

The Pennsylvania State University

The Graduate School

College of the Liberal Arts

**DISENTANGLING THE EFFECTS OF CULTURAL BROKERING AMONG  
MEXICAN-HERITAGE YOUTH**

A Dissertation in

Communication Arts & Sciences

by

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Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

August 2009

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## ABSTRACT

Within the U.S., immigrants' success in managing their daily activities is often predicated on their ability to communicate in an English-speaking world and to maneuver within mainstream culture. This need to communicate in a different language and culture remains a challenge for many immigrant families, forcing a number of them to rely on younger family members as "cultural brokers." The literature on cultural brokering reveals that although such activities may be important for family, they may have both positive and negative consequences for the cultural brokering children. The pervasiveness of the immigrant experience suggests that this may present a significant public health concern and challenge to communication theory.

This dissertation called upon role theory, general strain theory, independent/interdependent scripts, and a translation-based theory to guide a line of research to address this concern. The first study examined a model of cultural brokering derived from the four theoretical perspectives. Tenets of these four perspectives argued that: (1) cultural brokering leads to parentification, (2) cultural brokering leads to stress, (3) cultural brokering does not lead to parentification, and (4) cultural brokering improves cognitive and linguistic skills. In turn, these processes, parentification, stress, and skills, influence health-related behaviors and academic performance. A more complex conceptualization of cultural brokering that separates the frequency of these actions from the attitudes toward these actions were posed as a means for resolving some of the inconsistencies in previous studies and synthesizing the theories.

Mexican-heritage youth ( $N = 1,110$ ) from 23 public schools in Phoenix, AZ completed surveys at four waves, from 6<sup>th</sup> through 8<sup>th</sup> grades. Cultural brokering frequency had an indirect effect on alcohol use through adult parentification. Negative cultural brokering attitudes had an indirect effect on cigarette use through acculturation stress. English reading speed partially

mediated the association between brokering frequency and grades, along with negative cultural brokering attitudes and grades. These findings emphasize how researchers must consider various aspects (e.g., frequency and attitudes) of cultural brokering because they are likely to operate differently in relation to health behaviors and academic performance.

Because cultural brokering frequency and negative cultural brokering attitudes have potentially harmful effects on Mexican-heritage youth, the second study examined whether a culturally-grounded school-based substance use prevention program, *keepin' it REAL*, had effects on initial levels and changes in ethnic identification and whether these changes, in turn, were associated with changes in cultural brokering frequency or negative cultural brokering attitudes. Mexican-heritage youth ( $N_{W4} = 676$ ,  $N_{W5} = 586$ ,  $N_{W6} = 508$ ) from 23 public schools in Phoenix, AZ completed surveys at three waves, from 7<sup>th</sup> through 8<sup>th</sup> grades. The results revealed no significant program effects on initial levels or changes in ethnic identification. Only initial levels of ethnic identification were significantly associated with initial levels of cultural brokering frequency and negative cultural brokering attitudes.

This current body of research reveals that cultural brokering frequency places Mexican-heritage youth at risk for alcohol use through adult parentification, whereas negative cultural brokering attitudes place these youth at risk for cigarette smoking through acculturation stress. With respect to grades, as youth participated in cultural brokering more often, they were more likely to read English faster, and in turn, more likely to report higher grades. In contrast, as these youth reported higher levels of negative cultural brokering attitudes, they were less likely to read English fast and less likely to report higher grades. Given these key findings, prevention researchers must identify and target factors that will decrease negative cultural brokering attitudes and that will promote healthier coping strategies for cultural brokering youth.

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## ACKNOWLEDGEMENTS

Only through the support from numerous mentors, friends, and family members, was I able to complete this dissertation. I owe much of my success to these individuals, but among them, I would first like to express my overwhelming gratitude to my advisor, Dr. Michael Hecht. Michael introduced me to the world of prevention science and culturally-grounded research, he continuously cooked up innovative research ideas, and he always had an explanation for the enigmatic research findings that we often encountered with the data. In addition, Michael encouraged me to become an independent scholar, while also demonstrating what it meant to be a team player. He was extremely generous and made sure I had all the resources I needed to succeed. I hate to think of what my life would be like without him.

Further, I want to thank my committee members, Drs. Jon Nussbaum, Michelle Miller-Day, and Pui-Wa Lei. Over the last four years, Jon saw me struggle between wanting to conduct research in two areas: intergenerational family communication between older and younger adults and culturally-grounded substance use prevention research among Mexican-heritage youth. Although I ultimately chose to focus on the latter, I know that Jon was always in my corner, wanting the best for me, and I am honored and grateful for his support. In addition, I am indebted to Michelle who gave me the opportunity to work on several projects with her and who believed in my abilities. She always took the time to thoughtfully and genuinely listen to me, whether it was about research or any personal struggles. Next, I would like to acknowledge Dr. Lei who challenged me in every meeting. She forced me to seek information and to build a rationale for the decisions that I made with respect to my methods and analyses.

Although not on my committee, Drs. Elvira Elek, Masaki Matsunaga, Michael Cleveland, and Tony Jung greatly contributed to my prevention and methodology training that

gave me the skills to finish my dissertation. Elvira taught me about the complex nature of DRS data and broadened my knowledge of and experience with SPSS syntax. She also was a wonderful friend who encouraged me to be confident in myself. In addition, I would like to express my gratitude to Masaki who was both a friend and a mentor. He asked the most thought-provoking and difficult questions about my research ideas that were at times frustrating, but that forced me to improve. Furthermore, my experience with a number of advanced methods stemmed from the papers that Michael and I worked on together and the challenges we encountered. He was always patient with me, willing to answer any questions I had, and generous with his knowledge. Finally, I would like to thank Tony Jung who provided advice for troubleshooting when I encountered problems in *Mplus*. He also was patient and generous with his time, allowing me to contact him when I had questions.

To my writing group, Mary Lai, Jackie Wiersma, and Joche Gayles: although we only established this group during my last year at Penn State, I learned so much from reading your papers, as well as having you read mine. All of you provided encouragement and support, while offering suggestions that helped me progress as a writer and a researcher. You also welcomed me as a friend, and your vibrant personalities kept me laughing. My last year at Penn State, despite going on the job market and writing my dissertation, was actually enjoyable because of you.

Also, I want to thank my friends, Una Kimokeo-Goes, Alysa Lucas, and Keli Steuber, for supporting me in so many ways. I was always grateful to Una for helping me periodically escape from my work through long conversations over the phone or over a meal. Alysa was initially assigned to me as my “automatic friend,” but she quickly became one of my closest friends here at Penn State. Upon meeting Keli, I knew instantly that we would become good friends, and her support over the four years was invaluable. I will always look fondly on our time

as housemates, but most of all, I will always appreciate the time we were on the job market together. Who knew that interviewing against each other would make our friendship stronger?

To my parents, Bonnie and John: despite living nearly 3,000 miles away, they made sure I was aware that they were thinking of me. Mom let me know I was not forgotten by sending me scarves, socks, gloves, and cards. Dad showed his support through his endless curiosity and enthusiasm for my education. In every major life transition that I experienced, whether it was moving to Davis, CA for undergraduate studies, San Diego, CA for the Master's program, or State College, PA for the Ph.D. program, my parents gave me the strength to keep going, even when I wanted to stop.

Finally, this dissertation was supported by grant numbers R01 DA005629 (PI: Michael Hecht) and T32 DA017629 (PI: Mark Greenberg) from the National Institute on Drug Abuse to The Pennsylvania State University (Grant Recipient). Its contents are solely the responsibility of the author and do not necessarily represent the official views of the National Institutes of Health.

## CHAPTER 1

### INTRODUCTION

The increasing cultural and ethnic diversity within the U.S. means a growing number of individuals communicate in a language other than English and adhere to cultural values, norms, and beliefs other than mainstream U.S. culture (Ajayi, 2006). In 2003, the U.S. Census Bureau reported that approximately 34 million immigrants resided in the U.S., comprising 12% of the nation's population (Larsen, 2004). Of these 34 million individuals, 53% were born in Latin America, 25% in Asia, 14% in Europe, and 8% in other countries. This demographic breakdown reveals that a substantial portion of the U.S. immigrant population comes from countries where English is not the primary language. To further emphasize this point, the percentage of individuals (5 years or older) in the U.S. who spoke a language other than English at home increased from 14% (32 million) to 18% (47 million) over a 10-year period from 1990 to 2000 (Shin & Bruno, 2003). Despite this expansion in linguistic and cultural diversity, mainstream U.S. English continues to be the socially accepted and valued language (Ajayi, 2006) and this norm has been strengthened by the "English-only movement" (Barker & Giles, 2002). Immigrants' ability to communicate in English and maneuver within the culture of employers, employees, co-workers, medical practitioners, teachers, and other individuals predicts their success in managing their daily activities (Shin & Bruno, 2003). This need to communicate in a different language and within a different culture remains a challenge for many immigrant families within the U.S. Immigrants who do not acquire the requisite cultural and linguistic competencies may not be able to function in mainstream U.S. culture without a "cultural broker."

In particular, cultural brokers are individuals, often with less authority and no formal training, who linguistically and culturally mediate for two or more parties. Cultural brokers may alter the message content and influence each party's perceptions and subsequent actions (Mercado, 2003; Tse, 1995). Children tend to acquire English skills and knowledge of the mainstream culture at a faster rate than their older family members; therefore, immigrant families often rely on the children as cultural brokers (Tse, 1995; Weisskirch, 2007). Across several studies (Tse, 1995, 1996), nearly all of the participating children from immigrant families engaged in cultural brokering at least some time during their lifetime. Young cultural brokers assist their family members in managing business, government, medical, school, and other interactions through a variety of channels such as face-to-face, on the phone, on paper, or through other forms of media (Weisskirch, 2005). Cultural brokering is a complex phenomenon that requires children to quickly understand and interpret more than one culture, carry out transactions that require advanced vocabulary, participate in adult interactions, and make decisions that impact the family (Mercado, 2003; Love & Buriel, 2007).

#### Statement of the Problem

To date, contradictions in the literature exist with respect to cultural brokering's effects on the involved parties. The responsibilities required of young cultural brokers have led researchers and practitioners to raise questions about the effects on these youth, which has resulted in four dominant perspectives, each perspective emphasizing a different consequence of cultural brokering. The first two perspectives conceptualize cultural brokering as prematurely imposing adult responsibilities and creating stress for children, thereby highlighting the potentially problematic aspects of brokering (Mercado, 2003; Weisskirch & Alva, 2002). In contrast, two additional perspectives consider cultural brokering as a beneficial and natural way

of contributing to family functioning within immigrant families that result in improved cognitive and linguistic skills (Orellana, Dorner, & Pulido, 2003; Buriel, Perez, De Ment, Chavez, & Moran, 1998). These perspectives remain prevalent among the cultural brokering literature, but they are rarely linked to theory. Further research is needed to theoretically understand these perspectives and to resolve the contradictions that are apparent among brokering's effects. The current chapter's objective is to provide a review of the literature and to offer theoretical explanations for the four perspectives. The second chapter synthesizes the four dominant perspectives into a theoretical model and tests this model, while examining a predictor of cultural brokering, along with brokering's effects. The third chapter investigates whether a culturally-grounded school-based substance use prevention program has effects on changes in ethnic identification in relation to changes in cultural brokering. Finally, the fourth chapter describes this dissertation's contributions to cultural brokering theory, research, and practice.

### Defining Cultural Brokering

The conceptualization of cultural brokering slightly varies across researchers, which is reflected in the many terms used to describe this communication process. Each term highlights different components of this communication phenomenon's conceptualization. Despite the various terms, "cultural brokering" encompasses more aspects of the phenomenon than other words used. Consequently, the following section reviews a number of terms and definitions intended to capture the communicative and relational facets of cultural brokering, explaining why this one is the most appropriate to use.

All definitions of cultural brokering include aspects of translating and interpreting; however, some definitions, more than others, emphasize the informal nature of brokering, the decision-making role that brokers enact, the power dynamics between brokers and those who

rely on them, and the familial contributions brokers make. When conducting research on cultural brokering, participants often lack familiarity with this term; therefore, researchers are forced to use words such as “translators” or “interpreters” because they are more familiar to participants. Nevertheless, distinctions exist within the research community regarding the conceptualization of translators, interpreters, and cultural brokers. Translators are typically thought of by the research community as having undergone formal training and as attempting to use the word-for-word equivalence from one language to another (Weisskirch, 2005). Researchers also may use the term, translating, when referring to understanding and explaining written documents (Morales & Hanson, 2005). Interpretation often includes the oral form of translating, but it consists of deciding what cultural and contextual information to relay, thereby making it less formal than translating (Weisskirch, 2005).

#### *A Description of Cultural Brokering*

Similar to interpreting, cultural brokers do not necessarily translate messages word-for-word, but instead mediate and influence the content, and in so doing, brokers have an effect on the parties’ perceptions of each other, their perceptions of the messages, and their subsequent actions (McQuillan & Tse, 1995). Cultural brokering is not a neutral act, and brokers may alter the messages to benefit the family member, some of which may include preventing embarrassment or conflicts, or negotiating a better deal for the family member (Hall & Sham, 2007). Further, brokering not only transpires among immigrant families but may occur in language-minority communities (e.g., deaf community, American Indian community). Individuals reliant on brokers may be highly skilled in their native language and culture but experience difficulty with English and the mainstream U.S. culture (Weisskirch, 2007). Finally, brokering most often involves an unequal power structure, where the individual requiring



assistance is frequently a parent or adult family member who usually has more power and authority compared to the broker (McQuillan & Tse, 1995). As seen here, brokering involves a more complex process than what is commonly thought of as translating or interpreting.

