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**LONGITUDINAL ASSOCIATIONS OF LANGUAGE BROKERING AND PARENT-  
ADOLESCENT CLOSENESS IN IMMIGRANT LATINO FAMILIES:  
SEX AS A MODERATOR**

A Thesis in

Psychology

by

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## Abstract

Language brokering is a common practice for Latino youth and given the importance of family for Latinos, the question arises as to how language brokering may affect Latino immigrant children and the quality of their relationship with their parents. Specifically, it is unclear whether feelings around language brokering influence the parent-adolescent relationship or vice versa because previous work has been cross-sectional. In order to answer this question, a series of models were run to examine cross-lagged associations between language brokering attitudes and parent-adolescent closeness, while taking into account language brokering frequency and the possible moderating role of gender. The present study used data from 3 waves of a drug prevention intervention when language brokering attitudes were collected for Latino participants ( $n = 813$ , age range<sub>t4</sub> = 11 - 15 years of age,  $M_{\text{aget4}} = 12.31$   $SD_{t4} = .552$ ). Results suggested that gender of the adolescent was a moderator. Specifically, younger males who felt closer to their parents had more positive attitudes toward language brokering, but this relation dissipated as males got older. Language brokering frequency was also found to have a delayed contribution to adolescent language brokering attitudes and parent-adolescent closeness, and more so for males than females. Results are discussed in terms of how age and gender cultural norms contribute to the relation between language brokering and parent-adolescent closeness. Each of these findings is discussed in terms of the existing literature, study limitations, and future directions.

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## **Introduction**

In the last decades, Latinos have had the highest rate of population increase of all racial and ethnic groups in the US (Pew Hispanic Center, 2006) and today Latinos constitute 16% of the US population, surpassing African Americans (13%) as the largest minority group (US Census, 2010). This population growth should continue as Latinos are expected to be 29% of the US population by 2050, accounting for 60% of US population growth (Passel & Cohn, 2008). Notably, the increase in population has been in part attributed to family chain migration, a common pattern among Latinos. The process of chain migration is characterized by Latinos with US citizenship sponsoring other family members to gain legal access to the US, expediting the immigration process significantly (Bush, McLarty, and Alden, 2009), and choosing places to migrate where family and friends are already established (Palloni, Massey, Ceballos, Espinosa, & Spittel, 2001). These factors have greatly contributed to 40% of Latino families in the US being foreign born (Passel & Cohn, 2008).

Latino immigrant youth and their families are quite diverse with respect to their countries of origin, the circumstances of immigration, the socioeconomic classes to which they belong, and the generational statuses of family members (Rumbaut, 2004). Nonetheless, children of Latino immigrants are comparable to one and other, to some extent, because many act as cultural brokers between their parents' native culture and that of the mainstream US. One important aspect of cultural brokering is language brokering, defined as children's translating and

interpreting for their parents, extended family, neighbors, teachers, and medical providers (Morales & Hanson, 2005). These families often experience cultural discrepancies among family members (i.e., cultural dissonance) such that children are typically more acculturated than their parents and thus become language brokers, which can contribute to changes in the parent-child relationship.

This thesis aims to highlight the multiple layers in understanding how families navigate the process of adapting to the US and using their children as language brokers. Currently, policy makers may have prematurely tried to ban language brokering practices (e.g., California attempting to prohibit using children as interpreters in medical settings; AB 775, 2005), without having a full understanding of the complexity of the process and its potential long-term benefit. Clearly policy makers would like to prevent negative outcomes for these youth, but the law may be focusing on aspects that in the end would cause more stress for families. For example, research on child language brokers shows that they are integral parts of communities, with healthcare being a major component (Dorner, Orellana, & Pulido, 2003). In addition banning the practices does not resolve the larger issue that there are too few bilingual services available for Latino families (Capps & Fortuny, 2006). Thus, for meaningful interventions and laws to be enacted, it is a paramount that research on language brokering examine the zone of proximal development of cultural competencies for youth that language broker, and examine familial and individual factors that contribute to Latino youth outcomes.

To better understand how adolescents from immigrant families adjust to American culture, research has separately examined adolescent (e.g., attitudes; Love & Buriel, 2007) or

familial (e.g., relationship quality; Gallo, Penedo, de los Monteros, & Arguelles, 2009) factors in order to predict Latino youth adjustment outcomes. Specifically, even though research has been mixed in terms of whether the practice has positive or negative effects (Morales & Hanson, 2005), language brokering attitudes has continually been found to be an important predictor of adolescent adjustment (Buriel, Perez, De Ment, Chavez, & Moran, 1998; Love & Buriel, 2007; Weisskirch, 2005). Further, research on familial factors has found that familism is an important protective factor for Latino youth (Gallegos-Castillo, 2006; Gallo et al., 2009), of which adolescent closeness to their parents has been found to be a particularly salient aspect (Germán, Gonzales, and Dumka, 2009; Oetting & Donnermeyer, 1998). Parent-adolescent closeness, defined by Upchurch and colleges (1999) as “a relationship characterized by a sense of emotional closeness and understanding,” because it has been shown to be a more precise protective factor than familism for negative youth outcomes within Latino samples (Lac et al., 2011; Zayas, Bright, Álvarez-Sánchez, & Cabassa, 2009).

Notably though, language brokering research has also begun to recognize the importance of looking at these individual and familial factors simultaneously (Dorner, Orellana, & Jiménez, 2008, Martinez, McClure & Eddy, 2009). For instance, through extensive interviewing of immigrant Latino families, it was hypothesized that Latino parents may feel threatened by the level of English used by their children, perceiving it as a marker of children rejecting the family’s culture and feeling that their children are becoming too Americanized (Dorner et al., 2008), which demonstrates how individual factors (i.e., adolescent language ability) relate with familial factors (i.e., parent-adolescent relationship). This example illustrates two important

issues. First, it indicates the complexity of individual and family factors that contribute to how Latino youth adjust. Second, it demonstrates the ethnographic and descriptive nature of research on language-brokering. Thus, although this work is valuable for illustrating the rich complexity of factors that must be understood, it is limited in its ability to clarify the precise ways that individual factors (e.g., youth perceptions of this practice) contribute to or are influenced by family functioning (e.g. parent-adolescent closeness). Despite the acute need for empirical studies, there have been conceptual advances in addressing the complexity of a developmental view of relations between language brokering in immigrant youth, their individual characteristics, and the dynamics of their families. In particular, there is conceptual progress in describing how language brokering attitudes might relate to parent-adolescent closeness. Youths' attitudes toward language brokering arguably contribute to how they relate to their parents (Dorner et al., 2008; Umaña-Taylor, 2003), but adolescent-parent relations may also contribute to youth attitudes toward language brokering (De Ment, Buriel, & Villanueva, 2005; Love & Buriel, 2007). Only developmental research designs (e.g., prospective longitudinal studies) can determine the directions of effects and the individual and family level characteristics that determine under which circumstances one or the other pathways occurs. One conceptual framework for understanding the development of minority children suggests that the direction of effects may be family dynamics influencing how adolescents feel about language brokering (Garcia-Coll et al., 1996).

Further, studies on Latino youth who language broker have highlighted the importance of environmental and developmental factors influencing their feelings about the practice (Martinez

et al., 2009). Specifically, previous research has shown that nativity (i.e., nation of birth, e.g., US or Latin American nation; Johnson & Lichter, 2008), SES (Rumbaut, 2004) and time spent brokering (Orellana, 2009; Martinez et al., 2009) to be important factors in predicting youth adjustment outcomes. These factors are particularly salient for youth who language broker because they contribute to the adolescents' ability to adapt to American culture and how they feel about helping their families adapt. As for developmental factors, cross-sectional research has shown that language brokering attitudes and the subsequent outcomes vary as a function age and gender (Weisskirch & Alva, 2002; Love & Buriel, 2007). This highlights the importance of using longitudinal approaches as to reduce selection bias.

To address these gaps in the language brokering literature, the purpose of this thesis was to explore the link between parent-adolescent closeness and youths' negative attitudes toward language brokering considering nativity, SES, and time spent language brokering. Specifically temporal relations between parent-adolescent closeness and youth language brokering attitudes were tested using a longitudinal design. This approach also permitted examination of whether relations between parent-adolescent closeness and language brokering attitudes varied over time or by gender. In doing so, the aims of the present study were as follows:

1. To examine the prospective direction of influence between parent-adolescent closeness and language brokering attitudes.
2. To examine this association throughout the developmental period of early adolescence.

3. To examine whether time spent brokering directly contributes to youths' perception of language brokering and their relationship with their parents
4. To examine whether the links between parent-adolescent closeness and youths' perception of language brokering differ by gender.

### **Language Brokering**

Although youth of immigrant families whose native tongues are not that of the majority culture have always participated as language brokers, research on the topic did not start to blossom until the mid-90s, notably in the context of youth from Spanish-speaking families who immigrated to the United States. At that time, the first report on the frequency and exact role of language brokering in a sample of Latino students was published (Tse, 1995). Since then, a number of studies have emerged, and from this research it has been learned that language brokering is common practice for Latino immigrant families (Morales & Hanson, 2005), typically assigned to females (Valenzuela, 1999), and assumed as early as ages 8 or 9 when the family first arrives in the US (Tse, 1995). Given the prevalence of this role, the question arises as to what individual, familial, and contextual factors contribute to children's attitude towards language brokering, which has been found to be predictive of youth adjustment.

Specifically, evidence has been mixed regarding the advantages of language brokering on children's adjustment and well-being. On the one hand, children who language broker develop stronger language and interpersonal skills (Malakoff & Hakuta, 1991), greater academic achievement and self-efficacy (Buriel et al., 1998), stronger

ethnic identity (Weisskirch, 2005) and greater satisfaction from genuinely contributing to the family (Dorner et al., 2008). On the other hand, there is also evidence that language brokering can contribute to familial role ambiguity and strain (Martinez et al., 2009), youth depressive symptoms (Love & Buriel, 2007) and acculturation stress (Weisskirch & Alva, 2002). These seemingly contradictory findings involving language brokering highlight the importance of understanding the dynamic role of context at the micro level (e.g., family dynamics and youth perception).

