weak sense of familial obligation and a sense of alienation from their parents. These effects are still significant even after controlling for the adolescents' earlier levels of Chinese cultural orientation, sense of familial obligation, and sense of alienation from their parents. Moreover, these effects hold regardless of parental income, parental education, children's age, children's gender, children's nativity, and the children's frequency of language brokering for their parents.

The structural models involving fathers and mothers reveal the following. First, it appears that Chinese American adolescents who are more Chinese oriented feel a stronger sense of familial obligation. Second, adolescents with a stronger sense of familial obligation are more likely to feel that they matter to their parents. Those with a weak sense of familial obligation are more likely to feel a sense of alienation from their parents. Third, adolescents' perceived sense of mattering to parents is associated positively with a sense efficacy as language brokers, and negatively with a sense of burden. Meanwhile, adolescents' perceived sense of alienation from parents is associated positively with a sense of burden as language brokers; however, the correlations are not significant with a sense of efficacy in both models involving mothers and fathers. These results suggest the possibility that Chinese American adolescents' Chinese orientation, sense of familial obligation, and the quality of the perceived relationships with their parents are important for understanding the variations in their experience as language brokers. It appears that Chinese American adolescents' sense of perceived alienation from parents is not related to adolescents' sense of efficacy when language brokering for their mothers and fathers. It is possible that adolescents' sense of perceived alienation from parents is related to their sense of burden as language brokers because these are closely related constructs in that they both reflect negativity in the perceived parent-child relationship and perceptions of the language brokering experience. Future studies are needed to replicate the current study findings regarding the lack of significant relationship between perceived alienation from parents and sense of efficacy as language brokers.

Mothers and fathers in many Chinese American families have different roles. The mothers are typically portrayed as warm and nurturing figures, while the fathers are portrayed as authoritarian and disciplinary (Chao 2006; Kim and Wong 2002). As such, it is likely that Chinese American adolescents have different experiences when interacting with each parent. If so, in the case of language brokering, it is possible that adolescents' experiences of language brokering differ for each parent. One unique aspect of the present investigation is that it is able to capture Chinese American adolescents' language brokering experience separately for mothers and fathers. Indeed, results shows that the number of significant mediated paths are not identical in the results involving mothers and fathers; the numbers of significant mediated paths in the model involving mothers outnumber the model involving fathers. It should be noted that the additional mediated pathways involving mothers (Paths E, F, and G) all consisted of an additional path starting from Chinese orientation at wave 1 leading to either familial obligation at wave 1 (Paths E and F) or to Chinese orientation at wave 2 (Path G). It is possible that Chinese American adolescents' level of Chinese orientation at wave 1 may be more meaningful for ultimately influencing their perceptions of the language brokering experience for their mothers than for their fathers. In many Asian American families, usually the mothers are responsible for socializing young children into culturally expected behaviors (Inman et al. 2007). Building on Inman et al.'s findings (2007), Chinese American adolescents are more likely to learn about Chinese cultural values and traditions from their mothers than their fathers. This provides some support for why adolescents' Chinese orientation at wave 1 is particularly more salient in the models involving mothers than those involving fathers. It is worth noting, however, that the size of the standardized coefficients across the mother and father models is not significantly different from each other.

After comparing the results of the originally proposed theoretical models with the results of the alternative models, there is evidence to conclude that the originally proposed theoretical models provide the best fit of the data. Specifically, the SEM results show that either the original theoretical models have better model fit indices than the alternative models being tested or that the model fit indices are comparable between the original models and the alternative models. The CFI for the original models is at 1.00 for both models involving mothers and fathers, but for the alternative models, the range is from 0.74 to 1.00. The RMSEA for the original models ranged from 0.00 to 0.02, but it was 0.00–0.18 for the alternative models. The SRMR of the original models ranged from 0.01 to 0.02, but it was 0.01–0.05 for the alternative models. In cases where the fit indices are quite comparable to the original models, the indirect pathways of the alternative models are examined quite closely. While some indirect effects do emerge, the emerging indirect pathways are not as informative as the original models, because the indirect effects do not follow the ordering of the constructs in the proposed alternative model. For example, in one alternative model, the following order of constructs is tested: Chinese orientation → perceived alienation from parents → familial obligation → perceptions of the language brokering experience (sense of burden and sense of efficacy). Yet, the only significant mediated path to emerge from this model is from Chinese orientation w1 → Chinese orientation w2 → sense of efficacy when language brokering for mothers and fathers. This suggests that, based on model fit and the results of the indirect effects, the original ordering of the variables represent the best representation of the data.