### *Terms Used to Depict the Cultural Brokering Process*

Numerous terms have been offered to describe this communication phenomenon in which young family members engage. The most common term is language brokering (Tse, 1995). Yet, this term does not accurately represent the entire process, where individuals act as both linguistic and cultural intermediaries. Language brokering is misleading in its emphasis on the linguistic component, while de-emphasizing or ignoring the cultural and interpersonal dynamics. Jones and Trickett (2005) use the term, culture brokering, to refer to children who culturally mediate between their family members and individuals from the host culture because previous studies measuring language brokering tend to concentrate mainly on linguistic translations (Buriel et al., 1998; Tse, 1995). When comparing the definitions of language brokering and culture brokering, they appear to address a similar process; however, the words, “language” and “culture,” draw attention to different aspects of brokering.

In addition to cultural brokers, language brokers, translators, and interpreters, researchers also use the terms, “natural translators” and “para-phrasers,” to describe individuals who participate in similar activities as cultural brokers. In 1978, Harris and Sherwood referred to natural translators as individuals translating in everyday situations without official training. The term, natural translators, conflicts with the conceptualization of translating as forming word-for-word equivalence in two different languages because similar to cultural brokering, natural translators do not necessarily use word-for-word equivalence. The conceptualizations of natural translators and cultural brokers both refer to a lack of formal training as linguistic and cultural

mediators. The definition of natural translators, however, does not address the power dynamics and interpersonal aspects of brokering. To address the unequal power distribution and relational aspect of brokering, Orellana et al. (2003) created the term, para-phrasing, based on the Spanish word, *para*, meaning *for*. Para-phrasers are children who speak for others and who assist others. Orellana et al. (2003) use para-phrasers to emphasize what they call the survival-motivated phenomenon, meaning that parents and their children work together as a team to “take action for the family” (p. 508). These young para-phrasers represent their families in adult interactions for the purpose of fulfilling certain goals necessary to survive within the U.S.

In short, a review of the literature shows that many competing and overlapping terms exist when describing the cultural brokering process. The current chapter defines cultural brokers as individuals, often with less authority and no formal training, who linguistically and culturally mediate for two or more parties while influencing the message content and each party’s perceptions and subsequent actions (Mercado, 2003; Tse, 1995). This conceptualization incorporates more aspects of the process and does not emphasize one component over another. Furthermore, this definition of cultural brokering is purposely chosen to reveal that brokers do more than mediate between two languages. Cultural brokering is a complex process that involves sensitive power dynamics and decisions to include and exclude information. Throughout this dissertation, then, cultural brokering is used, which encompasses translating, interpreting, language brokering, natural translating, and para-phrasing.

### An Overview of Past Research on Cultural Brokering

Cultural brokering scholars have investigated a wide range of issues related to this communication process such as when cultural brokers usually adopt the role for their family members (Tse, 1995), the prevalence of cultural brokering (Tse, 1996), for whom they engage in

cultural brokering (Weisskirch & Alva, 2002), the places where they participate in cultural brokering (Orellana et al., 2003; Tse, 1996), and the documents they broker (Orellana et al., 2003). Cultural brokering researchers have examined how this phenomenon is associated with a variety of factors such as academic performance (Acoach & Webb, 2004; Buriel et al., 1998; De Ment, Buriel, & Villanueva, 2005; Dorner, Orellana, & Li-Grining, 2007), acculturation (Acoach & Webb, 2004; Díaz Lázaro, 2002; Mercado, 2003; Weisskirch, 2005), biculturalism (Acoach & Webb, 2004; Buriel et al., 1998; De Ment et al., 2005), depression (Chao, 2006; Love & Buriel, 2007), ethnic identity (Weisskirch, 2005), family authority structure and parental locus of control (Díaz Lázaro, 2002), parentification (Mercado, 2003), respect for parents (Chao, 2006), parent-child closeness (De Ment et al., 2005), problem-solving abilities (Díaz Lázaro, 2002), school membership (Jones & Trickett, 2005), self-efficacy (De Ment et al., 2005), self-esteem (Weisskirch, 2006), and stress (Jones & Trickett, 2005; Mercado, 2003).

Although researchers have examined the association between cultural brokering and a breadth of variables, a combination of mixed findings surrounds this communication process. In the past, researchers reported that cultural brokering is associated with negative experiences (e.g., Love & Buriel, 2007; Weisskirch, 2007), but other researchers found that cultural brokering also may be associated with positive experiences (e.g., Buriel, Love, & De Ment, 2006; Dorner et al., 2007). More specifically, among 7<sup>th</sup> and 8<sup>th</sup> grade Mexican American adolescents, cultural brokering for more people was positively associated with depression (Love & Buriel, 2007). Weisskirch (2007) documented that the 7<sup>th</sup> grade Mexican American students in his study were more likely to have difficult familial relationships as they felt angry, anxious, ashamed, obligated, scared, and uncomfortable about cultural brokering. Nevertheless, cultural brokers in Chao's (2006) study reported greater respect for their parents. Orellana (2003) found

that youth of Mexican immigrant families reported cultural brokering as a normal activity, also performing better on standardized tests of math and reading achievement compared to those students who did not report cultural brokering.

These diverse findings regarding cultural brokering's effects can be attributed to a number of factors such as what aspects of cultural brokering were considered (e.g., frequency of brokering, places in which brokering occurred, for whom youth brokered), age, gender, ethnicity, and research design (e.g., measures, longitudinal versus cross-sectional). For instance, Chao documented a positive association between cultural brokering frequency and externalizing symptoms (e.g., aggression and delinquency) among Korean adolescents, but not among Chinese or Mexican adolescents. In Buriel et al.'s (2006) study, male adolescents were more likely to experience depression the more places they engaged in brokering; however, this association was not significant for female adolescents. Thus, the varied research findings regarding cultural brokering's effects reflect this phenomenon's complexity.

Given that cultural brokering may have harmful effects, further research is warranted to validate such associations and to describe the conditions under which brokering is detrimental or favorable. Researchers require a way to understand this contradiction within the cultural brokering literature. By incorporating theory, this chapter identifies when this communication process is likely to be destructive and when it is likely to be beneficial to young cultural brokers.

### Integrating Theory to Explain Four Cultural Brokering Assumptions

Over the last two decades, researchers and practitioners have questioned cultural brokering's effects on youth. This questioning resulted in four dominant assumptions, two of which argue that this phenomenon has harmful effects on young cultural brokers and the other two of which argue that cultural brokering has beneficial effects. Despite these four dominant

assumptions within the literature, few formal theoretical applications have been used to explain and justify these assumptions. The following section describes each assumption, along with a corresponding theory that provides a rationale.

*Assumption One: Cultural Brokering Leads to Parentification*

From the parentification perspective, cultural brokering children adopt adult responsibilities that often challenge the behavioral expectations associated with their roles as children. Consequently, this communication process leads to a role-reversal called adultification or parentification because cultural brokering challenges the traditional power distribution between children and their parents or other adult family members (Mercado, 2003; Trickett & Jones, 2007; Weisskirch, 2005). Adultification is a broader concept referring to when youth take on adult responsibilities and are exposed to adult interactions, content, and affairs (Burton, 2007). Parentification refers to adults' functional or emotional reliance on a child to the point where such reliance risks obstructing the child's natural and appropriate developmental process (Castro, Jones, & Mirsalimi, 2004). Parentification means children prematurely assume adult responsibilities, sacrificing their own needs to benefit their family's needs (Stein, Rotheram-Borus, & Lester, 2007). Young cultural brokers often interact in adult situations handling adult content such as interpreting at medical appointments, translating between their adult family members and landlords or tenants, interpreting letters from banks and insurance companies, interpreting school report cards, and interpreting at parent-teacher conferences (Orellana et al., 2003). From this parentification perspective, adult family members' dependency on young family members to mediate in these types of adult situations may place youth at risk for a variety of negative outcomes (Trickett & Jones, 2007).

A review of the literature on parentification revealed that certain outcomes tend to emerge with this type of role reversal. A short-term longitudinal study (six months following the initial survey) found that the parental-child role predicted sexual risk behavior, alcohol and marijuana use, and conduct problems among adolescents who had a parent with AIDS (Stein, Riedel, & Rotheram-Borus, 1999). The parental-child role describes youth who are responsible for caretaking and family mediating (Jurkovic, Jessee, & Goglia, 1991). Despite Stein et al.'s (1999) initial findings, a long-term follow-up (six years following the initial survey) indicated that the parental-child role predicted *less* alcohol and tobacco use (Stein et al., 2007). Hence, the results on parentification as a predictor of substance use are mixed and may change over time. Castro et al. (2004) found that being parentified as a child was positively associated with the imposter phenomenon, meaning individuals parentified as children were more likely to perceive themselves as inauthentic and unable to meet the demands and expectations of others. These parentified children were expected to fulfill adult responsibilities, and they were more likely to report pressure and anxiety over whether they could meet such expectations.

Based on the parentification perspective, relying on young brokers to navigate within the cultural and linguistic nuances that exist within the U.S. assumes a role that confronts the conventional idea of the parent-child or adult-child relationship (Hall & Sham, 2007). From this perspective, brokering challenges the appropriate power structure and behavioral expectations associated with the roles of adults and younger family members (Mercado, 2003). When cultural brokering, these younger family members enter adult situations or interactions; therefore, "the child's role in the traditional family hierarchy is shifted when the child assumes the power to communicate and to speak for the parent" (Weisskirch, 2005, p. 287). In testing this assumption, Mercado (2003) found that as the Latino undergraduate students in her study engaged in

brokering more often, they were more likely to report parentification. As they experienced parentification, they also were more likely to report higher levels of stress. Bilingual adults who participated in brokering as children described feeling like the adult in the family, making decisions regarding their siblings' affairs in school, writing letters to school, signing notes, and contacting teachers without including or notifying their parents (McQuillan & Tse, 1995).

Díaz-Lázaro (2002) did not directly measure parentification, but he found no significant association between cultural brokering and family authority structure or parental locus of control among the Latino adolescents in his study. Stated differently, cultural brokering was not associated with Latino adolescents' perceptions of how much their parents included them in family decisions, nor was cultural brokering associated with Latino adolescents' perceptions of how much control they had over their parents' lives. In short, this first assumption argues that cultural brokering results in children adopting adult responsibilities to the point where it challenges traditional adult-child roles and inhibits children's natural development, also known as parentification. Yet, this assumption lacks unequivocal support and a theoretical explanation guiding its postulation. Hence, this chapter incorporates role theory (Ashforth, 2001) to elucidate cultural brokering's potentially problematic effects on children through parentification.

*A role theory perspective.* Role theorists propose that throughout life, individuals have a number of roles that influence their actions (LePoire, 2006). Roles refer to positions that individuals hold that are associated with expectations regarding the types of behaviors these individuals and others should enact when maintaining such positions (Biddle, 1986; Goldblatt & Eisikovits, 2005). Through social interactions, patterns emerge with respect to how individuals act relative to a particular role. Each role is accompanied by learned scripts and predictable

patterns of behaviors. Learning the behaviors and enacting such behaviors with quality constitute role competence (Solomon, Surprenant, Czepiel, & Gutman, 1985).

Roles are interdependent and stem from communicative interactions with others, and expectations regarding a role are based on positions individuals hold within a social structure (Biddle, 1986; Solomon et al., 1985). Family members often establish some sort of hierarchical structure in which the role of a parent can only exist in correspondence to the role that a child assumes. Together, family members communicatively negotiate expectations and behaviors associated with their roles (Burnette, 1999). At times, family members may have similar expectations regarding their roles, while at other times they may have contradictory expectations. Role expectations and behaviors often change over time through communicative interactions and at times may conflict with each other (e.g., pose competing demands; Biddle, 1986).

Youth may experience challenges to their role when participating in cultural brokering. Children are typically expected to have less authority and power, and they are expected to allow their parents to take the lead in social interactions, especially outside the home. These expectations are particularly characteristic of more traditional cultures such as Mexican culture (Love & Buriel, 2007; Yu et al., 2008). Yet, if children are the most skilled family members to linguistically and culturally interact within mainstream U.S. culture, parentification, also known as a role reversal, may occur. With the pressure of taking on adult responsibilities, interacting in adult situations, and interpreting adult content, while making decisions that impact the entire family, cultural brokering children are likely to experience parentification (Mercado, 2003).

Suggesting that parentification occurs among cultural brokers implies that this phenomenon is likely to negatively affect brokers. Hence, cultural brokering may be a type of strain that leads to parentification, which in turn, may have an effect on cultural brokers' health



behaviors. The following section describes the second assumption and uses general strain theory (Agnew, 1992) to explore the possible consequences of cultural brokering as a strain placing youth at risk for parentification and stress, which in turn, may affect their health behaviors.

*Assumption Two: Cultural Brokering as a Strain*

Cultural brokering children often interact in complex communicative situations in which they have to acquire knowledge and understanding of at least two languages and two cultures, make decisions that impact their family members' well-being, ensure that the interaction proceeds smoothly, and interact in adult situations with adult content that they would not usually participate in (Acoach & Webb, 2004; Love & Buriel, 2007). Young brokers assume a large amount of pressure and responsibility when having to manage between different languages and cultures to assist their family members; therefore, brokering may lead to stress (Weisskirch & Alva, 2002). Feelings of stress also may emerge when family members dominate cultural brokers' time and energy, preventing brokers from taking time for themselves (McQuillan & Tse, 1995). Because of such pressures, a number of brokering researchers suggest that this phenomenon leads to stress that can be burdensome (Love & Buriel, 2007; Weisskirch, 2005).