### **Language Brokering Attitudes and Parent-Adolescent Closeness**

Adolescents' attitude about language brokering represents their developmental competencies such that positive attitudes would give an adolescent a better chance at functioning more effectively in the mainstream and their native culture (i.e., biculturalism). If children have negative attitudes about language brokering, they will be less likely to learn the cultural etiquette necessary to navigate both these worlds and would be less likely to master their responsibilities (LaFromboise, Coleman, & Gerton, 1993). To this end, understanding what factors contribute to adolescents' attitudes towards language brokering can help inform interventions that can aid children of immigrants to adapt to this responsibility that many encounter in their everyday lives. It may be the role of the child in the family and their relationship with their parents that contributes greatly to how youth feel about the practice.

The role that parents have among Latino language brokers is important to examine because parents are an important interpersonal context for all adolescents

(Steinberg, Dornbusch, & Brown, 1992), and may be more salient for Latino adolescents due to cultural values such as *familismo* (Gallegos-Castillo, 2006; Gallo et al., 2009); defined as having strong identification, attachment, and loyalty to the family (Sabogal, Marín, Otero-Sabogal, & Marín, 1987). Parent-adolescent closeness, precisely emotional closeness and understanding, is particularly important for youth that language broker because this practice is embedded in the context of the parent-child dyad such that emotional sensitivity and communication skills are essential for successful language brokering (Chao, 2002; De Ment et al., 2005; Valdez et al., 2003; Valenzuela, 1999).

In terms of language brokering, some have posited that emotionally responsive care-giving may be disrupted because the nature of the practice reverses the role between parent and child such that the child cares for the parent (e.g., the child helps the parent navigate the public transportation system) rather than the parent caring for the child (Dorner et al., 2008; Martinez et al., 2009). This in turn may cause excessive stress and emotional responsibility, which may put additional pressure on the parent-adolescent dyad. Even though some argue that language brokering can add undue stress to the parent-adolescent relationship (Umaña-Taylor, 2003), most argue that language brokering is associated with a constructive relationship (Love & Buriel, 2007; Santiago, 2003; Valdez et al., 2003). The limited existing work on this relation suggests that language brokering is positively linked to parental-child bonding (Love & Buriel, 2007) with only clinical cases involving severe impairments showing detrimental emotional consequences (Baptiste, 1993). However, it is unclear whether feelings around language brokering



influence the parent-adolescent relationship or vice versa because previous work has been either theoretic or cross-sectional. One possibility is that youths' attitudes toward language brokering indirectly contribute to the quality of the parent-adolescent relationship. For example, if youth feel good about language brokering because they know they are contributing to the family, they may decide to broker more for the family, which would give them more opportunity to become closer with their parents.

Alternatively, youth who already have developed a sense of closeness with their parents may readily accept and feel positively about assuming the role of language broker because that is their duty in the family. There is a dearth of longitudinal research in the empirical literature on language brokering and no information on the direction of effect of these relations or the conditions under which one effect is greater than the other.

However, the conceptual modeling of the development of minority youth (Garcia-Coll et al., 1996) argues that, for Latino youth, their role in the family determines to a large degree how they feel and behave.

### **Theoretical framework**

Theory suggests hypotheses about the direction of relations between parent-adolescent closeness and youth language brokering attitudes, and informs which additional factors should also be considered. As a starting point, Family Systems Theory (Klein & White, 1996) asserts that an individual's development does not occur in isolation but in a larger context of the family as a system. Family members' behavior and beliefs are interconnected, leading to complex interpersonal dynamics in which any particular phenomenon must be understood. Family

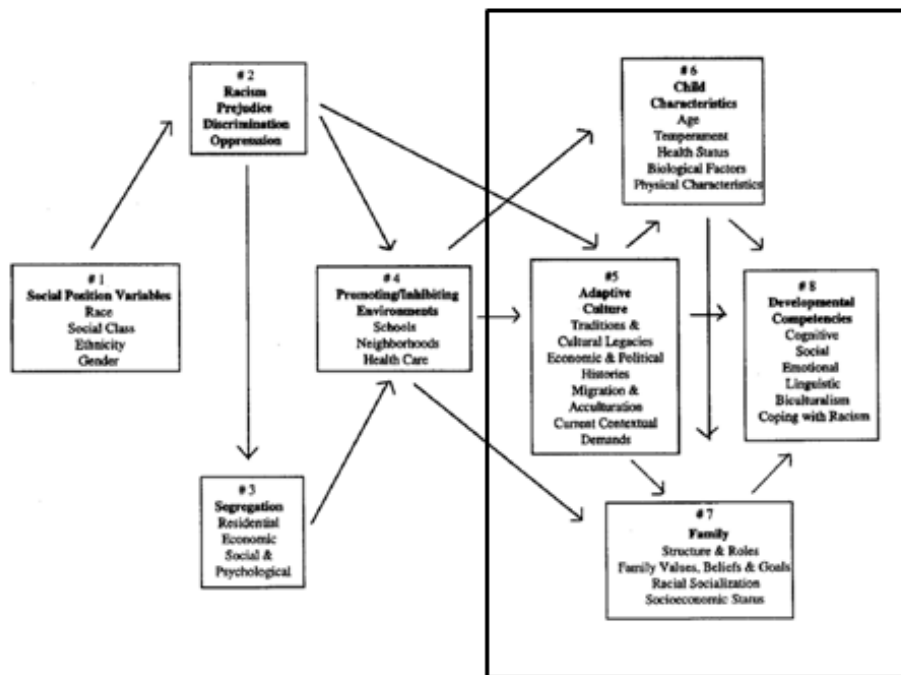
systems theory asserts that highlights that these dynamics are the products of interactional patterns that recur, and that these repetitive cycles maintain the family equilibrium. Thus, this theory supports the contention that adolescents' attitudes about their family-related behavior (e.g., language brokering) must be understood within the context of the parent-adolescent relationship, but it fails to disentangle the direction of influence between the parent-adolescent relationship and adolescent's attitude toward language brokering.

To fill this gap, the thesis reported in this paper used the conceptual framework of Garcia-Coll and colleagues (Garcia-Coll et al., 1996; see Figure 1) to investigate the developmental relation between Latino youth attitudes toward language brokering and their closeness with their parents, including factors like cultural stress related to being a minority group adolescent as well as individual characteristics such as gender. This conceptual framework is based from ecological theory (Bronfenbrenner, 1979) and was applied to minority children, which in doing so, incorporates both the importance of family and highlights the ubiquitous influence that cultural stress has on minority youth development at a more immediate level. The current study specifically tests boxes 5 through 8 of this model (see Figure 1). This framework highlights the influence that cultural stress has on minority youth development by affecting the developing child at various levels, possibly influencing attitudes towards language brokering and relationship factors with parents. Thus, within this framework, exosystemic factors (i.e., nativity and time spent brokering) would have a more direct impact on family dynamics, which would contribute to an adolescent's attitude toward language brokering. In this model, it is expected that nativity (immigrant vs. US born) would have more of a distal impact (box 1), but expect that

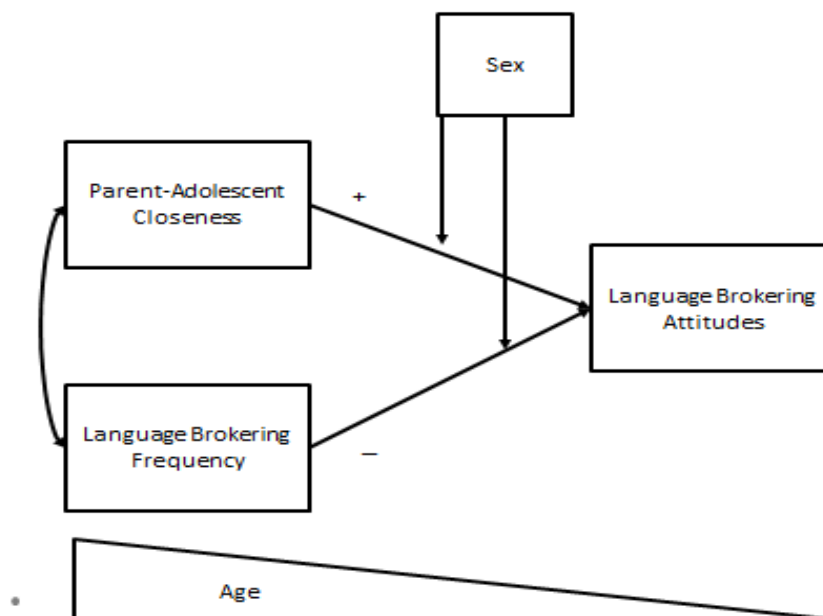
contextual factors of migration (i.e., time spent brokering) (box 5) would have a direct effect on both family structure (box 7) and language brokering attitudes (box 8) and that these may be differentiated for males and females because past research has shown that developmental competencies vary by gender (Patterson, Kupersmidt, & Vaden, 1990).

Furthermore in this case, parallel to ecological theory, parent-adolescent closeness (box 7) is expected to contribute to language brokering attitudes and not vice versa. It is theorized to be the case because minority families often cannot rely on the mainstream institutions to provided support. Thus, the structure of the family becomes quite important for these families because they cannot rely on resources that are available to other mainstream families. In sum, based on these theories, it is hypothesized that familial factors will play an important role on how adolescents perceive language brokering, that contextual factors (e.g., time spent brokering) will significantly contribute to adolescent's relationship with their parents and that these factors will contribute proximally to language brokering attitudes. Taken together, it is specifically hypothesized that parent-adolescent closeness will predict language brokering attitudes (see conceptual model; Figure 2).

H1: Higher levels of parent-adolescent closeness prospectively predict better language brokering attitudes among Latino youth.