When perceived mattering to parents and perceived alienation from parents are tested within one structural model (Fig. 3), several mediated indirect paths from Figs. 1 and 2 remain significant. Model results show that when adolescents' perceived sense of alienation and mattering from their parents are tested together in one hypothesized model, Paths A, B, and E from Fig. 1 and paths G, H, I from Fig. 2 remain significant in Fig. 3. However, Path G in Fig. 3 is only significant in the model involving mothers, while the same path is significant in models involving both mothers and fathers in Fig. 2, when the adolescents' perceived sense of mattering is not controlled. No new indirect paths emerged from Fig. 3. These results reveal

that the hypothesized models are robust and fit the data well even when two related constructs of the quality of the parent–child relationship are included in the same model.

In order to better capture the unique processes in the mediational models to understand why some language brokers perceive the experience as positive while others perceive it as negative, this study is one of the first to use two language brokering scales (sense of burden and sense of efficacy) to disentangle the positive and negative experiences associated with being language brokers. The results of this study provide supportive evidence that categorizing Chinese American adolescents' perceptions of the language brokering experience into two language brokering scales (one to capture the positive feelings, and the other the negative) is a useful way of capturing the psychological meaning of language brokering in this sample of adolescents and to use it as a tool for future research on understanding adolescents' language brokering experience. The study findings are important for school psychologists and clinical practitioners who work directly with children of immigrants who are language brokers. Children of immigrants' language brokering is an experience that can have psychological consequences for these children, which, in turn, can affect their general well-being and daily functioning, both at home and at school.

Several design features contribute to the strength of the present research. First, while previous research uses language brokering measures with children of different ethnic backgrounds, these past researchers provide limited or no information on the factor structure and construct validity of their scales (Morales and Hanson 2005). Results from the present investigation show that the two language brokering scales have good internal reliabilities and show good concurrent validity with a Chinese American adolescent sample. As language brokering research proliferates, it is important to establish the factor structure and construct validity of measures that are valid for use with language brokers. Second, whereas most of the existing research focusing on children of immigrants' language brokering is qualitative and employ cross-sectional designs, the present research uses data from a two waves of a prospective longitudinal study. The longitudinal nature of the study design allows for the use of path analysis using autoregressive and cross-lagged techniques to statistically control for prior level of the dependent variables. Third, to capture the psychological meaning of language brokering in a sample of Chinese American adolescents, the present research is one of the first efforts to examine the perceptions of the language brokering experience as the outcome variable. Lastly, this study is one of the first to use mediational analysis to uncover potential explanatory mechanisms and processes that may help to understand why some children of immigrants who are language brokers perceive the experience as positive while others perceive it as negative.

Although the present study contributes to the understanding of the variations in Chinese American adolescents' perceptions of the language brokering experience, and the potential antecedents and processes that might be responsible for these different experiences, some limitations of the study design should be considered when evaluating the findings. One clear limitation concerns the sample, which consists solely of Chinese American adolescents residing in metropolitan areas of northern California, and does not represent the ethnic diversity in the Asian American population. Testing the same mediation models for Chinese American adolescents living in the Midwest or other areas where the number of Chinese Americans are fewer may yield different results. It is likely that the adolescents in the present study have greater exposure to the Chinese culture and traditions while growing up in northern California, where there is a strong presence of Chinese in their community. In the presence of a strong Chinese community, these adolescents may be more willing to identify themselves as part of the ethnic group than adolescents growing up in the Midwest where the presence of Chinese may be very sparse. Generalizing the findings to the population of Asian American adolescents who are language brokers as a whole, as well as to children of other ethnic backgrounds who

are also language broker is a fruitful area for additional research. The initial low response rate of 47% is also a limitation of the present study.