The pressure from cultural brokering also has been linked to an assortment of negative feelings such as frustration, resentment, and depression (Hall & Sham, 2007; Love & Buriel, 2007). In a study on Russian adolescents in the U.S., Jones and Trickett (2005) found as these youth engaged in cultural brokering, they were more likely to experience distress. When the 5<sup>th</sup> grade students in Weisskirch and Alva's (2002) study did not perceive brokering as helping them learn their native language, they were more likely to experience higher levels of acculturation stress. A positive association between cultural brokering for a variety of people and depression also was documented in Love and Buriel's (2007) study. As these Mexican American

adolescents participated in cultural brokering for more people, they were more likely to experience depression. Love and Buriel (2007) suggested that brokering for more people may be particularly stressful because these youth have greater uncertainty about other people's expectations and needs. These youth are likely to feel more comfortable brokering for their parents because they are more likely to be familiar with their parents' needs and expectations.

The aforementioned studies reveal that cultural brokering may at times operate as a communication-based strain, placing youth at risk for developing acculturation stress, depression, and distress (Jones & Trickett, 2005; Love & Buriel, 2007; Weisskirch & Alva, 2002). Through the application of general strain theory (Agnew, 1992, 2001), however, this chapter clarifies how cultural brokering may act as a strain, while also extending this second assumption by considering how the associated stress may place young cultural brokers at risk for engaging in unhealthy behaviors.

*A general strain theory perspective.* The core assumption of Agnew's (1992) general strain theory (GST) maintains that individuals often develop negative affect such as anger, frustration, or sadness when they experience strains or stressors. More specifically, strains occur when individuals are subjected to situations or experiences that they dislike (Agnew, 2001). Although individuals may find other ways to cope with their strain, GST focuses on strains that increase the likelihood that individuals use unhealthy behaviors such as substance use, theft, skipping school, and fighting to reduce their strain (Agnew, Brezina, Wright, & Cullen, 2002).

*Three sources of strain.* Strained individuals may be more likely to engage in unhealthy behaviors when their strain emerges from three particular sources. First, the anticipated or actual inability to accomplish a goal is the classic source of strain. Agnew extended this conceptualization with GST to include two additional strain stimuli: the removal of a desired

stimulus or the introduction of a negative stimulus (Broidy & Agnew, 1997; Hinduja, 2007). The strain that develops from these three sources is more likely to induce negative affect and, in turn, individuals may attempt to reduce such negative affect by turning to unhealthy behaviors (e.g., delinquency, substance use, seeking revenge). The negative affect that individuals experience as a result of strain may exist as anger, anxiety, depression, distress, disappointment, and frustration; however, this list of negative feelings is not exhaustive (Ellwanger, 2007).

Agnew and his colleagues proposed that only some strained individuals use problem behaviors to handle their strain. The way in which individuals cope with their strain depends on “the nature, intensity, and duration of the strain, the emotions that the strain engenders in the individual, the repertoire of coping mechanisms at an individual’s disposal, and the social context within which the strain develops” (Broidy, 2001, p. 10). Individuals may choose to cope by engaging in problematic behaviors because of their negative affect, but not every individual evaluates and handles strain the same way (Agnew, 2001). The likelihood of coping with strain by engaging in problematic behaviors increases as individuals lack the appropriate skills and resources to handle their strains in a healthy manner (Agnew, 1992). For instance, having limited social support or believing that others are to blame for the strain may make these individuals more susceptible to engaging in problematic behaviors (Agnew, 2001). As seen here, a number of factors influence how likely individuals are to use unhealthy behaviors to manage their strain.

*Cultural brokering as a strain.* When considering the application of GST to cultural brokering, this communication process may become a strain based on the three ways that Agnew proposed with GST. Cultural brokering may become a strain when brokers are unable to accomplish their goal, encounter a negative stimulus, or have a desired stimulus taken away (cf. Broidy & Agnew, 1997). For instance, in some situations, brokers may lack knowledge and

understanding of the content or documents that they have to interpret, thereby preventing them from fulfilling their goal of assisting a family member. Alternatively, cultural brokers may at times have negative experiences when brokering if they learn about a family member's health problems, thus being introduced to negative stimuli. Finally, cultural brokers' confidence may decrease in situations where the content and documents are too advanced for them, hence, having a desired stimulus removed. These are several of many ways in which the brokering experience can act as a strain. In such situations, the assumptions of GST would suggest that these cultural brokers may cope with the strain by turning to unhealthy and problematic behaviors.

Several studies have considered cultural brokering's association with acculturation stress (Weisskirch & Alva, 2002), depression (Love & Buriel, 2007), and distress (Jones & Trickett, 2005), but only Chao (2006) investigated whether cultural brokering was associated with internalizing as well as externalizing behaviors. Chao found that cultural brokering was positively associated with internalizing behaviors (i.e., depression, anxiety, withdrawal) among Korean and Chinese adolescents but not among Mexican adolescents. In contrast, cultural brokering was positively associated with externalizing symptoms (i.e., aggression, delinquency, cheating) among Korean adolescents but not among Chinese or Mexican adolescents. These aforementioned studies, however, were not guided by a theoretical framework such as GST.

*Assumption Three: Cultural Brokering Does Not Lead to Parentification*

GST and role theory point to potentially unhealthy consequences of cultural brokering, but Orellana, Dorner, and their colleagues (e.g., Orellana et al., 2003; Dorner, et al., 2007; Dorner, Orellana, & Jiménez, 2008) suggest that this communication process may actually be a natural way for young family members to contribute to the success of the family unit while maintaining appropriate adult-child roles. Young cultural brokers may have the ability to

navigate within the U.S. more competently than their parents or other adult family members, providing these young brokers with an advantage. Nevertheless, Orellana and her colleagues, as well as Trickett and Jones (2007) propose that these young cultural brokers continue to clearly perceive their parents and adult family members as authority figures. Engaging in brokering is not necessarily a choice. Because of the unavailability of professional translators or the spontaneity of requiring a mediator, adult family members may require younger members to act as brokers, regardless of whether these young family members want to participate (Orellana et al., 2003). In short, adults continue to maintain authority, power, and control in the relationship.

In addition to maintaining appropriate adult-child roles, several studies found that young cultural brokers perceived this communication process as a natural way to help their family. Through in-home observations, Orellana's (2003) study on Latina/o children of immigrant families revealed that the children in her sample discussed cultural brokering as an act that they perceived as "just normal" or "just something they do" (p. 35). Interviews with bilingual adults who engaged in cultural brokering as children revealed that most of these adults wrote school notes, interacted with teachers, and made school-related decisions for their siblings without consulting their parents. These bilingual adults, however, perceived their actions as merely a way to reduce their parents' daily burdens (McQuillan & Tse, 1995). Moreover, the types of cultural brokering that tend to receive the most negative attention such as interpreting for doctors or lawyers were infrequent among Orellana's (2003) sample. Young cultural brokers play an important and necessary role to their family's survival within the U.S., with Orellana, Dorner, and their colleagues arguing that many immigrant families perceive such behaviors as normal and are not necessarily linked to parentification or stress (Dorner et al., 2008). To further justify this third assumption, Dorner et al. (2008) used independent/interdependent scripts to explain

how many immigrant families perceive cultural brokering as a natural way to assist their family, while maintaining appropriate adult-child roles.

*Cultural brokering from an independent/interdependent scripts perspective.* Despite the tendency within the U.S. to view adolescent development as a growth in independence from family, the primary cultural norm throughout the world tends to emphasize both independence and interdependence (Dorner et al., 2008). From a Western perspective, adopting more responsibilities to assist the family may threaten children's natural development, forcing them to become more independent prematurely. Yet, among certain ethnic groups (e.g., Mexican Americans), adopting more responsibilities may actually be a sign of interdependence as cultural brokers take on tasks that assist others. Dorner et al. (2008) argue that the perception of cultural brokering as a source of parentification continues to be based on the Western perspective of independence and interdependence. In traditional Western developmental theories, independence and interdependence are seen as opposing forces on opposite ends of a continuum. Adopting more responsibilities is perceived as an act of independence, whereas Dorner et al. (2008) suggest it may actually be an act of growing interdependence as well.

Examining cultural brokering among children from independent/interdependent scripts leads researchers to different claims regarding this phenomenon's effects. Researchers who support this perspective would suggest that cultural brokering does not result in parentification but instead may enhance family functioning (Trickett & Jones, 2007). For instance, McQuillan and Tse (1995) discovered through interviews with adults who brokered as children developed trusting relationships with their parents, possibly indicating that cultural brokering enhances familial relationships. Similarly, Chao (2006) found the brokers reported increased respect for their parents. Contrary to the predictions of role theory (e.g., parentification assumption) and

GST, cultural brokering may lead to positive outcomes when it is perceived as a natural way for children to assist their parents and other family members. Orellana and her colleagues' perspective on cultural brokering has positive implications for this phenomenon. Another theory that sheds light on the potentially favorable effects of brokering is rooted in the translation literature and focuses on the linguistic and cognitive benefits to engaging in cultural brokering.

*Assumption Four: Cultural Brokering as a Cognitive and Linguistic Enhancer*

The fourth assumption postulates that cultural brokers develop enhanced cognitive and linguistic skills that help them perform better in school (Buriel et al., 1998). Previous literature on cultural brokering found some support for this assumption. Through focus groups, Mexican, Chinese, and Vietnamese American college students reported that brokering helped their academic performance (De Ment et al., 2005). In Tse's (1995) study involving 35 Latino students, 50% of the foreign-born participants and 22% of the U.S.-born participants reported that cultural brokering helped them learn English, while 48% of U.S.-born participants and 12% of foreign-born participants thought that cultural brokering helped them learn Spanish. Based on an interview study with nine bilingual adults, McQuillan and Tse (1995) found that their participants reported increased language acquisition; however, they did not believe brokering affected their academic performance. Finally, Dorner et al. (2007) found with longitudinal data including 280 5<sup>th</sup> and 6<sup>th</sup> grade students that those students who did less extensive cultural brokering did not report higher math or reading scores, whereas students who participated in cultural brokering extensively were more likely to score higher on their standardized reading comprehension test. Given these findings, it is possible that cultural brokering enhances cognitive and linguistic skills, which in turn, improves youths' academic performance. Yet, most of these studies comprised of small sample sizes and cross-sectional data precluding any firm

conclusions about the translation-based theory of cultural brokering. Hence, the application of a translation-based theory provides a stronger rationale for this fourth assumption.

*A translation-based theory perspective.* Based on three primary arguments, Buriel et al. (1998) theorized that through cultural brokering, youth strengthen their cognitive and linguistic skills, and in turn, enhance their academic performance. Referencing Krashen's (1985) comprehensible input hypothesis, Buriel et al. (1998) suggested that cultural brokers increase their cognitive processing and vocabulary level the longer they broker, meaning that an accumulation effect occurs. In addition, because cultural brokers interpret more advanced messages and participate in more advanced situations such as within bank, medical, school, and other institutional contexts, cultural brokers develop linguistic and cognitive skills that are similar to those required and valued in the educational setting (Dorner et al., 2007). Finally, when engaging in cultural brokering, youth must undergo a complex mental process of identifying the vocabulary of the original message, understanding the meaning of the original message, adapting the message to match the other party's language, and evaluating whether their adjusted message sufficiently matches that party's language. During face-to-face interactions or on the telephone, cultural brokers must quickly and spontaneously participate in this cognitive process, which is likely to improve their cognitive and linguistic skills (McQuillan & Tse, 1995). Consequently, they are more likely to perform better academically than non-brokering youth.

#### Summary and Preview

When considering role theory, general strain theory, independent/interdependent scripts, and the translation-based theory, it is evident that further investigation is needed to test these theoretical perspectives regarding cultural brokering's effects. These theories shed light on several ways in which cultural brokering may affect children and their families. As role theory



and general strain theory lead to predictions that cultural brokering exerts harmful effects on its participants, independent/interdependent scripts and the translation-based theory propose beneficial effects. These four theoretical perspectives, however, are not mutually exclusive, but instead, may exist simultaneously. Thus, it is possible for cultural brokers to experience both negative and positive effects, which means further research is necessary to identify under what circumstances brokering is detrimental or favorable and to consider whether certain factors can be targeted to ensure more positive outcomes.

To address the contradicting findings that are apparent across the cultural brokering literature and to test aspects of the four dominant assumptions, Chapter 2 incorporates role theory, general strain theory, independent/interdependent scripts, and a translation-based theory to develop an overarching theoretical model of brokering. More specifically, Chapter 2 includes the supposition that cultural brokering frequency and attitudes differ in their relations with certain factors. Distinguishing between these two aspects of cultural brokering allows for an integration of the competing predictions into a single model. Data from an ongoing study are used to test the four assumptions integrated in this theoretical model. The test extends the four dominant assumptions by examining them with respect to health-related behaviors and academic performance. Next, Chapter 3 reports the findings of a second study that uses latent growth curve modeling to test a culturally-grounded substance use prevention program's effects on Mexican-heritage youths' changes in ethnic identification associated with changes in cultural brokering frequency and negative cultural brokering attitudes. Finally, Chapter 4 summarizes the contributions that these two studies make to the cultural brokering literature, while including a discussion on their limitations and future research directions.