**Figure 1.** Integrative model of developmental competencies in minority children (Garcia-Coll et al., 1996).



**Figure 2.** Conceptual model of parent-adolescent closeness and language brokering frequency predicting language brokering attitudes moderated by sex and age.

## **Developmental perspective of Language Brokering**

All adolescents experience developmental changes as they enter middle school as they start to seek and receive more support from peers than parents, at least for certain types of support, and this shift can contribute to changes in parent-adolescent closeness (Arslan, 2009; Furman & Buhrmester, 2009). Thus, instead of considering language brokering as a static cultural force (Love & Buriel, 2007), it is important to appreciate the potential role of change during adolescent development in relation to youth attitudes about language brokering. Among 5<sup>th</sup> and 6<sup>th</sup> graders, language brokering is associated with feelings of discomfort (Weisskirch & Alva, 2002). However, by 7<sup>th</sup> and 8<sup>th</sup> grade, gender appears to become a factor; males who language broker report less positive feelings about language brokering than females (Love & Buriel, 2007). Yet, by mid-adolescence and beyond, males and females appear to benefit from the role of language brokering may not be viewed as negatively; this is implied by evidence that language brokering is associated with greater academic self-efficacy and bicultural identity in high school (Buriel et al., 1998) and in college (Buriel, Love, & De Ment, 2006). Clearly age and gender are important individual factors that must be incorporated into any model of the relation between language brokering attitudes and parent-adolescent closeness. The findings may reflect the following developmental facts: 1) changes in peer relationships and cognitive skills may account for initial discomfort and later easing of the demands of speaking two languages, and 2) males' linguistic skills develop later than females (Gleason & Ely, 2002), such that it may take males somewhat longer to benefit from language brokering.

In sum, youth may develop more positive language brokering attitudes as a function of their age, which serves as a broad index for other developmental changes. However, this developmental trend has only been suggested through cross-sectional studies; cohort effects and selection bias may account for the existing pattern of findings. The present thesis used a longitudinal design that covered ages 11 to 16 years-old, permitting an analysis not only of the temporal relations between language brokering attitudes and parent-adolescent closeness but also the ability to examine whether the effects vary as a function of the adolescent's age and gender. It was expected that the strength of the relation between parent-adolescent closeness and language brokering attitudes would be attenuated as adolescents get older because parents are less salient in adolescent lives than in earlier development (Arslan, 2009; Furman & Buhrmester, 2009), and thus attitudes are probable more influenced by other factors such as their relationship with peers (Weisskirch & Alva, 2002)

H2: The strength of parent-adolescent closeness predicting language-brokering attitudes will be stronger when adolescents are younger.

### **Time Spent Brokering**

There is a large pressure on children of immigrants to make correct and culturally accurate translations for their families when there is less support (i.e., environments that heavily rely on children; Orellana, 2009). For example, new migrant ports often do not have the resources or capacity for bilingual services to support Latino immigrants (Capps & Fortuny, 2006), adding to the time youth must language broker for the family. Research in new immigrant cities has shown that after controlling for SES and nativity, compared

to fathers who did not heavily rely on youth to language broker (i.e., Low Language Brokering (LLB)), fathers who relied heavily on their children (i.e., High Language Brokering (HLB)) were more likely to be depressed, experience immigration and occupational stress, and be less involved in their child's life (Martinez et al., 2009). HLB youth compared to LLB youth had lower homework quality, lower academic performance, more internalizing symptoms, lower sense of ethnic belonging, and were more likely to use alcohol or tobacco. In sum, adolescents in the HLB situation would be much more likely to view their experience negatively due to the myriad of undesirable outcomes, which would both contribute to their relationship with their parents and their attitudes about brokering. Thus, this study examined if time spent language brokering would have a direct contribution to parent-adolescent closeness and language brokering attitudes.

H3: The more time spent language brokering will directly contribute to a) less feelings of closeness toward their parents and b) negative attitudes toward language brokering.

**Moderator: Sex**

Developmental factors (e.g., males developing linguistic skills later than females; Gleason & Ely, 2002) may contribute to males having worse over-all attitudes toward language brokering. Thus the task of language brokering may tax the cognitive ability of males so that they are more sensitive about how they perform in the practice. Therefore, because of this sensitivity, it may be the case that their attitudes may be more readily

shaped by family relationship factors (e.g., closeness with parents) compared to their female counterparts.

In addition, the process by which closeness with parents contributes to attitudes toward language brokering could differ for males and females because of gender roles within the Latino family. Latino youth are socialized to different gender roles (Gallegos-Castillo, 2006), which may contribute to how male and female adolescents view their role as a language broker. Specifically, language brokering can either act as a bridge between two cultures or can be a source of additional gender role strain and acculturation stress depending on the gender of the adolescent.

Specifically, females language broker consistently more than males because of cultural norms that assign females the duty to take care of the family (Love & Buriel, 2007; Weisskirch & Alva, 2002). Latinas tend to have restricted roles within the family because they adhere to *marianismo* values. Marianismo dictates that females should be attendant to the family's well-being, take care of the more menial household tasks, and be sexually pure (Gallegos-Castillo, 2006). However, language brokering may allow females to extend their social networks without violating their culturally defined gender role. Thus, Latina youth may benefit from language brokering, regardless of the quality of their relationship with their parents, by having a sense of satisfaction from fulfilling their familial duties, feeling more independent and doing more meaningful and responsible tasks (e.g., translating) compared to traditional housework (Céspedes & Huey, 2008; Dorner et al., 2008; Salguero & McCusker, 1996).



Conversely, males may feel more stress given that language brokering conflicts with their traditional role in the family, constricting their independent lifestyle and over-challenging them linguistically. Latino males are raised to adhere to *machismo* values; they are expected to be more daring and independent, providing resources for the family and acting tough in all situations (Gallegos-Castillo, 2006). Thus, language brokering could cause gender role conflict (Wester, 2008) because males are forced to perform duties outside their traditional gender role (Valenzuela, 1999). In addition, language brokering heavily relies on interpersonal connections and caring for other people's problems, which may cause more stress for Latino males by asking them to perform language brokering activities and to still act "masculine".

Furthermore, Latino males are entitled to more independence than Latinas (Gallegos-Castillo, 2006), and language brokering may constrict their social freedom by pulling them closer to the family and away from other activities in their life, compromising males' ability to have success in other social domains. Thus, Latino males may have more negative attitudes toward language brokering than females because they would view the activity as a hindrance to their social freedom. However, if males have a strong bond with their family, the negative effects of language brokering may be attenuated because they may perceive less gender role strain. In sum, developmental and cultural factors may contribute to males being more sensitive about the practice, and as such, parent-adolescent closeness may have more influence on how males feel about language brokering compared to females. Given these potential differences, the last aim

of the study was to clarify the way the relation between closeness with their parents and language brokering attitudes varies by gender.

H4: The relation between parent-adolescent closeness and language brokering attitudes will be more predictive for males than females.

### **Controls: Nativity and Socioeconomic Status (SES)**

Importantly, due to shifts in the economic labor force, many Latino immigrants do not arrive in the traditional port cities (e.g., Los Angeles and Miami) to which previous generations migrated decades ago. In fact, the highest proportion of the population increase has occurred in non-traditional migrant metropolitan or rural areas where there is a large need for agriculture and meat processing laborers (Johnson & Lichter, 2008). In light of this phenomenon, studies have begun to look at contextual factors that contribute to the well-being of Latino adolescent immigrants. In particular, it has been suggested that the amount a family relies on an adolescent for translating (Martinez et al., 2009) and the adolescents' ability to speak Spanish and English contribute to how youth adjust (Morales & Hanson, 2005). Both of these factors are influenced by the adolescents' country of birth. Therefore, first (i.e., immigrant child and immigrant parents) and second (i.e., child born in the US and immigrant parents) generation Latino families face unique challenges compared to Latino families who are third generation and beyond. Later generation Latino families have had more time to adapt, culturally and linguistically to the US. Because of these factors, the current study will control for nativity.

In addition, Latino immigrant youth and their families are quite diverse with respect to the circumstances of immigration and the socioeconomic classes to which they belong (Rumbaut, 2004). This is important to note because lower SES has been linked to a myriad of negative outcomes such as adjustment problems (Compas, Hinden, & Gerhardt, 1995; Scaramella, Conger, & Simons, 1999) and depressive symptoms (Cicchetti & Toth, 1998). More importantly, Latino adolescents who come from a lower SES family may experience more stressors than those from a higher SES background. In fact, SES has been linked indirectly to adolescents perceiving more discrimination (Phinney, Madden, & Santos, 2006). Thus, Latino adolescent with lower SES may hold more negative attitudes toward language brokering because they may feel that this practice is demeaning and sets them apart from their mainstream peers. Because of this possibility, the present study controlled for SES status.

## Methods

### Participants

A total of 1984 5<sup>th</sup> grade students participated in a study examining the effectiveness of a two-year substance use prevention program, Keepin' it Real (Hecht et al., 2008). When participants first received the intervention, they reported a mean age of 10.4 years ( $SD = .16$ ) and 75% identified as Mexican American, 3% as other Hispanic, 5% as White and 9% as African American. A total of 29 participating schools in Phoenix Arizona were stratified to receive either 1) 5<sup>th</sup> grade Keepin' it Real Plus, 2) 5<sup>th</sup> grade Keepin' it Real Acculturation Enhanced, 3) 7<sup>th</sup> grade Keepin' it Real Plus, 4) 7<sup>th</sup> grade Keepin' it Real Acculturation Enhanced 5) 5<sup>th</sup> and 7<sup>th</sup> grade Keepin' it Real Plus, 6) 5<sup>th</sup> and 7<sup>th</sup> grade Keepin' it Real Acculturation Enhanced or 7) their schools regularly scheduled substance use prevention program. The 5<sup>th</sup> grade Keepin' it Real plus intervention uses the same basic curriculum as the 7<sup>th</sup> grade multicultural version, but it had an adjusted communication format and more age appropriate examples. Both the 5<sup>th</sup> and 7<sup>th</sup> grade versions included five videos that taught students about resisting strategies (i.e., refuse, explain, avoid, and leave) and videos demonstrating those strategies. In addition, both the Plus and Acculturation Enhanced versions of the interventions included 12, 45-minute lessons focusing on anti-drug expectancies, normative beliefs, and refusal self-efficacy. The Plus version included two sessions that discussed how to deal with general stress in the context of school, peers, and parent communication. The acculturation enhanced version included two sessions that focused on encouraging

students to view cultural values (i.e., familism) as positive strategies for drug resistance. To this end, the present study controlled for intervention status because the intervention had components that trained students in parent communication (which could influence closeness with parents), self-efficacy (which could influence attitudes around language brokering), and coping strategies for stress (which may influence how adolescents perceive cultural stressors such as time spent brokering). Please refer to Hecht and colleagues work (Elek, Wagstaff, & Hecht, 2010; Hecht et al., 2008) for more information on the study and the Keepin' it Real intervention. For the current study, only Latino participants ( $n = 813$ ) who indicated that they language broker for their family were included. Language brokering items were added starting at Wave 4 so the current study included data from Waves 4-6. A description of the sample to be used for the present study follows.