Some measurement issues should be noted. For the measure of perceived mattering to parents and the two language brokering scales, data is only available from the adolescents in wave 2. For the measure of perceived mattering to parents, it would have been ideal to use all rather than selected items from Marshall's mattering (2001) scale. As for the measure of perceived alienation from parents in wave 1 and wave 2, this measure is only a general measure of perceived alienation from parents without specifying the questions separately for mothers and fathers. It would have been ideal to have participants to report on their perceptions of alienation from parents for their mothers and fathers separately, particularly given the focus of the present study to test hypothesized models separately for participants' experiences with mothers and fathers. The structural models in the present study show a lack of significant prospective relationships across constructs in the hypothesized models. It is possible that there are significant intervening variables across the two waves during the four intervening years between data collections, which is not captured in the present study. Despite this limitation, the results show that participants' level of Chinese orientation and sense of familial obligation at wave 1 are significantly linked to their respective constructs at wave 2. A similar pattern is seen for perceived alienation from parents at wave 1 and 2. The results of the stability relationships provide at least some evidence that it may be relevant to include the wave 1 constructs in the theoretical models. Fourth, no information about the difficulty/nature of the materials the adolescents' language brokered is available. When studying children of immigrants' perceptions (sense of burden and sense of efficacy) of the language brokering experience, ideally, researchers need to take into account the difficulty or nature of the materials that children of immigrants' may broker for their parents. It is likely that the level of difficulty of the materials affect how children of immigrants perceive the language brokering experience. Fifth, the present research only included adolescents' self-report assessments, and thus raises the issues of biases inherent in self-report measures. However, given that the goal of the present research is to capture the *psychological meaning* of language brokering in a sample of Chinese American adolescents, self-report assessments may not necessarily be a drawback. Self-report assessments may be more accurate in capturing how the language brokering experience is truly affecting the adolescents.

Despite these limitations, the present investigation extends the existing scholarship on children of immigrants' perceptions of the language brokering experience. By studying the role of Chinese orientation and family-related variables, this study provides insights into why some children of immigrants perceive a sense of burden while others perceive a sense of efficacy in language brokering for their parents. As Asian immigrants and their families continue to arrive in the United States, many more children of Asian immigrants will inevitably have to become their families' designated language brokers. As language brokers, these children will be put in positions and situations where they may have to perform tasks and take on responsibilities that are beyond their cognitive and language abilities. In addition, these children may not have the skills, knowledge, or sense of maturity to carry out their responsibilities. For these reasons, the research findings in the present study may be particularly important and useful for school psychologists, educators, and practitioners who work directly with children of Asian immigrants, as well as the parents of these children, to focus on helping these children to retain their heritage cultural values and traditions as well as promote positive parent-child relationships and strong sense of familial obligation. Future research should look into additional potential mechanisms and processes that help in understanding why some children of immigrants are being negatively affected by the language brokering experience, while others benefit, as such research can potentially lead to the development of theories and better intervention programs for children of immigrants who are language brokers.