## CHAPTER 2

### CULTURAL BROKERING'S INDIRECT EFFECTS ON SUBSTANCE USE, OTHER RISKY BEHAVIORS, AND ACADEMIC PERFORMANCE THROUGH PARENTIFICATION, ACCULTURATION STRESS, AND ENGLISH READING SPEED

For many immigrants, a lack of familiarity with the U.S. legal and institutional systems makes surviving in this new environment difficult, particularly in conjunction with the pressure to learn a new language, values, beliefs, norms, practices, and ways of communicating (Agustí-Panareda, 2006; Morales & Hanson, 2005; Weisskirch, & Alva, 2002). Among these immigrant families younger members, usually children, often become proficient in English and mainstream U.S. culture at a faster rate than their parents and other adults, primarily because of their participation in the U.S. educational system (Acoach & Webb, 2004; Buriel et al., 1998; Weisskirch, 2005). Consequently, immigrant families commonly rely on younger family members to assist them in successfully maneuvering within the U.S. (De Ment et al., 2005; Dorner et al., 2007). In doing so, these younger family members adopt the role of cultural brokers - individuals generally with less authority and no formal training who linguistically and culturally mediate for two or more parties (McQuillan & Tse, 1995).

Although cultural brokering commonly occurs among immigrant families, native-born individuals or members of linguistic-minority communities (e.g., deaf community, American Indian community) also may depend on younger family members to interpret when they need assistance (Weisskirch, 2005). These cultural brokering children support their families in a variety of ways. In particular, Orellana et al. (2003) discovered that the bilingual youth in their study reported translating for their family members at parent-teacher conferences, helping

parents with their ESL classes, interpreting school documents, mediating at medical appointments, filling prescriptions, translating movies and television shows, and calling insurance companies. When acting as intermediaries in these situations, cultural brokers do not necessarily provide word-for-word translation but instead may alter the message content, along with each party's perceptions and subsequent actions (Mercado, 2003; Tse, 1995). These are several of many ways in which younger family members engage in cultural brokering and these examples reveal that cultural brokers participate in challenging communication interactions typically carried out by adults (Weisskirch, 2007).

#### Statement of the Problem

Families often have no choice but to rely on younger members as cultural brokers; however, the effects on the well-being of these linguistic and cultural mediators remain unknown (Morales & Hanson, 2005). The limited research on brokering shows mixed results, with this communication phenomenon related to both positive and negative experiences (Chao, 2006; Love & Buriel, 2007). These contradictory findings are engendered in competing perspectives.

One school of thought highlights the potentially harmful effects of cultural brokering, suggesting that this communication process places youth at risk for parentification and stress (Mercado, 2003; Weisskirch & Alva, 2002). With respect to the parentification assumption, cultural brokering results in children adopting adult responsibilities and family members relying on these children to the point where it inhibits their natural development, a phenomenon known as parentification (Mercado, 2003). Based on role theory (Ashforth, 2001), individuals maintain positions associated with certain behavioral expectations. Yet, when younger family members engage in cultural brokering, the parentification perspective argues that a role reversal develops where the younger family members adopt adult responsibilities, make decisions for the family,

speak for the family, and obtain more power, control, and authority (Weisskirch, 2007). In addition to the parentification assumption, a second assumption is that the potentially harmful effects occur because cultural brokering acts as a stressor (Love & Buriel, 2007; Weisskirch, 2005). Having to balance between multiple languages and cultures may place pressure on cultural brokering youth. The tenets of general strain theory (GST; Agnew, 1992, 2001) extend this stress assumption to health-related behaviors, which postulates that individuals are at risk for engaging in problem behaviors when experiencing negative affect from strains (i.e., stressors). General strain theorists would suggest that cultural brokering may induce negative affective responses and children must learn how to effectively cope with such negative affect or they may turn to unhealthy behaviors (e.g., substance use, skipping school, stealing).

As the parentification and stress assumptions represent grim pictures of cultural brokering's effects, a second school of thought emphasizes the benefits of brokering, focusing on brokering's contribution to healthy family functioning and the enhancement of their cognitive and linguistic skills. The independent/interdependent scripts perspective suggests that cultural brokering children contribute to the stability and success of their family in a natural and healthy way. From this perspective, cultural brokering instead is seen as a natural process that occurs among immigrant families (Dorner et al., 2008; Orellana, 2003). The fourth assumption that highlights the potentially positive effects of cultural brokering proposes that because of the complex communicative interactions that cultural brokers participate in, they develop improved cognitive and linguistic skills, which in turn, enhances their academic performance, an argument rooted in a translation-based theory (Buriel et al., 1998).

A review of the literature on cultural brokering revealed four dominant assumptions, two of which accentuate brokering's potentially problematic effects and another two of which

underscore brokering's potentially favorable effects. Given this contradiction, two questions emerge: if cultural brokers experience either or both negative and positive consequences, do positive reports outweigh the negative outcomes, thereby supporting cultural brokering as an overall beneficial phenomenon? In contrast, do the negative reports outweigh the positive outcomes, thereby warranting caution against cultural brokering among children? These questions cannot be easily answered, and the most accurate response is likely to be, "it depends," which then highlights the need for further research to determine under what conditions brokering has negative and positive effects.

### The Scope of this Study

The contradictions with respect to the effects of cultural brokering are likely a result of the limited research conducted on this phenomenon (Love & Buriel, 2007). With cultural brokering research still in its infancy, establishing when cultural brokering leads to negative and when it leads to positive outcomes should be a primary goal for researchers. To fill this void, the current study extends the literature on this communication process by first using longitudinal data to simultaneously test the widely-held assumptions that: (1) cultural brokering leads to parentification, (2) cultural brokering does not lead to parentification, (3) cultural brokering acts as a stressor, and (4) cultural brokering improves cognitive and linguistic skills, and in turn, academic performance. Few studies have actually tested these assumptions and used theory as a guiding framework; therefore, the current study integrates role theory (Ashforth, 2001), independent/interdependent scripts (Dorner et al., 2008), GST (Agnew, 1992), and a translation-based theory (Buriel et al., 1998) to provide rationales for the four assumptions and to develop an overarching theory of cultural brokering. This study distinguishes between cultural brokering frequency and negative cultural brokering attitudes to investigate whether they operate

differently in regard to the four assumptions, as a way of further specifying cultural brokering's effects. Cultural brokering frequency and negative attitudes may both be problematic; therefore, this study also examines whether ethnic identification predicts these aspects of cultural brokering as a potential factor to target in future intervention work.

This study extends previous research on the four assumptions by investigating whether cultural brokering frequency and negative cultural brokering attitudes have indirect effects on Mexican-heritage youths' substance use, other risky behaviors (e.g., stealing, fighting, skipping school), and academic performance through parentification, acculturation stress, and English reading speed. There are several reasons this is important. Previous research on cultural brokering has found this phenomenon prominent among a variety of ethnic groups within the U.S. such as Chinese (Chao, 2006; Tse, 1996), Koreans (Chao, 2006), Vietnamese (Trickett & Jones, 2007; Tse, 1996), and Russians (Jones & Trickett, 2005), but this study focuses on brokering among Mexican-heritage youth because Latinos constitute the largest minority population within the U.S. at 15% (U.S. Census Bureau, 2008). Moreover, individuals of Mexican descent comprise the largest U.S. Latino population at 59% (Gee, Ryan, Laflamme, & Holt, 2006), with Mexican-heritage youth forming the largest percentage of children from immigrant families (Cavanagh, 2007).

In addition to the growing population of Latinos, and more specifically, Mexican-heritage youth, U.S. national survey data from *Monitoring the Future* revealed that compared to White and Black 8<sup>th</sup> grade students, Hispanic 8<sup>th</sup> grade students reported the highest rates of substance use across most types of substances (Johnston et al., 2005, 2007). Substance use is often accompanied by other risky and delinquent behaviors such as stealing, violence, and skipping school (cf. Tucker, Martínez, Ellickson, & Edelen, 2008) and decreases in academic performance

(Bryant, Schulenberg, Bachman, O'Malley, & Johnston, 2000). If cultural brokering is a culturally-based communication stressor, it may be one type of stressor that places Mexican-heritage youth at risk for substance use, other problem behaviors, and poor academic performance. Alternatively, brokering may be a positive experience enhancing Mexican-heritage youths' English language skills that actually improves their grades. These potential ways in which cultural brokering may impact Mexican-heritage youths' health behaviors and academic performance are unknown, particularly when attempting to distinguish between brokering frequency and negative brokering attitudes, thereby warranting further investigation.

#### Elucidating the Four Dominant Cultural Brokering Assumptions

This study's primary concern is with the potential effects brokering has on Mexican-heritage youth. Previous research on the outcomes of this communication process is mixed, with four dominant assumptions emerging from the literature. Hence, this study attempts to further investigate cultural brokering's effects on parentification, acculturation stress, and English reading speed (a proxy for cognitive and linguistic skills). The following sections, then, explain the relations between cultural brokering with these factors.

##### *Assumption One: Cultural Brokering Leads to Parentification*

While brokering for family members, children may adopt adult roles and interact in adult situations, making important decisions that impact the family (McQuillan & Tse, 1995). The pressure to interpret adult content and within adult situations may lead cultural brokering youth to experience parentification. Based on role theory (Ashforth, 2001), family members often adhere to a hierarchical structure where adult members have more power, authority, and control than younger family members (Love & Buriel, 2007). Accompanying each role are certain expectations regarding appropriate behaviors (LePoire, 2006). Adult family members such as

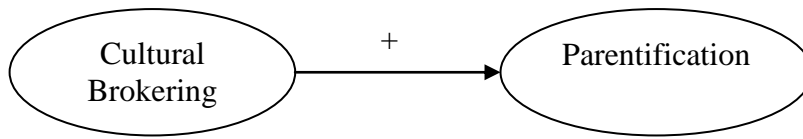
parents and grandparents are expected to provide nurturing, security, advice, and support to the children. Yet, when younger family members engage in cultural brokering, the parentification perspective argues that a role reversal develops where the younger family members adopt adult responsibilities, make decisions for the family, speak for the family, and obtain more power, control, and authority (Weisskirch, 2007). For these reasons, cultural brokering may be a risk factor, disrupting familial roles through parentification.

Parentification occurs when adult family members rely on younger family members for functional and emotional support at the risk of obstructing the child's natural and appropriate developmental process (Castro et al., 2004). Among a sample of Latino undergraduate students, Mercado (2003) found a positive association between cultural brokering frequency and parentification. The more often these students engaged in cultural brokering with various people, places, and things, the more they experienced parentification such as being the only one their parent could turn to, feeling more mature for their age, or feeling like their parents approached them for help in solving family problems. Cultural brokers represent the family and make decisions regarding what information to convey to their family members as well as to the other party. These types of decisions that impact the family are likely to place cultural brokering youth in a position of more authority, control, and responsibility (Weisskirch, 2007). Figure 2.1 represents the association between cultural brokering and parentification, as posited by the parentification assumption and role theory.



Figure 2.1

*A Theoretical Model of the Parentification Assumption Based on Role Theory*

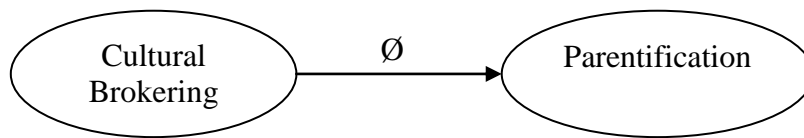


*Assumption Two: Cultural Brokering Does Not Lead to Parentification*

The parentification assumption represents the potentially problematic effects of cultural brokering; however, Dorner et al. (2008) provide a different view on this communication process. They argue that the parentification perspective requires a Western perspective that sees cultural brokering as an act of independence because the child adopts more adult responsibilities. In many immigrant families, handling more responsibilities to benefit other family members is actually an act of interdependence as well. Furthermore, from this perspective cultural brokering does not challenge adult-child power roles or inhibit children's developmental trajectory but, instead, is actually a positive experience that allows children to help their family succeed within the U.S. Young cultural brokers perceive their role as a natural way to assist their family, while maintaining appropriate adult-child power roles (Dorner et al., 2008; Orellana et al., 2003; Trickett & Jones, 2007). Consequently, Figure 2.2 provides a theoretical model of the parentification assumption from the independent/interdependent scripts perspective.

Figure 2.2

*A Theoretical Model of the Parentification Assumption Based on Independent/Interdependent Scripts*



*Assumption Three: Cultural Brokering Leads to Stress*

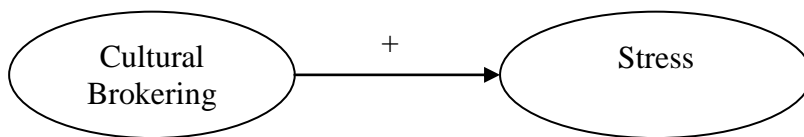
Cultural brokering may lead to parentification, while also being burdensome and stress-inducing. This communicative act entails a complex process. Brokering occurs in a variety of settings (e.g., doctor's office, bank, post office, school) and through a variety of media (e.g., face-to-face, on the phone, on paper). Linguistically and culturally mediating in these settings and with these different types of channels may place pressure on children to engage in brokering with difficult content (Weisskirch, 2007). The pressure to switch back and forth between at least two languages and two cultures can be burdensome. This communication process may be stress-inducing when cultural brokers have to quickly and spontaneously mediate for multiple parties, have limited free time for themselves, and feel pressured to correctly mediate for family members (Weisskirch & Alva, 2002). Children may also experience conflict between the two cultures as they participate in this communication behavior; therefore, balancing between two languages and cultures while engaging in brokering may be stressful (Weisskirch & Alva, 2002).