Of the 813 youth who participated across the last 3 waves of data collection, 668 adolescents participated at Wave 4, 643 participated at Wave 5 and 643 at Wave 6 (see Table 1). There was a relatively even gender balance (48% male), with a mean age of 12.3 years ( $SD = .57$ ) at Wave 4. The majority of the sample identified as Mexican American (89 %) and were born in the US (78%), but 20% of their mothers and 18% of their fathers were born in the US. As compared to male, females were more likely to be born in the US and have mothers who were born in the US. The survey was offered in Spanish, but 97% of the students took the survey in English.

Table 1. *Descriptive statistics*

	Males		Females		Total		Sig.
	N	Mean or %	N	Mean or %	N	Mean or %	
<b>Demographics</b>							
Sex †	376	46.2%	437	53.8%	813	-	.100
Age W4*	299	12.36	365	12.28	664	12.32	.022
<b>SES</b>							
Free Lunch	225	76%	288	80%	513	78.2%	$\chi^2 = 3.82$
Reduced Lunch	51	17.2%	55	15.3%	106	16.2%	$df = 2, ns$
US born*	201	68.4%	278	76.4%	479	72.8%	.022
Mother US born*	44	11.7%	82	23%	126	19.5%	.013
Father US born	44	11.7%	69	19.5%	113	17.6%	.164
<b>Study Variables</b>							
W4 Language brokering*	249	4.2/5	313	4.0/5	562	4.1/5	.021
W5 Language brokering	213	4.0/5	304	4.0/5	518	4.0/5	.870
W6 Language brokering	244	4.2/5	292	4.1/5	537	4.1/5	.110
W4 Parental Closeness*	269	3.4/4	345	3.3/4	614	3.3/4	.015
W5 Parental Closeness	266	3.3/4	341	3.2/4	608	3.2/4	.153
W6 Parental Closeness †	265	3.2/4	324	3.1/4	590	3.2/4	.082
W4 LB Frequency	282	2.9/5	349	3.0/5	631	3.0/5	.436
W5 LB Frequency*	272	2.6/5	341	3.0/5	614	2.8/5	.003

\*p < .05, †p < .1

## Procedures

Prior to the implementation of the study, researchers at Arizona State University obtained approval from the human subjects institutional review board, and parents provided informed consent, while students provided informed assent. Subsequently, six waves of data were collected over a period of 4 years starting when adolescents were in 5<sup>th</sup> grade and ending with a follow-up in 9th grade. During the 6 waves, youth completed several self-reported questionnaires. For the purpose of this study, the data used was drawn from those participants who had opportunities to language broker in the home. Because data on language brokering was only collected at the later waves of data

collection, data was only used from Waves 4-6 (i.e., the fall of 2006/beginning of 7<sup>th</sup> grade, spring of 2007/end of 7<sup>th</sup> grade and fall of 2008/beginning of 9<sup>th</sup> grade).

Questionnaires took approximately 45 minutes to complete and were typically done in the homeroom, science, or health class.<sup>1</sup>

## Measures

**Language Brokering Attitudes.** An adapted 4-item version of the Language Brokering Scale was used to assess attitudes around language brokering, which originally was found to have good predictive validity for biculturalism, academic self-efficacy, social self-efficacy and academic performance (Buriel et al. 1998). The adapted version was selected on face validity in order to tap into the more proximal attitudes related to language brokering within the family context. This scale continued to use the same response choices ranging from 1 (*never*) to 5 (*always*), and the four items used were: “I feel embarrassed when I translate for my family”, “I have to translate for my family even when I don’t want to”, “I feel good about myself when I translate for my family” and “I feel nervous when I translate for my family”. The negative worded items were reversed to be equivalent to the positive item. The Cronbach’s alpha obtained for the 4 items was quite low for this sample ( $\alpha$  = .46, .44 and .47 for Waves 4-6, respectively). In examining specific item correlation, the “I feel good” item did not correlate well with the other items. When this item was dropped, alpha increased substantially ( $\alpha$  = .64, .61 and .64

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<sup>1</sup> Surveys were offered in English and Spanish such that a back-translation method was used to ensure linguistic accuracy.

for Waves 4-6, respectively). Thus, only the negative worded items of language brokering attitudes were used. Within this sample, this 3 item scale had good predictive validity for drug and substance use. A total language brokering attitudes score was obtained ranging from 1-5, with higher scores indicating more positive attitudes. On average, adolescents reported positive attitudes about language brokering (4.1/5), and males had significantly more positive attitudes than females at Wave 4.

**Parental Closeness.** A subset of five items was selected from the Parental Socio-emotional Support for Adolescents scale (Upchurch, Aneshensel & Sucoff, 1999), which historically has high reliabilities ( $\alpha = .94$ ) and good predictive validity for Latino adolescent risky behavior (Sneed, Morisky, Rotheram-Borus, Ebin, & Malotte, 2001; Upchurch et al., 1999). Adolescents responded to “My mom and dad... 1) really understand me, 2) care about my feeling, 3) are there when I need help, 4) don’t give enough attention to me, and 5) let me know if he/she cares about me” ( $\alpha = .78, .80$  and  $.84$  for waves 4-6, respectively). Items were scored on a on a 4-point scale from 1 (*Strongly Agree*) to 4 (*Strongly Disagree*). The negative worded item was reversed scored so that higher scores indicated greater parent-adolescent closeness. A total parent-adolescent closeness score was calculated with a possible range of 1-4. On average, adolescents reported that they felt pretty close to their parents (3.2/4), and males perceived themselves significantly closer than females at Wave 4.

**Time Spent Brokering.** Time spent brokering was measured by asking “How often do you translate for a family member(s) –for example, interpret a letter, bill,



conversation, or phone call in English for a person who doesn't speak English?"

Response choices were 1= "Never"; 2= "A little bit", 3= "Undecided", 4= "A lot", 5= "Always." On average, adolescents were at the midpoint on the scale in terms of how much they reported brokering (2.9/5) and females reported significantly more translating than males at Wave 5.

**SES.** SES was measured by asking adolescents if they received free or reduced lunch, and this categorical variable was coded into 1 "free lunch", 2 "reduce lunch" and 3 "neither". The majority reported receiving free (78.2%) or reduced lunch (16.2%).

**Nativity.** Nativity was simply measured by asking adolescents country of birth, and 0 was coded for those born in the US while 1 was for those born in Mexico or Latin America.

**Intervention Status.** Intervention status was dummy coded into 6 categorical variables 1) 5<sup>th</sup> grade Keepin' it Real Plus, 2) 5<sup>th</sup> grade Keepin' it Real Acculturation Enhanced, 3) 7<sup>th</sup> grade Keepin' it Real Plus, 4) 7<sup>th</sup> grade Keepin' it Real Acculturation Enhanced 5) 5<sup>th</sup> and 7<sup>th</sup> grade Keepin' it Real Plus and 6) 5<sup>th</sup> and 7<sup>th</sup> grade Keepin' it Real Acculturation Enhanced, which were all compared against control schools who used their own substance use prevention program.