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## References

- Armsden G, Greenberg M. The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence* 1987;16:427–454.10.1007/BF02202939
- Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 1986;51:1173–1182.10.1037/0022-3514.51.6.1173 [PubMed: 3806354]
- Buriel R, Perez W, De Ment T, Chavez D, Moran V. The relationship of language brokering to academic performance, biculturalism, and self-efficacy among Latino adolescents. *Hispanic Journal of Behavioral Sciences* 1998;20:283–297.10.1177/07399863980203001
- Chao R. Extending the research on the consequences of parenting style for Chinese Americans and European Americans. *Child Development* 2001;72:1832–1843.10.1111/1467-8624.00381 [PubMed: 11768148]
- Chao, R. The prevalence and consequences of adolescents' language brokering for their immigrant parents. In: Bornstein, M.; Cote, L., editors. *Acculturation and parent-child relationships: Measurement and development*. Mahwah: Lawrence Erlbaum; 2006. p. 271-296.
- Dorner LM, Orellana MF, Li-Grining CP. "I helped my mom", and it helped me: Translating the skills of language brokers into improved standardized test scores. *American Journal of Education* 2007;113:451–478.10.1086/512740
- Elliott G, Kao S, Grant A. Mattering: Empirical validation of a social-psychological concept. *Self and Identity* 2004;3:339–354.10.1080/13576500444000119
- Fulgini A, Tseng V, Lam M. Attitudes towards family obligations among American adolescents with Asian, Latin American, and European backgrounds. *Child Development* 1999;70:1030–1044.10.1111/1467-8624.00075
- Fulgini A, Yip T, Tseng V. The impact of family obligation on the daily activities and psychological well-being of Chinese American adolescents. *Child Development* 2002;73:302–314.10.1111/1467-8624.00407 [PubMed: 14717259]
- Gershoff, E.; Aber, L.; Clements, M. Identifying transactional processes through continuous cross-lagged panel analysis: Parent learning support and child reading ability. In: Sameroff, A., editor. *Transactional processes in development*. Washington, DC: American Psychological Association; in press
- Gorsuch, R. *Factor analysis*. Vol. 2. Hillsdale: Lawrence Erlbaum; 1983.
- Hancock G, Freeman M. Power and sample size for the root mean square error of approximation test of not close fit in structural equation modeling. *Educational and Psychological Measurement* 2001;61:741–758.10.1177/00131640121971491
- Inman A, Howard E, Beaumont R, Walker J. Cultural transmission: Influence of contextual factors in Asian Indian immigrant parents' experiences. *Journal of Counseling Psychology* 2007;54:93–100.10.1037/0022-0167.54.1.93
- Jones C, Trickett E. Immigrant adolescents behaving as culture brokers: A study of families from former Soviet Union. *The Journal of Social Psychology* 2005;4:405–427.10.3200/SOCP.145.4.405-428 [PubMed: 16050339]
- Kim, SY.; Wong, V. Assessing Asian and Asian American parenting: A review of the literature. In: Kurasaki, K.; Okazaki, S.; Sue, S., editors. *Asian American mental health: Assessment methods and theories*. New York: Kluwer; 2002. p. 185-203.