Among adolescents who immigrated to the U.S. from the former Soviet Union, higher levels of cultural brokering frequency were associated with increased distress (Jones & Trickett,

2005) and a similar relation between brokering frequency and depression was found among Mexican American adolescents (Love & Buriel, 2007). These studies (Jones & Trickett, 2005; Love & Buriel, 2007) examined the assumption that cultural brokering acts as a stressor, revealing that this communication phenomenon may place youth at risk for developing negative affect such as distress and depression. Cultural brokers tend to report having overall positive feelings toward brokering, but frustration, guilt, and fear are terms that also have emerged when describing this process (Tse, 1995, 1996). Because cultural brokering may be accompanied by negative emotions, cultural brokering youth may experience stress when interpreting for family members and making decisions that impact the family. Hence, Figure 2.3 represents a theoretical model of cultural brokering's relation to stress.

Figure 2.3

*A Theoretical Model of the Stress Assumption*



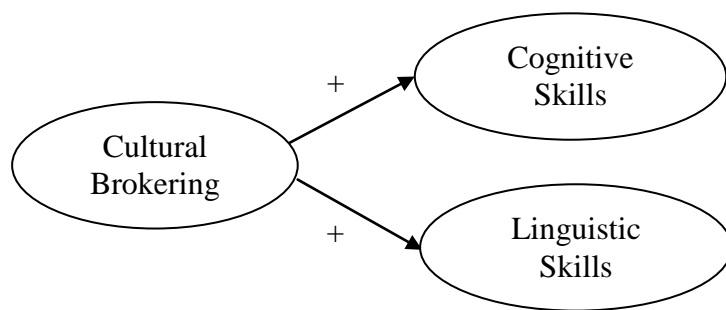
*Assumption Four: Cultural Brokering Enhances Cognitive and Linguistic Skills*

Another assumption exists that highlights the potentially beneficial effect of cultural brokering. In particular, Buriel et al. (1998) proposed that the type of complex interactions associated with cultural brokering results in enhanced cognitive and linguistic skills. Cultural brokering children experience cognitively challenging situations as they must understand and

interpret vocabulary and concepts from both their native culture and the mainstream culture within the U.S., thereby enhancing their first and second language skills (McQuillan & Tse, 1995). For instance, Tse (1995) found that half of the participants in her study who were born outside the U.S. reported learning English faster because of brokering, and almost half of those students born in the U.S. reported learning more Spanish. Such linguistic and cultural sophistication are likely to improve their English reading skills. Cultural brokers are likely to increase their cognitive and linguistic skills as they engage in complex interpretation tasks over an extended period of time. By cultural brokering over time, youth are likely to accumulate advanced vocabulary, as well as faster and more complex cognitive processing. Figure 2.4 represents this association between cultural brokering and cognitive and linguistic skills.

Figure 2.4

*A Theoretical Model of the Enhanced Cognitive and Linguistic Skills Assumption*



#### Distinguishing between Cultural Brokering Frequency and Attitudes

The four dominant assumptions reveal that cultural brokering scholars disagree on this communication behavior's effects on the involved parties. Previous research findings reflect

these inconsistencies, with conflicting claims about positive and negative outcomes. In an effort to resolve some of the contradictions, this study argues for distinguishing between cultural brokering frequency and negative cultural brokering attitudes because each of these cultural brokering aspects may operate differently with respect to certain factors. To emphasize the complexity of cultural brokering, Tse (1995) developed a scale which was later revised by Buriel et al. (1998) to capture individuals' feelings toward cultural brokering (feelings: e.g., feeling good about self when brokering for others, like to broker, feel embarrassed when brokering), the people for whom they broker (people: e.g., friends, family, neighbors, teachers, strangers), the places in which they broker (places: e.g., school, hospital, doctor's office), and the documents that they broker (things: e.g., phone bills, credit card bills, flyers, insurance forms).

Often, cultural brokering researchers (e.g., Buriel et al., 1998; Mercado, 2003) examine feelings toward cultural brokering in relation to their variables of interest and then include a total score representing cultural brokering behaviors (i.e., sum of participants' scores for people, places, and things items). The people dimension represents how often participants engage in cultural brokering for various peoples, whereas the places and things dimensions represent whether they have brokered at different places and with different documents (Díaz-Lázaro, 2002). When measuring feelings toward brokering, the scale addresses individuals' affective reactions to brokering but does not distinguish between positive and negative feelings.

Consequently, the current study adopts a more micro view in understanding this phenomenon by considering cultural brokering frequency with respect to family (i.e., how often youth broker for a family member) and negative cultural brokering attitudes (i.e., perceived negative valence regarding brokering). This distinction between frequency and attitudes may prove useful in explaining the differential cultural brokering outcomes reported in the literature.

When investigating how various aspects of cultural brokering operate differently, past research findings reveal the importance of considering cultural brokering frequency separate from feelings toward cultural brokering with relation to potential outcomes. For instance, Buriel et al. (1998) found that total cultural brokering (i.e., sum of people, places, and things items) explained the variance of self-reported grades; however, feelings toward cultural brokering (i.e., any affective reaction to brokering) did not explain any of the variance when entered into the regression equation. In the context of grades, only total cultural brokering played a significant role. Hence, researchers cannot assume that both types of brokering operate in the same way or exert the same effect. Love and Buriel (2007) considered the feelings, people, places, and things that Mexican American adolescents reported brokering, but only the people dimension was positively associated with depression (Love & Buriel, 2007). Upon separating each aspect of cultural brokering into people, places, and things, each individual factor was positively associated with parentification among Latino undergraduate students (Mercado, 2003). In another study among Mexican American college students, more positive feelings (e.g., feeling proud) toward cultural brokering were associated with higher levels of family harmony, whereas more negative feelings (e.g., feeling angry, anxious, frustrated, guilty, or uncomfortable) were associated with higher levels of family disharmony (Weisskirch, 2006). Although several of these studies included both total cultural brokering and feelings toward cultural brokering, researchers tend to only include one aspect of brokering in their analyses. Studies (e.g., Chao, 2006; Dorner et al., 2007; Mercado, 2003; Trickett & Jones, 2007) more commonly include total cultural brokering rather than feelings toward cultural brokering, thereby creating a limited representation of how frequency and feelings operate differently.

Conceptually, cultural brokering frequency may operate differently from negative cultural brokering attitudes because the former represents a behavior and the latter represents an attitude (cf. Buriel et al., 1998). Cultural brokering frequency refers to how often individuals linguistically and culturally mediate for others, which represents a communication interaction. Yet, negative cultural brokering attitudes refer to the negative evaluation of the brokering behavior. The negative valence that is inherent within negative cultural brokering attitudes is likely to have a more problematic and harmful effect than the behavior itself. The mere act of linguistically and culturally mediating for others may not be as detrimental compared to being embarrassed or nervous about engaging in such a behavior. The current study includes both aspects of cultural brokering to explain previous inconsistent findings regarding this communication behavior's effects on youth. In short, perhaps the type of effect (negative vs. positive) depends on a particular aspect of brokering.

#### Hypothesizing the Direct Effects of Cultural Brokering Frequency and Attitudes

The distinction between cultural brokering frequency and negative cultural brokering attitudes may explain the contradicting findings regarding the four dominant assumptions. Yet, several limitations currently exist in regard to these assumptions. First, a dearth number of studies have been conducted to directly test these assumptions. Second, few studies have integrated theory to explicate these assumptions and provide rationales. Finally, the limited research that has been carried out has led to contradicting findings. The current study attempts to resolves some of these inconsistencies by integrating theory and directly testing aspects of the four assumptions. In addition, this study distinguishes between cultural brokering frequency and negative cultural brokering attitudes. Differentiating between these two aspects of cultural brokering may provide some explanation for the inconsistent findings. Hence, the following

section proposes several hypotheses that examine the four assumptions, while specifying cultural brokering frequency and negative cultural brokering attitudes' unique effects.

*Hypothesis One: Cultural Brokering Predicts Parentification*

Based on the parentification assumption and role theory, cultural brokering frequency is likely to be positively associated with parentification. Nevertheless, negative cultural brokering attitudes may have a different effect on parentification. Thus far, Mercado (2003) is one of the few studies to examine the relation between cultural brokering frequency and parentification; however, the effects of negative cultural brokering attitudes on parentification remain unknown. The current study postulates that having negative attitudes toward cultural brokering such as feeling embarrassed or nervous are likely to decrease feelings of parentification among Mexican-heritage youth. Feeling negatively about cultural brokering may make these youth feel like they have less authority and less control over the situation. The following hypotheses were set forth.

H1a: Cultural brokering frequency is positively associated with parentification such that as Mexican-heritage youth engage in cultural brokering more often, they are more likely to experience parentification.

H1b: Negative cultural brokering attitudes are negatively associated with parentification such that as Mexican-heritage youth report negative attitudes toward brokering, they are less likely to experience parentification.

These hypotheses propose that brokering leads to parentification, but Dorner et al. (2008)'s perspective would predict a non-significant association. In contrast to role theory and the parentification assumption, proponents (Dorner et al., 2008) of independent/interdependent scripts suggest that cultural brokering does not threaten adult-child power roles but is instead a natural way of helping family members successfully maneuver within mainstream U.S. culture.



The current study does not directly test this perspective by including measures of whether Mexican-heritage youth perceive cultural brokering as a normal behavior or as a way of helping family members. Yet, a non-significant association between cultural brokering frequency and parentification would provide support for this independent/interdependent scripts perspective. With respect to negative cultural brokering attitudes, independent/interdependent scripts do not specify how this aspect of brokering is related to parentification. Including negative cultural brokering attitudes extends this independent/interdependent scripts perspective, revealing that not all aspects of brokering may operate in the same way.

#### *Hypothesis Two: Cultural Brokering Predicts Acculturation Stress*

With brokering as an impetus for stress, the current study focuses on acculturation stress. In particular, acculturation stress refers to the stressful experiences that individuals encounter when adapting to the host culture or the mainstream culture of their new environment (Guilamos-Ramos, Jaccard, Johansson, & Turrissi, 2004). Youth from minority cultures must accommodate the mainstream U.S. culture along with their native culture regardless of whether they were born in the U.S. or immigrated to the U.S. (cf. Crockett et al., 2007). Consequently, this pressure to accommodate both cultures when brokering may result in acculturation stress by not feeling at home within the U.S. or not feeling like they belong in the U.S. Having to participate in cultural brokering for family members may heighten the feeling of not belonging in the U.S. More specifically, as 5<sup>th</sup> grade bilingual students reported feeling uncomfortable translating, they were more likely to experience acculturation stress (Weisskirch & Alva, 2002). Although previous research (Jones & Trickett, 2005; Mercado, 2003) considered general stress (e.g., feeling nervous, unable to cope), acculturation stress is rooted in the immigration experience and more relevant to cultural brokering youth. Hence, the following hypothesis was set forth.

H2: Cultural brokering frequency and negative cultural brokering attitudes are positively associated with acculturation stress such that the more often Mexican-heritage youth engage in brokering and the more negative attitudes they have toward brokering, the more likely they are to experience acculturation stress.

*Hypothesis Three: Cultural Brokering Predicts Enhanced Cognitive and Linguistic Skills*

The current study uses English reading speed as a proxy for cognitive and linguistic skills. If the translation-based theory holds, then as Mexican-heritage youth engage in cultural brokering more often, they should be able to read English faster. As cultural brokering is likely to increase Mexican-heritage youths' English reading speed, having negative attitudes toward cultural brokering is likely to decrease their English reading speed. Maintaining negative attitudes toward cultural brokering such as feeling embarrassed or nervous about the act may be an indicator of negative experiences that Mexican-heritage youth have had when cultural brokering. Being embarrassed or nervous about cultural brokering may also inhibit Mexican-heritage youth from feeling confident about their English skills and may inhibit their English reading abilities. This study extends the research on this translation-based theory by examining whether cultural brokering frequency is associated with increases in Mexican-heritage youths' English reading speed and whether negative cultural brokering attitudes are associated with decreases in their English reading speed. Consequently, the following hypotheses were set forth.

H3a: Cultural brokering frequency is positively associated with English reading speed such that as Mexican-heritage youth engage in cultural brokering more often, the more likely they are to read English fast.

H3b: Negative cultural brokering attitudes are negatively associated with English reading speed such that as Mexican-heritage youth experience negative attitudes toward brokering, the less likely they are to read English fast.

#### Hypothesizing the Indirect Effects of Cultural Brokering Frequency and Attitudes

Hypotheses 1-3 examine the four dominant assumptions regarding brokering frequency and attitudes' effects. In addition, the current study uses GST and a translation-based theory to extend these assumptions to the context of health-related behaviors and academic performance. This section builds a rationale for investigating whether cultural brokering frequency and negative attitudes have indirect effects on substance use, other risky behaviors, and grades through parentification, acculturation stress, and English reading speed.