## Analysis

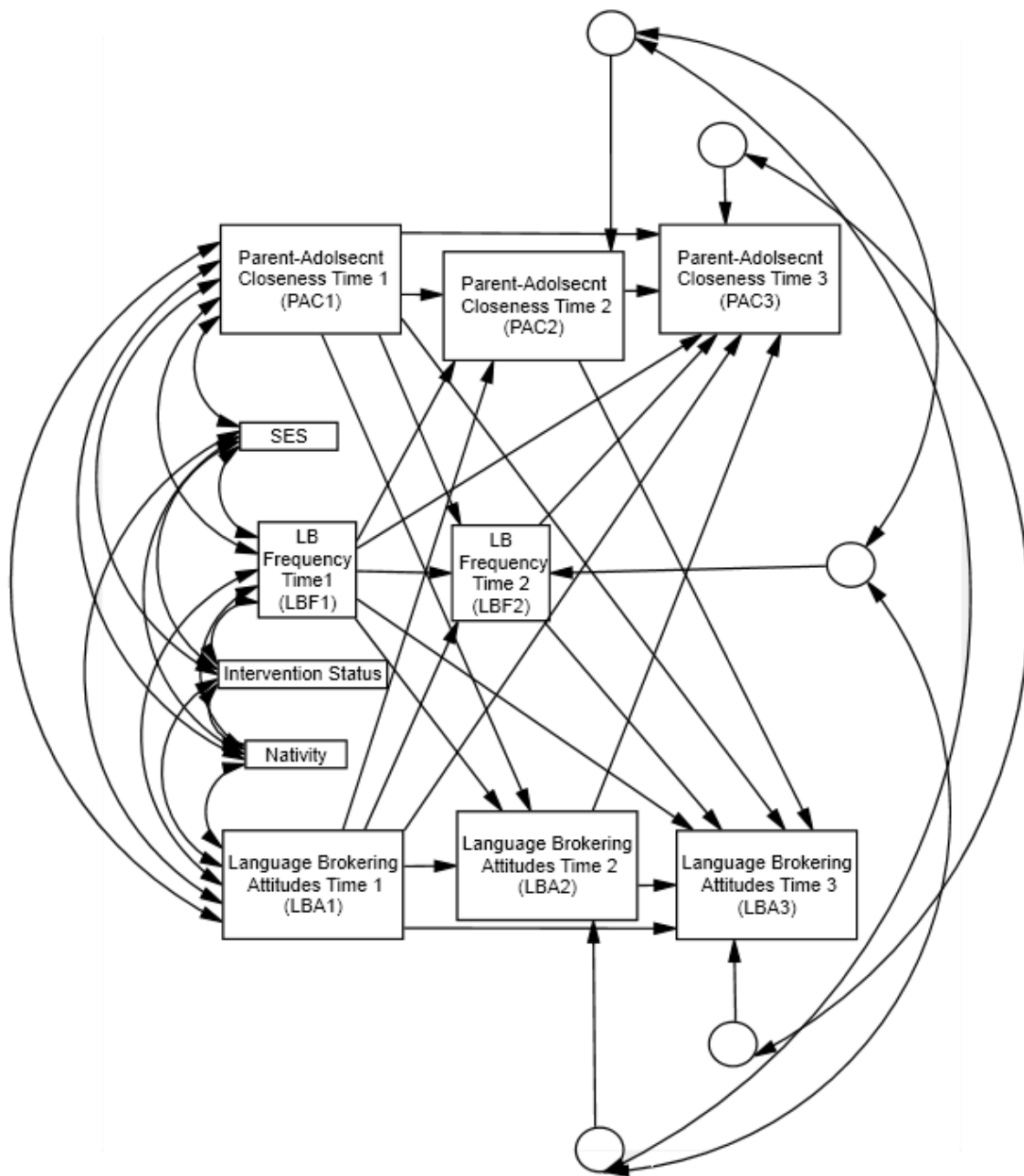
### Analysis Plan

Using sex as a grouping variable, multiple group path analysis with AMOS 20.0 was utilized in order to examine the cross-lagged associations between language brokering attitudes and parent-adolescent closeness, while examining how language brokering frequency contributes to this relation. This was modeled across three time points controlling for SES, nativity and intervention status. The technique of doing causal analysis with longitudinal data was conducted following the procedures of Finkel (1995). In this case, a fully saturated model was used in order to account for all predictions (see Figure 3) and to verify which cross-lag associations were significant. Thus, the control variables were set to predict every study variable and because the time 1 variables (i.e., parent adolescent closeness, language brokering attitudes and time spent brokering) are exogeneous variables, they were set to correlate with each other and the control variables. Autoregressive error covariances for each of the manifest variables were modeled in order to account for the association between error terms at each particular time point. Full information maximum likelihood (FIML) was used in order to account for missing data, which reduces the loss of overall power due to missing data from any single time point (Schafer & Graham, 2002). Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) were used to verify goodness of fit;  $RMSEA \leq .05$ ,  $CFI \geq .95$  and  $TLI \geq .95$  were considered acceptable fit (Hu & Bentler, 1999).

In order to test the possible moderating role of sex, separate models were examined following the guidelines as outlined by Jöreskog (1971), and the invariance of b-weights across

groups could be immediately tested because manifest variables were used. In order to do this, three broad steps were utilized to determine if sex was a moderator: 1) testing for global differences across sex, 2) testing for global differences across all non-hypothesized paths, and 3) testing specific hypothesized regression paths. Steps 2 and 3 were only conducted if step 1 was found to be significant. Thus, the first step was to determine if overall modeling separately by sex fit the data better than combining the groups. To do this, the fully saturated model (i.e., all freely estimated paths; Figure 3) was computed, which by default fits the data perfectly. Then, that model was compared with a model that had all the regression weights constrained to be equal across sex. If the constrained model was significantly different (i.e., the difference in  $\chi^2$  and degrees of freedom between the two models was statistically significant) compared to the completely unconstrained model (i.e. fully saturated), then each model was examined separately for males and females. If there was difference in which paths were significant by group, it was noted which paths were significant for one sex, but not the other. Specifically, the variables were grouped into two categories: hypothesized paths that would differ in strength (i.e., parent-adolescent closeness predicting language brokering attitudes and language brokering frequency predicting both language brokering attitudes and parent-adolescent closeness) and the non-hypothesized paths (i.e., the other cross-lagged associations and the stability paths). The stability paths refer to each study variable predicting itself across time (e.g., parent adolescent closeness at time 1 predicting parent-adolescent closeness at time 2 and 3, and parent-adolescent closeness at time 2 predicting parent-adolescent-closeness at time 3).

The second step consisted of using a global test (i.e., omnibus test) to determine if the specific paths within the group of non-hypothesized predictions should be tested separately (analogous to the F-test). Again, the difference in the  $\chi^2$  and degrees of freedom was used to determine if this model was significantly different than that of the fully constrained model. If this freely estimated model was significantly different than the fully constrained model, each specific path was contrasted against the fully constrained model. In the third and final step, invariance testing was done across each of the hypothesized paths. Again, a model with only that path unconstrained was compared to a model that had all paths constrained across sex. If the difference in  $\chi^2$  and degrees of freedom was significant across these models, this path was determined to be statistically variant across sex.



**Figure 3.** Fully saturated cross-lag association between LB attitudes and Parent Closeness with LB Frequency prospective predictors and controlling for SES, Intervention Status and SES.

Note: Control variables were set to predict all study variables. These paths were omitted from this illustration for viewing purposes.

### Preliminary Analysis

Table 2 summarizes the bivariate correlations between age, birth country, SES, language brokering frequency at Wave 4-5, language brokering attitudes and parent-adolescent closeness

across Waves 4-6. As expected, for both males and females the main variables of interest (i.e., language brokering frequency, language brokering attitudes and parent-adolescent closeness) were all stable across time at the bivariate level such that Wave 4 values were significantly correlated with subsequent waves for each of the variables. In addition, across all waves, for both males and females 1) language brokering attitudes were positively correlated with parent-adolescent closeness (i.e., the more positive attitudes adolescents had, the closer they were with their parents), 2) language brokering attitudes were negatively correlated with frequency of brokering (i.e., adolescents who language brokered more had poorer attitudes around the practice), and 3) parent-adolescent closeness was positively correlated with language brokering frequency (adolescents who brokered more had more perceived closeness with parents; this was only significant for Wave 4). Further, for males and not for females, parent-adolescent closeness at Wave 4 was associated with Language brokering at Wave 5 and parent-adolescent closeness at Wave 5 was associated with language brokering attitudes at Wave 6. In addition, the frequency of brokering significantly predicted negative language brokering attitudes at the subsequent wave, with higher amounts of brokering predicting more negative attitudes. Age was found to be significantly associated with language brokering attitudes and parent adolescent closeness for males, but not for females. The bivariate correlations suggest that SES, nativity, and intervention status should be considered as control variables (see Tables 2 and 3) due to the significance correlations between these variables and those in the model. Specifically for intervention status, significant mean differences across intervention status were found for language brokering attitudes at Waves 4 and 5 (see Table 3).

Table 2. Summary of intercorrelations between variables

	1	2	3	4	5	6	7	8	9	10	11	Mean	SD
1.Age	-	-0.02	-0.05*	-0.04	0.04	-0.13*	0.09	-0.04	-0.03	-0.09†	-0.06	10.4 (10.32)	.64(.54)
2.Nativity	0.094*	-	-0.12*	0.31***	0.28***	-0.03	-0.09	0.03	0.07	-0.11*	0.00	76% (81%)	
3.SES	-0.08†	-0.11*	-	-0.16***	-0.12***	-0.02	-0.07	0.12	-0.06	-0.04	-0.03	1.37(1.30)	.65(.60)
4.LB frequency 4	0.02	0.29***	-0.14**	-	0.47***	-0.18**	0.11	0.15*	0.09†	0.02	0.12*	2.42(2.56)	1.37(1.40)
5.LB frequency 5	0.06	0.28***	-0.19***	0.61***	-	-0.12*	-0.19**	-0.04	0.05	0.08	0.04	2.23(2.55)	1.32(1.36)
6. LB attitude 4	-0.02	-0.03	-0.06	-0.11*	-0.06	-	0.24***	0.28***	0.20***	0.08	0.15†	4.20(4.03)	.85(.87)
7.LB attitudes 5	-0.02	-0.03	0.03	-0.12*	-0.12*	0.37***	-	0.32***	0.19**	0.19***	0.14†	4.02(4.01)	.95(.87)
8.LB attitudes 6	0.04	-0.20**	0.12†	-0.10	-0.12†	0.31***	0.37***	-	0.11	0.18*	0.21***	4.18(4.07)	.86(.80)
9.PA Closeness4	0.07	0.10*	-0.04	0.10*	0.06	0.17**	0.05	-0.02	-	0.34***	0.35***	3.43(3.27)	.66(.70)
10.PA Closeness 5	0.03	0.04	-0.03	0.04	0.07	0.04	0.20**	0.01	0.56***	-	0.45***	3.28(3.17)	.73(.74)
11.PA Closeness 6	0.07	-0.06	-0.06	0.05	0.02	0.12†	0.13*	0.11†	0.42***	0.48***	-	3.24(3.12)	.73(.76)

\*p < .05. \*\*p < .01, \*\*\*p < .001 †p < .1

Note: Bottom half of matrix represents females and top represents males.