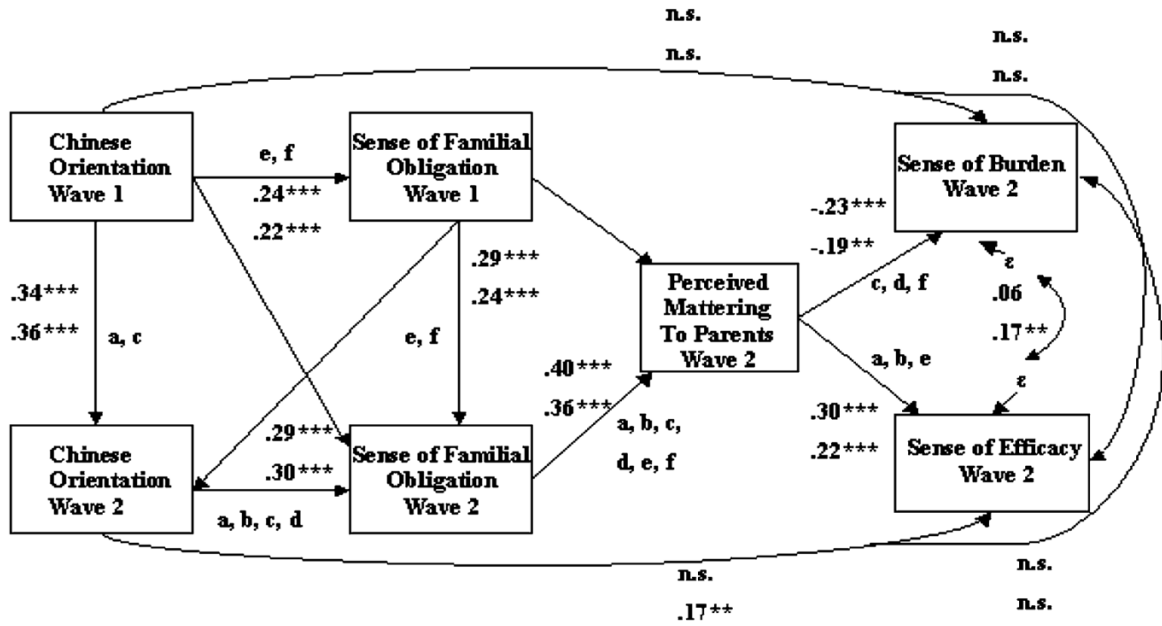
- Love J, Buriel R. Language brokering, autonomy, parent–child bonding, biculturalism, and depression: A study of Mexican American. *Hispanic Journal of Behavioral Sciences* 2007;29:472–491.10.1177/0739986307307229
- MacCallum R, Austin J. Applications of structural equation modeling in psychological research. *Annual Review of Psychology* 2000;51:201–226.10.1146/annurev.psych.51.1.201
- MacKinnon D, Fairchild A, Fritz M. Mediation analysis. *Annual Review of Psychology* 2007;58:593–614.10.1146/annurev.psych.58.110405.085542
- Marshall SK. Do I matter? Construct validation of adolescents' perceived mattering to parents and friends. *Journal of Adolescence* 2001;24:473–490. [PubMed: 11549327]
- Martens M, Haase R. Advanced applications of structural equation modeling in counseling psychology research. *The Counseling Psychologist* 2006;34:878–911.10.1177/0011000005283395
- McQuillan J, Tse L. Child language brokering in linguistic minority communities: Effects on cultural interaction, cognition, and literacy. *Language and Education* 1995;9:195–215.
- Morales A, Hanson W. Language brokering: An integrative review of the literature. *Hispanic Journal of Behavioral Sciences* 2005;27:471–503.10.1177/0739986305281333
- Muthen, BO.; Muthen, L. *Mplus user's guide*. Los Angeles: Authors; 2006.
- Oetting G, Beauvais F. Orthogonal cultural identification theory: The cultural identification of minority adolescents. *The International Journal of the Addictions* 1990;25:655–685. [PubMed: 2101397]
- Quintana S, Maxwell S. Implications of recent developments in structural equation modeling for counseling psychology. *The Counseling Psychologist* 1999;27:485–527.10.1177/0011000099274002
- Ryder AG, Alden LE, Paulhus DL. Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology* 2000;79:49–65.10.1037/0022-3514.79.1.49 [PubMed: 10909877]
- Shrout PE, Bolger N. Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods* 2002;7:422–445.10.1037/1082-989X.7.4.422 [PubMed: 12530702]
- Trickett E, Jones C. Adolescent culture brokering and family functioning: A study of families from Vietnam. *Cultural Diversity & Ethnic Minority Psychology* 2007;13:143–150.10.1037/1099-9809.13.2.143 [PubMed: 17500603]
- Tse L. Language brokering among Latino adolescents: Prevalence, attitudes, and school performance. *Hispanic Journal of Behavioral Sciences* 1995;17:180–193.10.1177/07399863950172003
- Tse L. Language brokering in linguistic minority communities: The case of Chinese- and Vietnamese-American students. *Bilingual Research Journal* 1996;20:485–498.
- Walsh S, Shulman S, Bar-On Z, Tsur A. The role of parentification and family climate in adaptation among immigrant adolescents in Israel. *Journal of Research on Adolescence* 2006;16:321–350.10.1111/j.1532-7795.2006.00134.x
- Weisskirch R. Feelings about language brokering and family relations among Mexican American early adolescents. *The Journal of Early Adolescence* 2007;27:545–561.10.1177/0272431607302935
- Weisskirch R, Alva S. Language brokering and the acculturation of Latino children. *Hispanic Journal of Behavioral Sciences* 2002;24:369–378.10.1177/0739986302024003007
- West, S.; Finch, J.; Curran, P. Structural equation models with nonnormal variables: Problems and remedies. In: Hoyle, RH., editor. *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks: Sage; 1995. p. 56-75.
- Ying W, Lee P, Tsai J. Predictors of depressive symptoms in Chinese American college students: Parent and peer attachment, college challenges and sense of coherence. *The American Journal of Orthopsychiatry* 2007;77:316–323.10.1037/0002-9432.77.2.316 [PubMed: 17535129]