#### *Hypotheses Four-Five: Predicting Substance Use and Other Risky Behaviors with GST*

The decision to consider the indirect effects of cultural brokering frequency and negative cultural brokering attitudes on substance use and other risky behaviors is based on GST (Agnew, 1992). Proponents of GST state that when experiencing a strain or a stressor, negative affective reactions are likely to emerge and individuals are likely to cope with these negative feelings by engaging in problematic and deviant behaviors such as substance use, theft, and violence (Broidy & Agnew, 1997). Agnew (1992) argued that strains or stressors develop because of encountering a noxious stimulus, being unable to meet a desired goal, and/or having a valued stimulus taken away. Strains or stressors are “events, environments or processes that may ‘cause stress’ . . . that is [are] perceived or appraised as being either harmful, challenging, or benign” (Hooper, 2007, p. 327). Cultural brokering frequency and negative attitudes toward cultural brokering may act as strains, given the demand on children to manage multiple languages and cultures and to adopt adult responsibilities. Although Tse (1995, 1996) found in several studies that cultural brokering

children reported overall positive experiences with brokering, other studies' (e.g., Hall & Sham, 2007; Mercado, 2003; Weisskirch & Alva, 2002) revealed that cultural brokers experienced stress and parentification. Cultural brokers also reported resenting their role as brokers when it interfered with their own lives. Thus, general strain theorists would suggest that cultural brokering frequency and negative cultural brokering attitudes may act as strains that place youth at risk for engaging in problem behaviors such as substance use and other risky behaviors.

Based on GST, it is possible that Mexican-heritage youth deal with their parentification and acculturation stress by engaging in problematic behaviors. Agnew et al. (2002) stated that "the impact of strain on delinquency is at least partly mediated by negative emotions like anger" (p. 43). Anger has been found to be a mediator between strain and crime (Broidy, 2001). Yet, based on Agnew et al. (2002) anger as an emotional response to strain is only one of other possible mediators. In the context of cultural brokering frequency and negative cultural brokering attitudes, these strains are likely predict different types of negative psychological responses in the forms of parentification and acculturation stress, which Mexican-heritage youth may respond by engaging in substance use and other risky behaviors.

Cultural brokering frequency and negative cultural brokering attitudes are likely to have indirect effects on substance use and other risky behaviors through parentification and acculturation stress. For instance, adolescents in Stein et al.'s (1999) study who experienced parentification (e.g., parents asking for input regarding decisions and seeking advice from children) were more likely to use alcohol and marijuana. With respect to acculturation stress, Kam, Cleveland, and Hecht (under review) documented that as Mexican-heritage youth experienced acculturation stress, they were more likely to use alcohol, cigarettes, and marijuana. As Mexican-heritage youth engage in cultural brokering more often, they are likely to develop

parentification and acculturation stress, and in turn, more likely to cope with these forms of stress by engaging in substance use and other risky behaviors. In contrast, negative cultural brokering attitudes are likely to be associated with decreases in parentification, and in turn, decreases in parentification are likely to be associated with decreases in substance use and other risky behaviors. Negative cultural brokering attitudes, however, are likely to be stressors that increase Mexican-heritage youths' acculturation stress, and these youth are more likely to cope with this stress by participating in substance use and other risky behaviors.

With respect to English reading speed, cultural brokering researchers (e.g., Acoach & Webb, 2004; Buriel et al., 1998; McQuillan & Tse, 1995) suggest that this communication process often enhances English skills and academic performance. Yet, as previously mentioned, negative cultural brokering attitudes are likely to inhibit youths' English reading skills. As Mexican-heritage youth engage in cultural brokering more often, they are more likely to increase their English reading speed, and in turn, less likely to engage in substance use and other risky behaviors. Nevertheless, as Mexican-heritage youth develop more negative attitudes toward cultural brokering, they are less likely to increase their English reading speed, and a slower English reading speed, is likely to be associated with increases in substance use and other risky behaviors. These postulations are based on past research providing evidence for a link between poor academic performance and increases in substance use (Bryant et al., 2000), and although English reading speed does not refer to grades, it is partly indicative of youth's academic performance. The following hypotheses were posited to represent the aforementioned indirect effects of cultural brokering frequency and negative brokering attitudes on substance use and other risky behaviors through parentification, acculturation stress, and English reading speed.

H4: Cultural brokering frequency has indirect effects on last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors such that:

H4a: cultural brokering frequency is positively associated with parentification, and in turn, parentification is positively associated with last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors.

H4b: cultural brokering frequency is positively associated with acculturation stress, and in turn, acculturation stress is positively associated with last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors.

H4c: cultural brokering frequency is positively associated with English reading speed, and in turn, English reading speed is negatively associated with last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors.

H5: Negative cultural brokering attitudes have indirect effects on last-30-days alcohol, cigarette, marijuana use, along with other risky behaviors such that:

H5a: negative cultural brokering attitudes are negatively associated with parentification, and in turn, lower levels of parentification are associated with lower levels of last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors.

H5b: negative cultural brokering attitudes are positively associated with acculturation stress, and in turn, acculturation stress is positively associated with last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors.

H5c: negative cultural brokering attitudes are negatively associated with English reading speed, and in turn, lower levels of English reading speed are associated with higher levels of last-30-days alcohol, cigarette, and marijuana use, along with other risky behaviors.

*Hypotheses Six-Seven: Predicting Grades with a Translation-Based Theory*

Rooted in a translation-based theory, Buriel et al. (1998) and other researchers suggested that cultural brokering strengthens cognitive and linguistic skills, which in turn, improve youths' academic performance. Consistent with this notion, this study hypothesizes that as Mexican-heritage youth participate in cultural brokering more often, they are more likely to read English faster, and in turn, more likely to report higher grades. Yet, as Mexican-heritage youth develop negative attitudes toward brokering, they are less likely to read English fast, and in turn, less likely to report higher grades. Feeling embarrassed or nervous about brokering is likely to inhibit Mexican-heritage youths' English reading speed and being unable to read English fast is likely to prevent these youth from performing well in school.

In addition to English reading speed, parentification also may act as a potential mediator between cultural brokering frequency and grades, along with negative cultural brokering attitudes and grades. This study previously hypothesized that cultural brokering frequency is positively associated with parentification, but negative cultural brokering attitudes are negatively associated with parentification. When considering parentification's association with grades, Chase, Deming, and Wells (1998) argued that the burden from being parentified is likely to interfere with academic achievement. They found that undergraduate students who had low high school GPA and low SAT scores reported more caretaking responsibilities and concerns about their family. Chase et al. (1998) suggested that these students had less time, energy, and

resources to invest in their academic performance because they had to provide support for their family. When applied to cultural brokering, Mexican-heritage youth may have to focus their attention on assisting their family members, leaving less opportunity for school work (Umaña-Taylor, 2003). As Mexican-heritage youth engage in cultural brokering more often, they are likely to experience greater parentification, and less likely to report higher grades. In contrast, Mexican-heritage youth reporting more negative attitudes toward cultural brokering are less likely to experience parentification, and in turn, more likely to report higher grades.

With respect to acculturation stress, as Mexican-heritage youth engage in cultural brokering, they are more likely to develop acculturation stress, and less likely to do well academically. The stress from cultural brokering often and negative cultural brokering attitudes are likely to inhibit these youths' academic performance, placing a burden on them that would interfere with their concentration on school. Similarly, as Mexican-heritage youth develop negative cultural brokering attitudes, they are more likely to develop acculturation stress, and less likely to perform well academically. Hence, the following hypotheses were posited:

H6: Cultural brokering frequency has indirect effects on grades such that:

H6a: cultural brokering frequency is positively associated with parentification, and in turn, parentification is negatively associated with grades.

H6b: cultural brokering frequency is positively associated with acculturation stress, and in turn, acculturation stress is negatively associated with grades.

H6c. cultural brokering frequency is positively associated with English reading speed, and in turn, English reading speed is positively associated with grades.

H7: Negative cultural brokering attitudes have indirect effects on grades such that:



H7a: negative cultural brokering attitudes are negatively associated with parentification, and in turn, lower levels of parentification are associated with higher levels of grades.

H7b: negative cultural brokering attitudes are positively associated with acculturation stress, and in turn, acculturation stress is negatively associated with grades.

H7c. negative cultural brokering attitudes are negatively associated with English reading speed, and in turn, lower levels of English reading speed are associated with lower grades.

#### Predicting Cultural Brokering Frequency and Attitudes

Based on past literature (e.g., Mercado, 2003; Morales & Hanson, 2005), it is evident that cultural brokering frequency and negative cultural brokering attitudes may exert both harmful and beneficial effects. Efforts must be made to identify and target predictors of cultural brokering frequency and negative cultural brokering attitudes, with the intention of encouraging more positive attitudes toward brokering. Primarily, scholars have included acculturation-related factors as predictors, with an emphasis on cultural brokering frequency, not attitudes or feelings.

#### *Acculturation Proxies as Predictors*

Adolescents' acculturation (Weisskirch, 2005) and parents' acculturation (Jones & Trickett, 2007), along with proxies of acculturation such as time spent in the U.S. (Jones & Trickett, 2007) and primary language spoken with family (Weisskirch & Alva, 2002) have been associated with cultural brokering frequency. More specifically, 5<sup>th</sup> grade students who reported speaking more Spanish at home than English were less likely to report engaging in cultural brokering at various places (Weisskirch & Alva, 2002). In contrast, 5<sup>th</sup> and 6<sup>th</sup> grade Latino

students who were low in acculturation were more likely to engage in brokering for people (Weisskirch, 2005). Among Vietnamese adolescents, their age and time spent in the U.S. predicted the amount of cultural brokering they engaged in, meaning that older students and those with parents who lived in the U.S. for a shorter period of time were more likely to participate in brokering. In addition, the more involved parents were in the Vietnamese community with respect to food, newspapers, and events, the more their children engaged in cultural brokering (Trickett & Jones, 2007). These studies demonstrate how experiences related to the acculturation process predict how often youth are likely to engage in cultural brokering, yet these studies provide little information about predictors of cultural brokering attitudes.

#### *Hypothesis Eight: Ethnic Identification as a Predictor*

To extend the literature on acculturation-related predictors of brokering, this study investigates, ethnic identification, which has not been examined in the past as a predictor of both cultural brokering frequency and negative cultural brokering attitudes. Moreover, previous research (e.g., Jones & Trickett, 2007) often focuses on acculturation-related factors such as time spent in the U.S. and generation status that are inevitable and unlikely to be altered through any intervention. Ethnic identification, however, refers to the degree to which individuals feel connected with their ethnic group and the culture associated with their ethnic group (Donthu & Cherian, 1992). If cultural brokering frequency and negative cultural brokering attitudes have the potential for exerting harmful effects on Mexican-heritage youth, ethnic identification may be a factor that can be targeted through prevention and intervention programs to decrease negative brokering attitudes, with the intention of decreasing other harmful effects. The following section further explicates how ethnic identification is likely to predict cultural brokering frequency and negative cultural brokering attitudes.

Ethnic identification is based on how individuals relate to their own ethnic group relative to other ethnic groups and the extent to which they feel connected with their ethnic group (Donthu & Cherian, 1992). Having a strong ethnic identification means Mexican-heritage youth are more likely to be proud of their ethnic group, feel like they belong to their ethnic group, and engage in the customs and traditions of their ethnic group (Phinney, 1990). In contrast, Weisskirch and Alva (2002) described how some 5<sup>th</sup> grade Latino youth in their study were more weakly identified because they were embarrassed by their parents' limited English skills and familiarity with U.S. mainstream culture. This embarrassment is likely to make them less eager to engage in brokering behaviors and more likely to form negative attitudes toward brokering (e.g., feeling embarrassed or nervous about brokering). Ethnic identification, then, is likely to be positively associated with more frequent cultural brokering and more positive cultural brokering attitudes. Stated differently, the higher level of ethnic identification, the more likely Mexican-heritage youth are to engage in cultural brokering and the more likely they are to have positive attitudes toward these actions; however, the lower level of ethnic identification, the more likely they are to form negative attitudes toward cultural brokering. Because mainstream U.S. culture and mainstream English are often more highly regarded within the U.S. (Ajayi, 2006), Mexican-heritage youth who maintain a weak ethnic identification are likely to feel even more nervous and embarrassed for having to engage in cultural brokering. Hence, the following hypotheses were proposed.

H8a: Ethnic identification is positively associated with cultural brokering frequency such that as Mexican-heritage youth experience higher levels of ethnic identification, the more likely they are to engage in cultural brokering.