Table 3. Comparing means across intervention conditions (ANOVA)

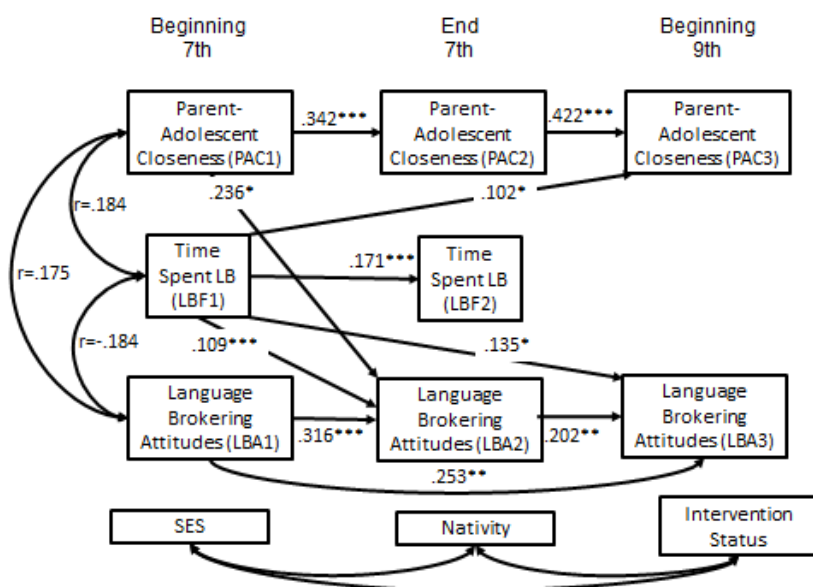
	Sum of Squares	df	Mean Square	F	Sig.
W4 Language brokering	10.863	6	1.811	2.471	.023
W5 Language brokering	10.164	6	1.694	2.120	.050
W6 Language brokering	5.120	6	.853	1.237	.285
W4 Parental Closeness	4.676	6	.779	1.758	.105
W5 Parental Closeness	5.306	6	.884	1.631	.136
W6 Parental Closeness	.628	6	.105	.190	.980

## Results

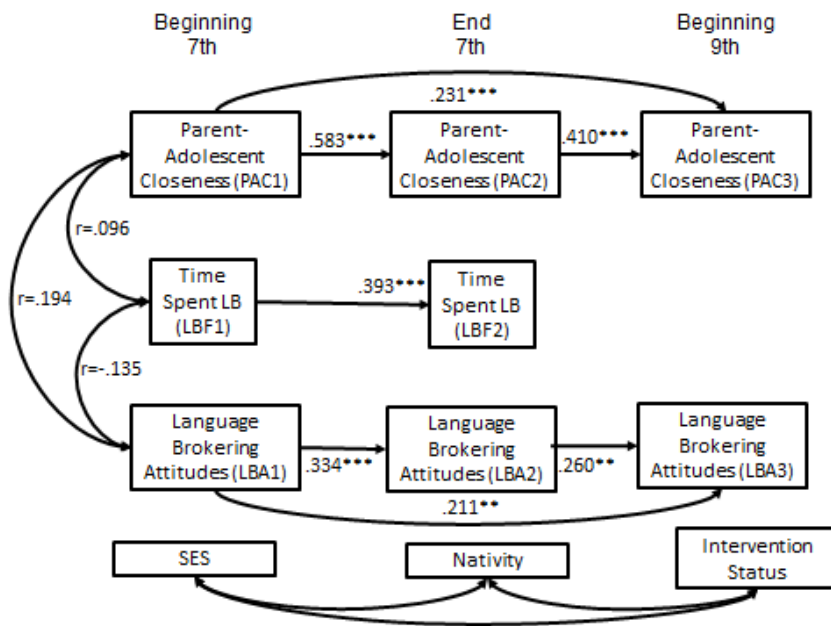
The primary research goal of this study was to determine if parent-adolescent closeness prospectively predicted language brokering attitudes, if this relation varied by sex and age, and how language brokering frequency contributed to this relation. To answer these questions, three broad steps were utilized to determine if sex was a moderator: 1) testing for global differences across sex, 2) testing global differences across all non-hypothesized paths, and 3) testing specific hypothesized regression paths. Thus, the first step was to examine if modeling the data separately for males and females fit the data better than combining these groups. It was found that the model which estimated paths for both males and females constrained to be equal was significantly different than the fully saturated model (i.e., freely estimated paths) ( $diff \chi^2 = 100.80$ ,  $diff df = 61$ ,  $p \leq .001$ ,  $RSMEA = .03$ ,  $CFI = .96$ ,  $TLI = .84$ ), suggesting differences in certain paths across sex. In other words this test indicated that it was appropriate to further examine significant differences across sex for the grouped non-hypothesized paths and the specific individual hypothesized paths. To determine which paths to test globally versus individually, separate models for males and females were visually examined to look at which paths were significant in one model, but not the other. Specifically, it was found that parent-adolescent closeness significantly predicted language brokering attitudes and language brokering frequency significantly predicted both language brokering attitudes and parent-adolescent closeness (see Figure 4). In addition, no cross-lags associations



were found for females (see Figure 5), which confirms that invariance across these specific paths should be tested. However, while not hypothesized, it was also found that parent-adolescent closeness at the beginning of 7<sup>th</sup> grade significantly predicted parent-adolescent closeness in 9<sup>th</sup> grade for females and not males. Thus, instead of using the omnibus test to examine invariance across sex for the parent-adolescent closeness stability paths, each of these paths was examined individually.



**Figure 4.** Fully saturated model of the cross-lagged associations of language brokering, parent-adolescent closeness and language brokering frequency for males



**Figure 5.** Fully saturated model of the cross-lagged associations of language brokering, parent-adolescent closeness and language brokering frequency for females

The second step was to determine if the non-hypothesized paths were significantly different, and this was done by testing for differences across sex when all these paths were grouped together (see Table 4). Specifically, an omnibus test was conducted for the a priori non-significant hypothesized cross-lag associations (i.e., language brokering attitudes at previous time points predicting frequency and parent-adolescent closeness at later time points) so that the model with the non-significant hypothesized paths being freely estimated was compared to the model that constrained all paths to be equal. This model comparison was found not to be significantly different ( $diff \chi^2 = 2.17, diff df = 4, p = .70$ ), so the corresponding specific paths for the other cross-lag associations were not tested for invariance. The same procedure was used to test invariance for the stability paths of language brokering frequency and attitudes across

time. This model comparison was also found not to be statistically different ( $diff \chi^2 = 5.57, diff df = 4, p = .23$ ), indicating that there were not differences across sex for language brokering frequency and attitudes over time. However, because the stability coefficient of parent-adolescent closeness varied across the fully saturated (i.e., freely estimated) sex models, these paths were tested separately. Specifically, a separate model for each of the three individual stability coefficients was set to be freely estimated, and each of those models was compared to the fully constrained model. Parent-adolescent closeness at the beginning of 7<sup>th</sup> grade predicting the end of 7<sup>th</sup> grade was the only path found to be significantly different across sex ( $diff \chi^2 = 7.11, diff df = 1, p \leq .001$ ).

The final step was to test if the specific hypothesized paths varied across sex. Thus, each of the a priori hypotheses was tested individually for invariance across sex with the same procedures outlined above (i.e., freely estimating the one path in one model and comparing it to the fully constrained model). Parent-adolescent closeness in the beginning of 7<sup>th</sup> grade predicting language brokering attitudes at the end of 7<sup>th</sup> grade ( $diff \chi^2 = 5.85, diff df = 1, p = .01$ ), frequency of brokering at the beginning of 7<sup>th</sup> grade predicting language attitudes at the end of 7<sup>th</sup> grade ( $diff \chi^2 = 5.34, diff df = 1, p = .02$ ) and frequency of brokering the beginning of 7<sup>th</sup> grade predicting language attitudes at the beginning of 9<sup>th</sup> grade ( $diff \chi^2 = 5.78, diff df = 1, p = .02$ ) were found to significantly vary across sex. The final multi-group model allowed the one significant non-hypothesized path (i.e., parent-adolescent closeness at the beginning of 7<sup>th</sup> grade predicting parent-adolescent closeness at the end of 7<sup>th</sup> grade) and the three significant

hypothesized paths (i.e., parent-adolescent closeness in the beginning of 7<sup>th</sup> grade predicting language brokering attitudes at the end of 7<sup>th</sup> grade, frequency of brokering at the beginning of 7<sup>th</sup> grade predicting language attitudes at the end of 7<sup>th</sup> grade and frequency of brokering the beginning of 7<sup>th</sup> grade predicting language attitudes at the beginning of 9<sup>th</sup> grade) to be freely estimated across males and females and all the rest of the remaining paths to be constrained equal ( $\chi^2 = 80.50$   $df = 57$ , RSMEA = .02, CFI = .98, TLI = .90). The Tucker-Lewis Index was below the recommended .95 threshold outlined by Hu and Bentler (1999), likely because this fit index rewards model parsimony, and the final model by nature is accounting for all possible (significant and non-significant) contributions and looking at the significant pathways instead of reducing the model to the most parsimonious version. However, when the non-significant control paths are removed from the model, the Tucker Lewis Index increases from .90 to .95 without any of the significant paths changing in the model, so the final model was judged to fit the data well.