## Biographies

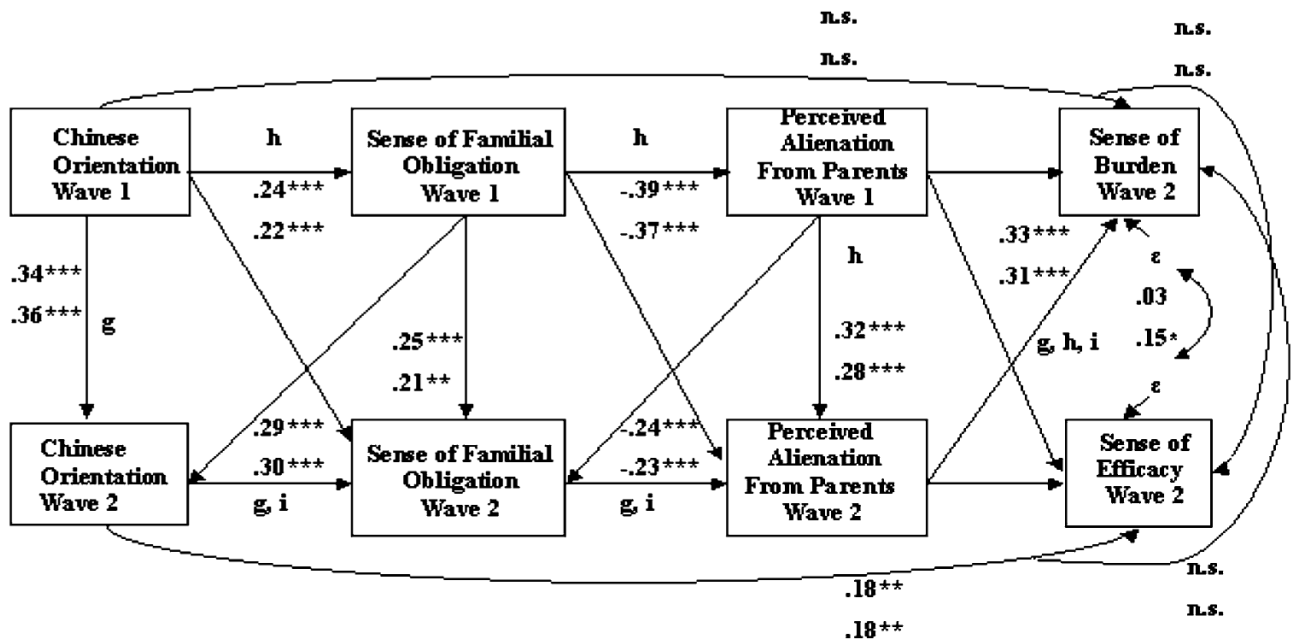
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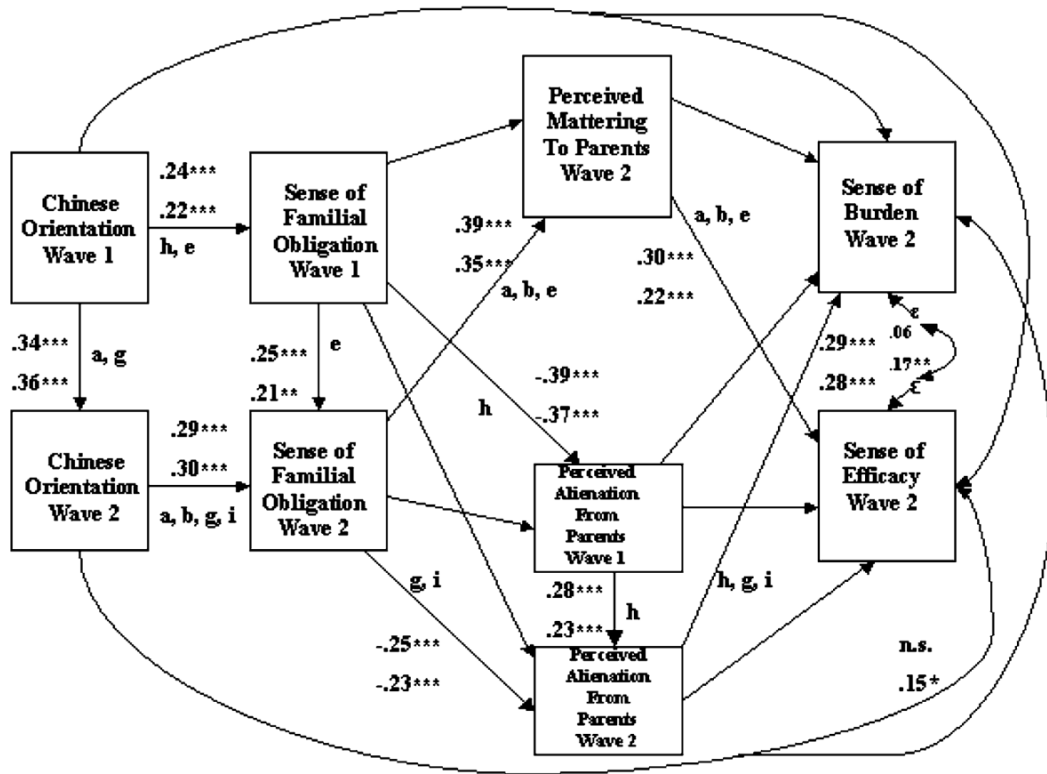
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**Fig. 1.** Structural model linking adolescents’ Chinese orientation to familial obligation to perceiving that they matter to their parents to a sense of burden/efficacy as language brokers. Standardized coefficients are provided. The top coefficients represent model results for mothers, and bottom coefficients for fathers. Only significant standardized coefficients are reported. The significant pathways for the indirect effects from the exogenous to the endogenous variables are denoted by the same letter (*a, b, c, d, e, and f*). For example, Path A is linked by Chinese orientation at w1 to Chinese orientation at w2 to sense of familial obligation at w2 to perceived mattering to parents at w2 to sense of efficacy at w2. *n.s.* nonsignificant. Although not depicted, all models also controlled for the influence of parental education, parental income, children’s nativity, children’s age, children’s gender, and the children’s frequency of language brokering on all the main study variables. The paths E and F are significant mediated paths in the model involving mothers only. Paths without coefficients are estimated but are not shown because they are not significant for models involving both mothers and fathers