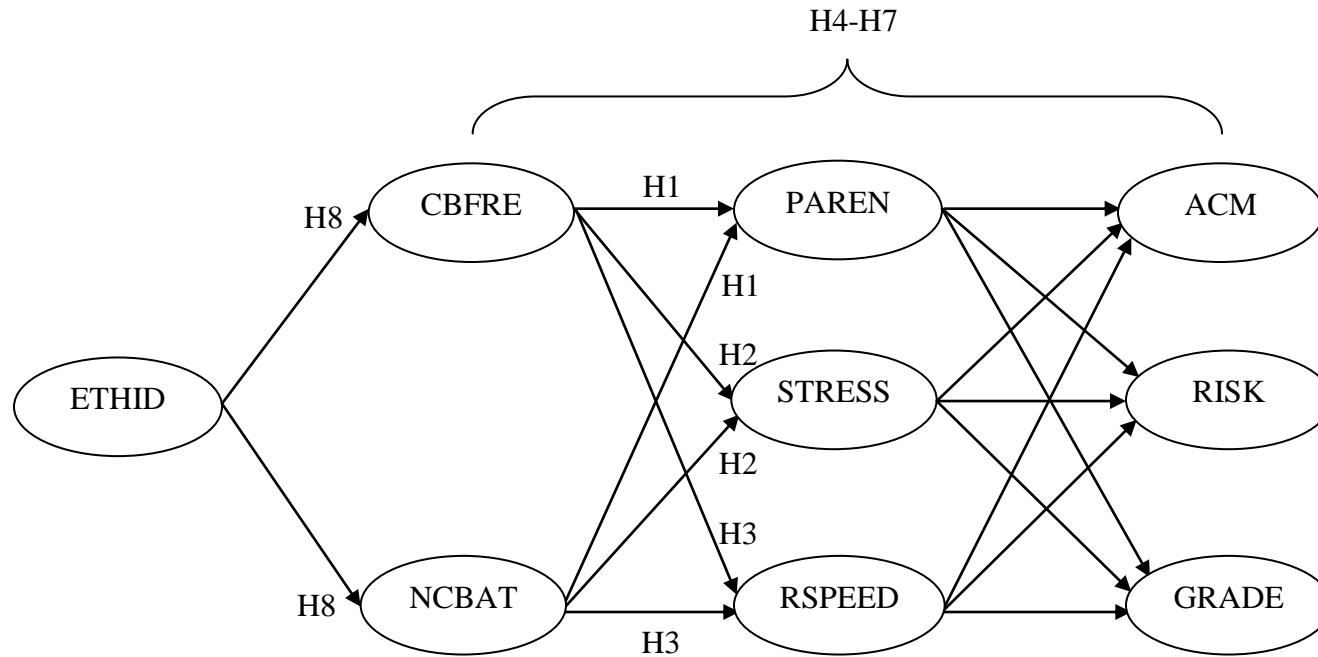
H8b: Ethnic identification is negatively associated with negative cultural brokering attitudes such that as Mexican-heritage youth experience higher levels of ethnic identification, the less likely they are to have negative attitudes toward brokering.

#### A Hypothesized Theoretical Model of Cultural Brokering Frequency and Attitudes

The current study proposes a theoretical model (see Figure 2.5) of cultural brokering based on the four dominant assumptions, as well as role theory (Ashforth, 2001), GST (Agnew, 1992), independent/interdependent scripts (Dorner et al., 2008), and a translation-based theory (Buriel et al., 1998). Hypotheses 1-3 test aspects of the four assumptions: (1) cultural brokering predicts parentification, (2) cultural brokering does not predict parentification, (3) cultural brokering is a stressor, and (4) cultural brokering improves cognitive and linguistic skills. Hypotheses 4-7 extend several of these assumptions by applying them to health-related behaviors and academic performance. The model proposes that cultural brokering frequency and negative cultural attitudes have indirect effects on substance use, other risky behaviors, and academic performance through parentification, acculturation stress, and English reading speed. Finally, hypothesis 8 acknowledges the role that ethnic identification may play in predicting the extent to which youth of Mexican heritage engage in cultural brokering and the negative attitudes they have regarding this communication phenomenon.

Figure 2.5

*A Hypothesized Theoretical Model of Cultural Brokering Frequency and Negative Cultural Brokering Attitudes*



Note. ETHID = ethnic identification, CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, PAREN = parentification, STRESS = acculturation stress, RSPEED = English reading speed, ACM = alcohol, cigarette, and marijuana use, RISK = other risky behaviors, and GRADE = grades.

## Method

The current study's longitudinal data come from an evaluation of an elementary- and middle-school based substance use prevention program, *keepin' it REAL*, which was funded by the National Institute on Drug Abuse (R01 DA005629). Twenty-three public elementary and middle schools from Phoenix, AZ were randomly assigned to three conditions (control and two program conditions), with the current study consisting of students from all 23 schools. The primary purpose of the current study is to test the theoretical model of cultural brokering; therefore, potential program effects are controlled for in the analyses (see Hecht et al., 2008 for an evaluation of the program).

The longitudinal data were collected in spring 2006, fall 2006, spring 2007, and fall 2008, which were Waves 3, 4, 5, and 6 of the elementary- and middle-school based substance use prevention program. At Wave 3, 1,110 Mexican-heritage youth completed the survey, 621 in Wave 4 (56% of Wave 3 students), 583 in Wave 5 (94% of Wave 4 students), and 614 in Wave 6 (105% of Wave 5 students). Further inspection into the participation pattern revealed that 441 students participated in all four waves. The following section describes the participants, procedures, and measures.

### *Participants*

This study included self-report longitudinal data from 6<sup>th</sup> through 8<sup>th</sup> grade students who were of Mexican heritage. Based on Wave 3 data, 36% of the youth self-identified as Mexican and 64% self-identified as Mexican American on a list of ethnic and racial terms. Among these youth, 49% were male and 51% were female and the mean age was 11.7 years ( $SD = .60$ ). Seventy-three percent of the youth were born in the U.S. and 27% were born in Mexico. In contrast, 73% of the youths' mothers and 75% of the youths' fathers were born in Mexico. Most

of the students (63%) lived in the U.S. all their life, but 13% lived in the U.S. for more than 10 years, 13% lived in the U.S. between six and 10 years, and 11% lived in the U.S. between 1 and 5 years. Seventy-seven percent of the youth participated in the free lunch program and 7% participated in the reduced lunch program at their school, thereby indicating that only 6% did not participate in the free or reduced lunch program.

### *Procedures*

As a subcontractee, Arizona State University obtained approval from the human subjects institutional review board prior to this study's implementation. To recruit schools, project personnel made presentations to school boards and school-based community and parent boards, and they had face-to-face meetings with superintendents and principals. Parents provided informed consent and students provided informed assent.

At four different time points across a 2.5 year period, students completed the questionnaire in front of project personnel in homeroom, science, or health class. Questionnaires took approximately 45 minutes to complete and were printed in English and Spanish, with scannable response forms. Rogler's (1989) back-translation method was used to establish translation fidelity. At Wave 3, 95% of the youth in the current study completed the survey in English and 5% in Spanish.

### *Measures*

Because this study comprised of self-report data, all measures reflect Mexican-heritage youths' perceptions. Ethnic identification was measured at Wave 3. Cultural brokering frequency and negative cultural brokering attitudes were measured at Wave 4. Parentification, acculturation stress, and English reading speed were measured at Wave 5. Last-30-days alcohol use, last-30-

days cigarette use, last-30-days marijuana use, last-30-days risky behaviors, and grades were measured at Wave 6 (see Appendix A for complete measures).

*Ethnic identification.* Six modified items were taken from The Multigroup Ethnic Identity Measure (MEIM) from Phinney (1992). The introduction asked students, “Thinking about the ethnic group (race or culture) you just chose, do you agree or disagree that:” to which students responded to six items on a 4-point scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). Sample items were “I have tried to learn more about my own ethnic group, such as its history and customs,” “I am happy to be part of my ethnic group,” or “I’m very proud of my ethnic group and its accomplishments.”

*Cultural brokering frequency.* The frequency at which youth brokered for a family member was operationalized with one item based on the person dimension from Tse’s (1995) Language Brokering Scale. The item used a 5-point scale (1 = never, 2 = a little bit, 3 = undecided, 4 = a lot, 5 = always) and the item asked students, “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?”

*Negative cultural brokering attitudes.* Youths’ negative attitudes toward cultural brokering were operationalized with three items from the attitude dimension from the Language Brokering Scale (Tse, 1995). The items used a 5-point scale (1 = never, 2 = a little bit, 3 = undecided, 4 = a lot, 5 = always). Sample items included “I feel embarrassed when I translate for my family” or “I have to translate for my family even when I don’t want to.”

*Parentification.* To operationalize parentification, two items were from Jurkovic, Thirkield, and Morell’s (2001) 42-item scale and three items were from Mika, Bergner, and Buam’s (1987) 30-item scale. The 5-item scale included items such as “I often feel more like an



adult than a child in my family” or “When my family has a problem, they come to me for advice.” The items were based on a 5-point scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree).

*Acculturation stress.* Seven items were created based on Gil, Vega, and Dimas (1994), Mena, Padilla, and Maldonado (1987), Romero and Roberts (2003), and Vinokurov, Trickett, and Birman (2002). The questionnaire stated, “Are the following situations a problem for you?” to which students responded to seven acculturation stress items such as “I get upset at my parents because they don’t know American ways” or “I am embarrassed by the way I speak English.” The responses were on a 3-point scale (1 = not a problem, 2 = small problem, 3 = big problem).

*English reading speed.* Mexican-heritage youths’ English reading speed was measured with one item, which asked students “How fast can you read English?” Students responded using a 5-point scale (1 = slow, 2 = a little slow, 3 = average, 4 = fast, 5 = very fast).

*Last-30-days alcohol use.* Students reported the amount of alcohol consumption within the last 30 days from completing the questionnaire. One item from Graham et al. (1984) was used to ask youth, “How many drinks of alcohol have you had in the last 30 days?” The youth in this study responded based on a 7-point scale (1= none, 2= one drink (or part of it), 3= 2 or 3 drinks, 4= 4 to 7 drinks, 5 = 8 to 15 drinks, 6= 16 to 30 drinks, 7= More than 30).

*Last-30-days cigarette use.* To assess the amount of cigarettes used, one item was taken from Graham et al. (1984). This item asked youth, “How many cigarettes have you smoked in the last 30 days?” A 7-point scale was used to measure cigarette use (1= none, 2= one puff, 3= part or all of one cigarette, 4= 2 or 3 cigarettes, 5= 4 to 10 cigarettes, 6= 11 to 20 cigarettes (20 = 1 pack), 7= More than 20 cigarettes).

*Last-30-days marijuana use.* This study operationalized marijuana use with one item from Graham et al. (1984), which asked youth “How many hits of marijuana (pot, weed) have you had in the last 30 days?” Youth responded on a 7-point scale (1 = none, 2 = one hit, 3 = 2 or 3 hits, 4 = 4 to 10 hits, 5 = 11 to 20 hits, 6 = 21 to 40 hits, 7 = More than 40 hits).

*Last-30-days risky behaviors.* To measure risky behaviors, six items were used based on the Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 2005) and Hawkins, Catalano, and Miller (1992). The six items used a 5-point scale (1 = never, 2 = once or twice, 3 = a few times, 4 = at least once a week, 5 = almost every day). The introduction asked, “How often have you done the following things in the last 30 days?” and students responded to six activities such as “Got into a physical fight” or “Stole something.”

*Grades.* Mexican-heritage youths’ perceived grades were measured with one item, which asked students “What grades do you mostly get in school?” Students responded with a 9-point scale (1 = mostly F’s, 2 = D’s and F’s, 3 = mostly D’s, 4 = C’s and D’s, 5 = mostly C’s, 6 = B’s and C’s, 7 = mostly B’s, 8 = A’s and B’s, 9 = mostly A’s).

### Analysis Summary

Prior to examining the hypotheses, preliminary analyses were conducted in SPSS 17.0 (2009) to examine the inter-item correlations of the scales, along with the means, standard deviations, and reliability. Although this study’s measures were taken from previously-used scales, this study included shorter versions and the measures were used among a sample of Mexican-heritage youth. Further measurement assessment was needed; therefore, individual confirmatory factor analyses (CFAs) were examined for multi-item scales to assess their items’ factor loadings and whether they appeared to measure their intended construct. Afterward, a larger CFA of the full measurement model was estimated. When conducting CFAs and

examining the full structural model, each latent factor was scaled by fixing its first unstandardized factor loading to 1.0. In addition, the errors were not allowed to be correlated in any of the models. The following section describes the methods used to handle this study's ordinal data, missingness, and potential program effects when estimating CFAs and the full structural model.

#### *Using Robust Weighted Least Squares with Ordinal Data*

The CFAs and full structural model were analyzed using *Mplus* 5.1 (Muthén & Muthén, 2007). Because the data were ordinal, the robust weighted least squares (WLS) estimator was used in the analyses, but more specifically, the robust WLS with mean- and variance-adjusted version (WLSMV). Although maximum likelihood (ML) is the most commonly used estimation method, the assumptions are that the data are continuous and normally distributed. These assumptions, however, are not met with ordinal measures and have been found to result in biased parameter estimates and an inflated chi-square statistic (Flora & Curran, 2004; Lei, in press; Yu, 2002). Using WLSMV is essential to this study, given that the data are ordinal and not normally distributed. Consequently, the analyses were conducted using WLSMV, an estimation method robust to non-normal data (Muthén & Muthén, 2007).

#### *Handling Missing Data*

Along with addressing the distribution of the data, this study had missingness across all four waves. Because the analyses were conducted in *Mplus* using WLSMV, several limitations existed with regard to *Mplus*' ability to handle the missing data. To deal with the missingness in *Mplus* using WLSMV, Muthén and Muthén (2007) state that, "missingness is allowed to be a function of the observed covariates but not the observed outcomes" (p. 6). More specifically, the

missingness strategy is pairwise present, meaning that the program uses all available information (L. K. Muthén, January 18, 2009, personal communication).

Although other missingness strategies such as multiple imputation and full information maximum likelihood (FIML) are stronger methods in handling missingness (Graham, 2009; Graham, Cumsille, & Elek-Fisk, 2003), these methods could not be used in *Mplus*, given the complex analyses within the current study. In particular, this study includes a hypothesized model with multiple mediators and *Mplus* does not allow for obtaining indirect effects when using imputed data sets. To use FIML, this study would falsely assume normal distribution and continuous data. *Mplus* allows one to use FIML, while identifying dependent variables as categorical; however, algorithm integration is used in this case, which the program does not allow to be combined with obtaining indirect effects (L. K. Muthén, January 18, 2009, personal communication). The challenges to handling all aspects (e.g., distribution, missingness, indirect effects) of the current study's data and hypotheses led this study to use WLSMV and its corresponding missingness strategy.