Table 4. *Invariance testing across sex*

Parameter estimated	$\chi^2$	df	$\chi^2$ Diff	df Diff	p value	RMSEA	CFI	TLI
Fully Saturated	0.00	0.00	-	-	-	0.00	1.00	-
Sex Constrained(H4)*	100.80	61.00	100.80	61.00	0.00	0.03	0.96	0.84
Other Cross-lag	98.62	57.00	2.17	4.00	0.70	0.03	0.96	0.82
Other Stability paths	95.22	57.00	5.57	4.00	0.23	0.03	0.97	0.83
PAC			100.80	61.00	0.00			
PAC1→PAC2*	93.68	60.00	7.11	1.00	0.01			
PAC1→PAC3	100.11	60.00	0.69	1.00	0.41			
PAC2→PAC3	100.60	60.00	0.19	1.00	0.66			
Hypothesis 1								
PA1→LBA2*	94.94	60.00	5.85	1.00	0.02			
PA1→LBA3	99.10	60.00	1.69	1.00	0.19			
PA2→LBA3	98.26	60.00	2.54	1.00	0.11			
Hypothesis 3a			100.80	61.00				
LBF1→LBA2*	95.46	60.00	5.34	1.00	0.02			
LBF1→LBA3*	95.02	60.00	5.78	1.00	0.02			
LBF2→LBA3	98.52	60.00	2.27	1.00	0.13			
Hypothesis 3b								
LBF1→PAC2	100.79	60.00	0.00	1.00	0.96			
LBF1→PAC3	98.69	60.00	2.11	1.00	0.15			
LBF2 to PAC3	99.54	60.00	1.25	1.00	0.26			
Sig Paths Constrained	80.50	57.00	20.30	4.00	0.00	0.02	0.98	0.90
Non-Sig Controls Cut						0.02	0.99	0.95

\* $p < .05$

Figure 6 represents the final model, and the results suggest that for both males and females, parent-adolescent closeness, language brokering frequency and attitudes were stable across time after taking into account nativity, SES, and intervention status.

Further, females ( $beta = .572$ ) were significantly more likely to have a stable relationship with their parents from the beginning to end of 7<sup>th</sup> grade as compared to males ( $beta = .372$ ). In addition, for the male group, those who felt closer to their parents had more positive attitudes toward language brokering prospectively ( $beta = .236$ ) (H1).

Conversely, there were no significant cross-lagged associations predicting language

brokering attitudes for females and there were significant differences between males and females for the hypothesized paths, which suggested that sex is in fact a moderator (H4). This set of findings suggests that parent-adolescent closeness in the beginning and end of 7<sup>th</sup> grade contributes to language brokering attitudes for males, but not for females.

Further, results failed to support the third hypothesis, which anticipated that time spent language brokering would negatively predict language brokering attitudes and parent adolescent closeness. In fact it was found that for males, and not females, language brokering frequency in the 7<sup>th</sup> grade positively ( $beta = .087$ ), but marginally, predicted language brokering attitudes at the end of 7<sup>th</sup> grade. That is, it seems that more time spent brokering has a delayed benefit to the language brokering attitudes going from beginning of 7<sup>th</sup> grade to the beginning of 9<sup>th</sup> grade for males ( $beta = .142$ ). Similarly, for parent-adolescent closeness, results indicated that the frequency of language brokering had a statistically significant positive delayed effect for males and females ( $beta = .055$ ) showing that the more adolescents language brokered in the 7<sup>th</sup> grade, the closer they were with their parents in 9<sup>th</sup> grade.

In addition, results indicated that the relationship between parent-adolescent closeness and language brokering attitudes attenuated as adolescents got older because there were significant cross-lag associations at the beginning of 7<sup>th</sup> grade to the end of 7<sup>th</sup> grade, but there were no significant cross-lag associations from the end of 7<sup>th</sup> to the beginning of 9<sup>th</sup> grade (H2). Lastly, correlations of the 7<sup>th</sup> grade variables are consistent

with the preliminary analyses that showed parent-adolescent closeness was positively correlated with language brokering attitudes ( $r = .181$ ) and language brokering frequency ( $r = .184$ ), but language brokering frequency was negatively correlated with language brokering attitudes ( $r = -.193$ ).

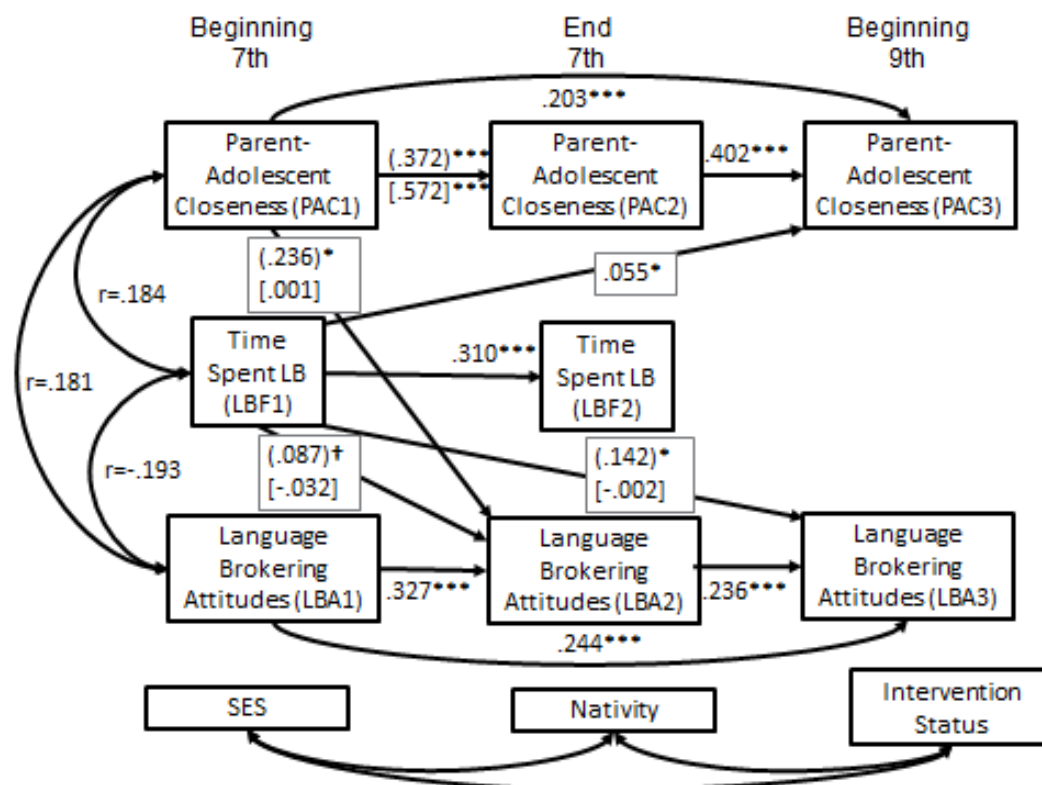


Figure 6. Cross-lagged prediction of language brokering and parent-adolescent closeness showing all significant paths

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , † $p < .1$

Note:  $n = 813$ , no parentheses = both groups, (male), [female]

## Discussion

This thesis aimed to build upon cross-sectional research by employing a longitudinal design in a sample of Latino youth to examine prospective associations between parent-adolescent closeness and adolescent language brokering attitudes. First, the study aimed to confirm the hypothesis that parent-adolescent closeness prospectively and positively predicted language brokering attitudes. Second, the study sought to confirm if greater frequency of language brokering prospectively and directly predicted both less parent-adolescent closeness and poorer youth attitudes about language brokering. Lastly, the thesis aimed to determine whether the prospective relation between parent-adolescent closeness and youth language brokering attitudes was (a) stronger for males than females and (b) stronger for younger adolescents compared to older adolescents.

Overall, the thesis provides partial support for some predictions, yielded one finding that was counter to prediction, and lastly revealed that youth age (grade) and gender are important factors. First, there was partial support for the hypothesis that the parent-adolescent relationship positively and prospectively predicted language-brokering attitudes among Latino youth. This predicted relation was found, but only for younger boys, i.e. males in 7<sup>th</sup> grade. Second, findings failed to support the hypothesis that language brokering frequency had a direct negative association with language brokering attitudes and parent-adolescent closeness. Rather, language brokering frequency at the beginning of 7<sup>th</sup> grade was associated with *better* language brokering attitudes for males by the beginning of 9<sup>th</sup> grade and *greater* parent-adolescent closeness for



males and females by the beginning of 9<sup>th</sup> grade. Lastly, the relation between parent-adolescent closeness and language brokering attitudes over time was stronger for males than females and stronger for younger adolescents than older adolescents. Specifically, the greater sense of closeness with parents that Latino males reported at the beginning of 7<sup>th</sup> grade, the more positively they felt about language brokering by the end of the 7<sup>th</sup> grade. For both males and females, perceived parent-adolescent closeness at the end of 7<sup>th</sup> grade was not related to later language brokering attitudes (start of 9<sup>th</sup> grade). Each of these findings is discussed in turn, in terms of the existing literature, study limitations, and future directions.

The finding that parent-adolescent closeness positively and prospectively predicted language brokering attitudes only for males suggests that the negative effects of language brokering may be attenuated when male adolescents have a strong bond with their parents whereas parent-adolescent closeness is not associated with language brokering attitudes for females. Previous research has shown that when there is a good bond between parent and child, the child derives satisfaction from helping the family (Buriel et al., 2006; De Ment et al., 2005; Love & Buriel, 2007; Valdez et al., 2003). The present findings raise the question of why would this longitudinal association only be true for males. The role of gender may not have been revealed in prior studies because they studied children in limited age or grade ranges and did not examine relations longitudinally (e.g., Love & Buriel, 2007). Indeed, in the present thesis, concurrent parent-adolescent closeness and language brokering attitudes were correlated for both males and females. However, longitudinal analysis highlighted a difference for Latino and Latina

youth, such that the language brokering attitudes of Latino males only were influenced by their prior perceptions of closeness with their parents. Possibly, at least among Latino youth, male language brokers may not experience the same degree of gender role strain that has been suggested in the literature when they feel that they are close with their parents. That is, typically, across immigrant groups, language brokering has been found to be a duty of daughters or a female duty (Chao, 2002; Tse, 1995; Valenzuela, 1999). Perhaps feeling a strong family affiliation, males may feel less inclined to perceive this as a female role or are more inclined to accept the role even if it is regarded as a female role (Gallegos-Castillo, 2006). The explanation will require further research but in either case it follows that such Latino youth should experience less gender role strain and more positive attitudes toward language brokering. When Latino males feel less gender role strain, they may be more likely to enjoy their roles as language brokers and derive satisfaction from the practice (Valdez et al., 2003), as reflected by more positive attitudes (Dorner et al., 2008). More research is critical because if this finding were replicated, it would inform teachers and others who work with Latino adolescent males about the importance of family and gender role, and perhaps prevent or remediate poorer language brokering attitudes that are known to be associated with negative outcomes such as depression (Céspedes & Huey, 2008). Language brokering attitudes may account for relations between gender role strain and depression (Love & Buriel, 2007).