**Fig. 2.** Structural model linking adolescents’ Chinese orientation to a sense of familial obligation to perceiving a sense of alienation from parents to a sense of burden/efficacy as language brokers. Standardized coefficients are provided. The top coefficients represent model results for mothers, and bottom coefficients for fathers. Only significant standardized coefficients are reported. The significant pathways for the indirect effects from the exogenous to the endogenous variables are denoted by the *same letter* (*g, h, and i*). For example, Path G is linked by Chinese orientation at w1 to Chinese orientation at w2 to sense of familial obligation at w2 to perceived alienation from parents at w2 to sense of burden at w2. *n.s.* nonsignificant. Although not depicted, all models also controlled for the influence of parental education, parental income, children’s nativity, children’s age, children’s gender, and the children’s frequency of language brokering on all the main study variables. Paths without coefficients are estimated but are not shown because they are not significant for models involving both mothers and fathers



**Fig. 3.** Structural model linking adolescents’ Chinese orientation to a sense of familial obligation to perceiving a sense of alienation and mattering from their parents to a sense of burden/efficacy as language brokers. Standardized coefficients are provided. The top coefficients represent model results for mothers, and bottom coefficients for fathers. Only significant standardized coefficients are reported. The significant pathways for the indirect effects from the exogenous to the endogenous variables are denoted by the *same letter* (a, b, e, g, h, i). *n.s.* nonsignificant. Although not depicted, all models also controlled for the influence of parental education, parental income, children’s nativity, children’s age, children’s gender, and the children’s frequency of language brokering on all the main study variables. Also not depicted, the error terms for perceived mattering to parents at w2 and perceived alienation from parents at w2 are correlated for both models involving mothers and fathers. The paths E and G are significant mediated paths in the model involving mothers only. Paths without coefficients are estimated but are not shown because they are not significant for models involving both mothers and fathers