This line of reasoning indicates the need for future research is needed to test language brokering as one potential mediator of associations between the quality of parent-adolescent

relationships and negative outcomes in youth from families in which English is a new language, including consideration of individual characteristics, such as gender roles that may moderate or account for the relations. Moreover, future research may include third variables that were not currently analyzed, such as perceived discrimination (Dorner et al., 2008), which may be contributing factors to youths' attitudes about translating for their parents. Despite the limitations of the present study, and the need for replication, its finding of a relation between prior perceived closeness to parents and later language brokering attitudes among Latino male youth is consistent with contemporary psychological views of minority children's development (Garcia-Coll et al., 1996), which contend that familial factors predict developmental competencies such as language brokering attitudes. The use of experimental designs to determine whether improving youth perceptions of parent-adolescent closeness improves their language brokering attitudes would be one valuable means of garnering evidence of causal connections between family life, language brokering, and potentially later youth outcomes. In addition, clarifying potential mediators and moderators of the relations would aid the development of more targeted and informed interventions for these youth.

As for females, the fact that there were no significant prospective predictions between parent-adolescent closeness and language brokering attitudes, and that the two models for each gender appeared significantly different, is in line with the hypothesis that this relation would be stronger for males than females. Moreover, even though parent-adolescent closeness was concurrently associated with language brokering attitudes for females, findings suggests that for

Latina youth, language brokering attitudes were not associated with previous levels of parent-adolescent closeness. This may have been influenced, in part, by the fact that Latina youth had a more stable closeness in their relationships with their parents than their male counterparts. The absence of a predicted relation for females could be a function of the developmental period studied. Perhaps females have already established their perceptions of closeness and attitudes toward language brokering during the period of adolescence that was the focus of the larger study. Possibly, the formation of attitudes about language brokering occurred earlier for Latina girls in this sample. Additionally, in early adolescence, Latinas' attitudes toward their language brokering may be more strongly linked to other contextual factors than their closeness to their parents. For example research has shown that females language broker more and are expected to language broker more for their families than their male counterparts (Tse, 1995; Valenzuela, 1999). Latina youth may experience less choice about participating in this practice and accept it as a female role to take care of the family in this way (Gallegos-Castillo, 2006; Valenzuela, 1999). Thus, maybe their stable sense of parent-adolescent closeness may be less of a factor in predicting their attitudes about language brokering. Another related issue to consider is the condition in which female offspring are asked to translate outside the confines of home and need to use skills that are traditionally masculine (e.g., independently going outside the home to support the family; Raffaelli & Ontai, 2004). To the degree this is the adolescent daughter's experience, she may feel gender role strain or discrimination and these may influence her language brokering attitudes more than her sense of closeness with her parents does (Valenzuela,

1999). Qualitative research has shown that female language brokers are more sensitive than males to perceptions of discrimination (Dorner et al., 2008; Orellana, 2009), and thus, it may be possible that being farther outside the immediate protection of their family may make their attitudes more susceptible to these contextual factors like discrimination. Thus the limitation of the current study is not assessing gender role strain or discrimination is clearly important to address in future research. In sum, the findings highlight that although parent-adolescent closeness is in general a protective factor for Latino youth (Lac et al., 2011; Zayas et al., 2009), they cannot be generalized to all Latina youth in every situation and context. Research must examine immigrant youth experiences with language brokering, both for males and females, longitudinally across wider age ranges and in broader contexts.

The thesis also provided partial support for the hypothesis that the relation between parent-adolescent closeness and language brokering attitudes would be stronger when youth were younger and attenuate as they got older. Specifically, this finding was found only for males; parent-adolescent closeness at the beginning of 7<sup>th</sup> grade predicted language brokering attitudes at the end of 7<sup>th</sup>, but not between the end of 7<sup>th</sup> grade and the beginning of 9<sup>th</sup> grade. This finding is consistent with the general literature on adolescence that shows parents' influence on development changes over time and is stronger in early adolescence than middle or late adolescence (Arslan, 2009; Furman & Buhrmester, 2009). Because the design of the larger study from which this thesis was conducted focused on the developmental period between 7<sup>th</sup> to 9<sup>th</sup> grade, it is unclear whether this pattern remains stable and if it occurs for females in a different

age period. Females develop language skills earlier than males (Gleason & Ely, 2002) and as a result, it may be that the influences of the parent-adolescent relationship on daughters' language brokering attitudes occurred earlier than adolescence.

The differences in the developmental pathways for immigrant sons and daughters who language broker clearly need further study. Research on the transition to middle and high school has shown that a) these transitions tend to be more difficult for Latino students than their Caucasian counterparts, b) students, in general, find parents most helpful with the transition to middle school, but they find that other students were more helpful than parents in the transition to high school and c) Latina youth reported more school connectedness than Latino youth (Akos & Galassi, 2004). To this the present study adds that parent-adolescent closeness is important for Latino males in middle school, but not high school. Further, school connectedness, a known protective factor for youth (Wilkinson-Lee, Zhang, Nuno, & Wilhelm, 2011), being higher for Latinas compared to Latinos may help explain why parent-adolescent closeness predicting language brokering attitudes in the 7<sup>th</sup> was only true for males. For example, the school setting is common place where language brokering occurs (Dorner et al., 2003), and as such, when Latina youth feel more connected to school, they may need less emotional support from their parents to feel good about the practice compared to Latino youth.

Despite these unanswered questions, the current findings highlight that parental influence on language brokering may begin to attenuate towards the end of 7<sup>th</sup> grade for males. This raises the question of whether early adolescence is a particularly sensitive period for boys who

language broker for their Spanish-speaking parent. Further work should examine if these boys would benefit from family based interventions that aim to improve the parent-adolescent relationship. Further, studies should examine if this is a stable pattern by looking at language brokering attitudes and parent-child relationships in middle and late childhood and adolescence for both males and females.

Another hypothesis of this thesis, that language brokering frequency would directly predict negative attitudes toward language brokering and less perceived closeness with parents, which was not supported. In fact, language brokering frequency was positively associated with language brokering attitudes, and not negatively as predicted. Moreover, this effect was moderated by youth gender and was revealed as a longer term (two year) effect. Specifically, the more males and females language brokered in the beginning of 7<sup>th</sup> grade the closer they were with their parents in 9<sup>th</sup> grade. In addition, the more males engaged in language brokering in 7<sup>th</sup> grade, the better their attitudes about the practice in 9<sup>th</sup> grade.

Although counter to prediction, these findings are consistent with evidence showing that the amount of brokering interacts with context such that youth have worse outcomes when they language broker often and in the absence of bilingual services (Martinez et al., 2009). The youth in the current study lived in an area in Arizona where social supports were available, services that were developed in the course of the long history of Spanish speakers immigrating to Arizona (Capps & Fortuny, 2006). Yet, this may be changing as a result of anti-immigrant sentiments and banning of programs that have recently been put in place in several states, including Arizona.

In addition, the finding that the positive benefits have a lagged effect is consistent with the literature that show younger children have worse attitudes toward language brokering (Love & Buriel, 2007; Weisskirch & Alva, 2002) whereas adolescents appear to have better attitudes (Buriel et al., 1998; 2006). Moreover, the two year lagged effect may occur either because parents struggle in English but over time may gain greater ability to assist their children in negotiating the English speaking community. Parents' ability to aid the language brokering of their children may be a factor in youth development of bicultural competencies, much as suggested by the theory of scaffolding and the zone of proximal development (Vygotsky, 1978). Future research should investigate the micro-processes between the Spanish-speaking parent and the bilingual child, a level of analysis that was beyond the scope of the present study. The two year lagged benefit for these youth may mean that youth who language broker often and successfully may develop cultural competencies and better familial relations, both of which are important protective factors for negative youth outcomes (Buriel et al., 1998; 2007; Lac et al., 2011; Weisskirch, 2005;; Zayas et al., 2009).

Despite some limitations, the thesis findings clearly underscore the need for additional research and provide some interesting future questions. There is a need to investigate which factors predict the continued practice of language brokering, taking into account how often youth language broker, the availability of support within the community for services in their family's native tongue, the contexts in which the youth must engage in language brokering (e.g., courts versus schools or critical health issues versus shopping), and the degree to which language



brokering is associated with discrimination in their communities. Additionally, there is a need to understand geographic contexts. The present study was limited to a metropolitan area from a mostly Mexican-heritage population in a location that has a long history of migration by Spanish speakers. Further studies should expand the population in terms of country of origin and also context (rural vs. urban or type of immigration). In addition, this study focused on early adolescence, and future studies should expand on this by examining other developmental time periods, especially to see whether parent-adolescent relationship factors have a larger impact when females are younger. Moreover, all the measures used for this study were based on adolescents' perceptions. Finally, the validity of only using the negative items on the language brokering attitudes scale has yet to be fully empirically supported. Nonetheless, it has been argued that positive and negative attitudes are two separate constructs (R. Weisskirch, personal communication, March 9, 2012). Continued research should look both at the validity of this construct along with examining adolescent subjective measures (e.g. perceptions) with more objective measures (e.g., actual time spent brokering).

Even with these limitations, this study is quite important because it provides empirical evidence for premises posed by theories on the development of minority youth. Specifically, because of the longitudinal approach, these results highlight the importance of how structure in the family may influence developmental competencies like language brokering attitudes, which has yet to be tested empirically with longitudinal methods. Thus these findings continue to build off theory showing the importance of understanding culturally based gender roles because the

differing responsibilities assigned to adolescents could impact their ability to navigate these two distinctly different cultural worlds. In addition, this thesis is important because it suggests that parent-adolescent factors significantly contribute to youth's language brokering attitudes, especially for younger males who seem they benefit from being close to their parents. Lastly, this study highlights how factors around language brokering are not static and may occur at different times of development for males and females.

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