Table 1

Means, standard deviations, and zero-order correlations among study variables

Variable name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Mean	SD
1. C. orientation1	–	0.35**	0.21**	0.16**	–0.05	–0.06	0.05	0.04	0.11	0.02	–0.03	0.00	0.05	–0.13*	–0.05	3.84	0.52
2. C. orientation 2	0.35**	–	0.10	0.33**	0.00	0.00	0.09	–0.05	0.19**	0.01	0.02**	0.05	–0.01	–0.02	–0.03	3.86	0.54
3. F. obligation 1	0.21**	0.10	–	0.28**	–0.38**	–0.10	0.15*	–0.01	0.15*	–0.10	–0.05	0.02	–0.03	0.09	0.13	3.69	0.63
4. F. obligation 2	0.16**	0.33**	0.28**	–	–0.17*	–0.22**	0.36**	–0.11	0.14*	–0.09	–0.02	–0.11	0.07	0.08	0.12	3.55	0.65
5. Alienation 1	–0.05	0.00	–0.38**	–0.17*	–	0.31**	–0.26**	0.09	–0.08	–0.05	0.09	–0.08	0.04	–0.07	–0.14*	2.69	0.69
6. Alienation 2	–0.06	0.00	–0.10	–0.22**	0.31**	–	–0.40**	0.37**	–0.04	–0.18*	–0.16*	–0.14*	0.03	0.08	0.03	2.89	0.68
7. Mattering 2	0.09	0.14*	0.14*	0.40**	–0.20**	–0.36**	0.81**	–0.22**	0.23**	0.16*	0.09	–0.07	0.03	–0.09	0.05	3.85	1.72
8. Burden 2	–0.02	–0.08	–0.11	–0.11	0.17*	0.37**	–0.22**	0.81**	0.17*	–0.23**	–0.10	–0.13	0.00	0.00	0.21**	2.65	1.02
9. Efficacy 2	0.06	0.16*	0.13	0.16*	–0.04	–0.06	0.30**	0.03	0.87**	–0.17*	–0.05	–0.10	–0.05	–0.01	0.08	3.02	0.90
10. P. education 1	0.06	0.00	0.04	0.03	–0.02	0.02	0.09	–0.11	–0.07	0.51**	0.38**	0.00	–0.07	–0.13	–0.10	5.44	1.69
11. P. income 1	–0.05	0.01	0.02	–0.04	–0.02	–0.18*	0.12	–0.07	–0.01	0.31**	0.88**	–0.02	–0.04	0.07**	–0.11	3.27	2.01
12. Child sex 1	–0.01	0.10	0.03	–0.12	–0.06	–0.11	–0.09	–0.07	–0.12	–0.08	–0.02	–	0.00	0.05	–0.10	0.38	0.49
13. Child age 1	0.05	–0.01	–0.03	0.07	0.04	0.03	0.04	0.03	–0.03	–0.02	–0.11	–0.02	–	–0.17*	0.00	13.04	0.71
14. Child nativity 1	–0.13*	–0.02	0.09	0.08	–0.07	0.08	–0.08	0.04	0.01	0.00	0.04	0.07	–0.17*	–	0.10	0.69	0.46
15. Frequency	–0.06	–0.02	0.19**	0.09	–0.04	0.05	0.09	0.19**	0.13	–0.07	–0.02	–0.07	0.03	0.03	0.67**	3.19	0.93
Mean	3.84	3.86	3.69	3.55	2.69	2.89	4.36	2.73	3.15	5.30	3.12	0.39	13.04	0.69	3.46	–	–
SD	0.52	0.54	0.63	0.65	0.69	0.68	1.71	0.95	0.84	1.57	1.90	0.49	0.71	0.46	0.92	–	–

Note: Results above the diagonal are those involving the father models; those below the diagonal represented results involving the mother models

Child sex is coded where 1 = male and 0 = female

Child nativity is coded where 1 = child was born in the United States and 0 = child was born outside the United States

Parental education is coded on a scale of 1 (no formal schooling) to 9 (finished graduate degree)

Parental income is coded on a scale of 1 (\$15,000 or under) to 12 (\$165,001 or more)

Frequency: how often the child translated for his/her mother and father. Response is coded on a scale of 1 (never) to 5 (daily)

The diagonal provides correlations of mother–father variables and adolescent reports of mother and father variables, where appropriate

I wave 1, 2 wave 2, C Chinese, F familial, P parent, Frequency frequency of language brokering

\*  $p < 0.05$ ;

\*\*  $p < 0.01$ ;

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1000000  
p<0.001  
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