### *Controlling for Program Effects*

In addition to the data's distribution and missingness, this study controlled for program effects when conducting the analyses. Because the data come from an evaluation of a school-based substance use prevention program (see Hecht et al., 2008), potential program effects were controlled for when examining the models. A dummy-coded variable was created (control = 0; conditions = 1) and paths were examined from the dummy variable to each latent factor when conducting CFAs. In the full structural model, paths were examined from the dummy variable to the latent factors (i.e., adult parentification, problem-solving parentification, acculturation stress, and risky behaviors), along with the observed variables (i.e., cultural brokering frequency,

negative cultural brokering attitudes, English reading speed, last-30-days alcohol use, last-30-days cigarette use, last-30-days marijuana use, and grades).

## Results

This section begins with a description of the inter-item correlations and CFAs. Afterward, this section explains the results from testing the proposed hypotheses.

### *Measurement Inspection*

The measures of ethnic identification, cultural brokering frequency, negative cultural brokering attitudes, parentification, acculturation stress, English reading speed, last-30-days alcohol use, last-30-days cigarette use, last-30-days marijuana use, last-30-days risky behaviors, and grades were inspected prior to their application to the main analyses. The following sections describe the results from the measurement inspection.

*Ethnic identification.* Based on preliminary data analyses, inter-item correlations were examined (see Table 2.1). The first two items (ETHID1 and ETHID2) were more highly correlated with each other ( $r = .60$ ) compared to the remaining four items (ETHID3-ETHID6;  $r = .46-.50$ ); however, the four items were more highly correlated with each other ( $r = .62-.78$ ). In short, these inter-item correlations reveal that the first two ethnic identification items may be distinct from the four remaining items.

Table 2.1

### *Inter-Item Correlations for Ethnic Identification*

Items	ETHID1	ETHID2	ETHID3	ETHID4	ETHID5	ETHID6
ETHID1	—					
ETHID2	0.60	—				

ETHID3	0.49	0.49	—			
ETHID4	0.46	0.48	0.71	—		
ETHID5	0.50	0.49	0.78	0.73	—	
ETHID6	0.48	0.48	0.65	0.62	0.68	—

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Note. All bivariate correlations were significant at  $p < .01$ .

To analyze the factor structure of the scale used to measure ethnic identification, a series of CFA models were examined. Because  $\chi^2$  is sensitive to large sample sizes (Marsh & Grayson, 1990; Yu, 2002), as in the current study, model fit was evaluated based on Kline (2005) and Bentler and Bonett's (1980) criteria. An acceptable root mean square approximation (RMSEA) should be less than .08, where less than or equal to .05 indicates a close fit of approximation. The comparative fit index (CFI) should be greater than .90. The weighted root-mean-square residual (WRMR) should be less than or equal to 1.0 (Yu, 2002). The items should have medium to high standardized factor loadings (.60 or higher), with  $R^2$  values greater than .50 (Kline, 2005).

To examine ethnic identification, a 1-factor 6-indicator CFA was conducted; however, this model did not fit the data well: ( $\chi^2 [11] = 311.18, p < .05$ ; RMSEA = 0.16; CFI = .95; WRMR = 1.99). For WLSMV, *Mplus* 5.1 estimates the degrees of freedom based on formula 110 that can be found in the *Mplus Technical Appendices* (Muthén, 1998-2004). The standardized factor loadings ranged from .73 to .95 and all  $R^2$  values were greater than .50. Nevertheless, further inspection of the scale revealed that two items appeared to address a different type of ethnic identification. These two items (ETHID1 and ETHID2) were the same items that appeared distinct from the four other items when looking at the inter-item correlations. They represented learning and actively seeking more knowledge of their ethnic group's culture, whereas the

remaining four items appeared to measure feelings of pride, happiness, and belongingness regarding their ethnic group. A 1-factor 5-indicator CFA was examined, removing the item with the lowest loading (.73) and that appeared to measure learning about one's ethnic background. The model fit improved; however, one item's loading dropped from .73 to .65. Although this loading was acceptable, this item also appeared to measure learning about one's ethnic background and actively seeking information. Based on theoretical justification, this item was removed and a 1-factor 4-indicator CFA was examined. This model fit the data well: ( $\chi^2 [5] = 4.6, p = .46$ ; RMSEA = 0.003; CFI = 1.0; WRMR = .26). All loadings were greater than .60 (.82 to .94), with  $R^2$  values greater than .50. This 1-factor 4-indicator model was the most appropriate model. Consequently, ethnic identification was measured with four items capturing ethnic pride (ETHID3-ETHID6;  $M = 3.34$ ,  $SD = .76$ , Cronbach's alpha = .90).

*Cultural brokering frequency.* Cultural brokering frequency was operationalized with one item ( $M = 2.76$ ,  $SD = 1.35$ ), so neither inter-item correlations nor CFAs could be examined.

*Negative cultural brokering attitudes.* The inter-item correlations of negative cultural brokering attitudes, as seen in Table 2.2, reveal that the first and third items (NCBAT1 and NCBAT3) were more highly correlated ( $r = .50$ ) with each other than with the second item (NCBAT2). Hence, the weaker correlations that the second item had with the two remaining items may be indicative of the need to exclude this second item from the negative cultural brokering attitudes scale.

Table 2.2

*Inter-Item Correlations for Negative Cultural Brokering Attitudes*

Items	NCBAT1	NCBAT2	NCBAT3
NCBAT1	—		
NCBAT2	0.33	—	
NCBAT3	0.50	0.28	—

Note. All bivariate correlations were significant at  $p < .01$ .

To further examine negative cultural brokering attitudes, a 1-factor 3-indicator CFA was conducted for negative cultural brokering attitudes. With only three indicators, this model was just-identified, meaning that the number of parameters equaled the number of observations. Consequently, the model fit statistics were not reported. The standardized factor loadings ranged from .49 to .90, with only one item having a  $R^2$  value greater than .50. The item (NCBAT2) with the lowest factor loading (.49) also had the weaker correlation with the two other items (NCBAT1 and NCBAT3) when looking at the inter-item correlations. This item, NCBAT2, stated “I have to translate for my family even when I don’t want to.” The other two items measured embarrassment and nervousness regarding cultural brokering, whereas the item with the lowest factor loading appeared to measure motivation. This item was dropped. A measure of negative cultural brokering attitudes consisting of two items is not ideal; however, NCBAT1 and NCBAT3 appeared to theoretically operationalize negative attitudes toward cultural brokering in the form of embarrassment and nervousness ( $M = 1.77$ ,  $SD = .87$ , Cronbach’s alpha = .65).

*Parentification.* The inter-item correlations for the parentification scale shown in Table 2.3 reveal that the first and second items (PAREN1 and PAREN2) were moderately correlated ( $r$



= .54) and the fourth and fifth items (PAREN4 and PAREN5) were more moderately correlated ( $r = .59$ ) than the other items.

Table 2.3

*Inter-Item Correlations for Parentification*

Items	PAREN1	PAREN2	PAREN3	PAREN4	PAREN5
PAREN1	—				
PAREN2	0.54	—			
PAREN3	0.35	0.40	—		
PAREN4	0.34	0.30	0.39	—	
PAREN5	0.36	0.35	0.44	0.59	—

Note. All bivariate correlations were significant at  $p < .01$ .

To assess the measurement properties of parentification, a 1-factor 5-indicator CFA was examined. This model did not fit the data well ( $\chi^2 [7] = 143.60$ ,  $p < .05$ ; RMSEA = 0.19; CFI = .89; WRMR = 1.69). The factor loadings ranged from .62 to .76 and two items had  $R^2$  values greater than .50. The third item (PAREN3) had the lowest factor loading (.62), and when theoretically inspecting the measures, this item appeared to measure whether youth provide support for their family when they are upset. In contrast, the first two items (PAREN1 and PAREN2) appeared to measure whether youth perceived themselves as the adult in the family or more mature for their age. The last two items (PAREN4 and PAREN5) appeared to measure whether family went to these youth to solve their problems or ask for advice. The item with the lowest factor loading (PAREN3) and that appeared to measure emotional support was dropped

from the scale. The first two items (PAREN1 and PAREN2) measured parentification representing maturity (i.e., adult parentification), while the last two items (PAREN4 and PAREN5) measured parentification representing problem-solving for family members (i.e., problem-solving parentification). Parentification appeared bidimensional. To be sure, a 2-factor 4-indicator CFA was examined that fit the data well ( $\chi^2 [3] = 5.76, p = .12$ ; RMSEA = 0.04; CFI = 1.0; WRMR = .28). For adult parentification, the factor loadings were .78 and .76 and for problem-solving parentification, the factor loadings were .76 and .85. All  $R^2$  values were greater than .50. This study settled on a bidimensional measure of parentification: adult parentification ( $M = 3.10, SD = 1.00$ , Cronbach's alpha = .70) and problem-solving parentification ( $M = 2.85, SD = 1.07$ , Cronbach's alpha = .74).

*Acculturation stress.* Inter-item correlations were examined (see Table 2.4). No obvious and substantial differences were apparent in the correlations, but the first two items (STRESS1 and STRESS2) had greater ranges in correlations with the other items (STRESS1,  $r = .31-.52$ ; STRESS2,  $r = .26-.43$ ), whereas the remaining five items (STRESS3- STRESS7) had correlations that ranged from  $r = .39-.50$ . Furthermore, the first two items were more strongly correlated with each other ( $r = .52$ ) than with any other item. Although the ranges in correlations were not drastically different, these inter-item correlations may be indicative of the first two acculturation stress items as distinct from the five remaining items.

Table 2.4

*Inter-Item Correlations for Acculturation Stress*

Items	STRESS	STRESS	STRESS	STRESS	STRESS	STRESS	STRESS
	1	2	3	4	5	6	7
STRESS1	—						
STRESS2	0.52	—					
STRESS3	0.31	0.37	—				
STRESS4	0.36	0.35	0.43	—			
STRESS5	0.41	0.34	0.47	0.50	—		
STRESS6	0.38	0.43	0.35	0.43	0.48	—	
STRESS7	0.33	0.26	0.40	0.44	0.39	0.45	—

Note. All bivariate correlations were significant at  $p < .01$ .

A 1-factor 7-indicator CFA was performed with acculturation stress. This model fit the data acceptably ( $\chi^2 [16] = 46.47, p = <.05$ ; RMSEA = 0.06; CFI = .97; WRMR = .85). The standardized factor loadings ranged from .75 to .86 and all of the items had  $R^2$  values greater than .50. Further inspection revealed that two items, “My family thinks I’m becoming ‘too American’” and “I get upset at my parents because they don’t know American ways” appeared to measure acculturation stress regarding family members, whereas the remaining five items referred to acculturation stress outside of the family. The first item was removed and the CFA model was analyzed with six indicators. The model fit improved; however, the second item that referred to acculturation stress due to family was removed and the measurement model was examined again with one factor and five indicators. This 1-factor 5-indicator CFA model of

acculturation stress fit the data well ( $\chi^2 [8] = 13.52, p = .10$ ; RMSEA = 0.04; CFI = .99; WRMR = .56) and the factor loadings ranged from .78 to .87, with  $R^2$  values greater than .50. In short, these five items (STRESS3-STRESS7) were used to measure acculturation stress ( $M = 1.17, SD = .33$ , Cronbach's alpha = .79).

*English reading speed.* English reading speed was operationalized with one item ( $M = 3.57, SD = .91$ ); therefore, inter-item correlations and CFAs could not be examined.

*Last-30-days alcohol, cigarette, and marijuana use.* Last-30-days alcohol use ( $M = 1.93, SD = 1.4$ ), last-30-days cigarette use ( $M = 1.19, SD = .75$ ), and last-30-days marijuana use ( $M = 1.45, SD = 1.25$ ) were each measured by one item. Consequently, inter-item correlations and CFAs could not be examined.

*Last-30-days risky behaviors.* Based on the inter-item correlations as seen in Table 2.5, all items exhibited a similar range in correlations ( $r = .32-.47$ ). None of the items had substantially lower or higher correlations than the other items. The six items appeared to measure risky behaviors.

Table 2.5

*Inter-Item Correlations for Risky Behaviors*

Items	RISK1	RISK2	RISK3	RISK4	RISK5	RISK6
RISK1	—					
RISK2	0.44	—				
RISK3	0.34	0.37	—			
RISK4	0.33	0.47	0.36	—		
RISK5	0.32	0.34	0.40	0.47	—	

RISK6	0.36	0.40	0.42	0.45	0.47	—
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Note. All bivariate correlations were significant at  $p < .01$ .

To further examine the measurement properties of risky behaviors, a 1-factor 6-indicator CFA was conducted. The model fit the data well ( $\chi^2 [12] = 18.15, p = .11$ ; RMSEA = 0.03; CFI = .99; WRMR = .54). The factor loadings ranged from .66 to .81. All but one  $R^2$  value were greater than .50. Consequently, these six items appeared to measure risky behaviors ( $M = 1.37, SD = .55$ , Cronbach's alpha = .79).

*Grades.* Because perceived grades were operationalized with one item ( $M = 6.75, SD = .158$ ), inter-item correlations and CFAs could not be examined.

Upon inspecting the measurement properties, composite scores were obtained to represent variables measured with multiple indicators. Bivariate correlations were then calculated between these variables (see Table 2.6). Afterward, a full CFA measurement model was examined, correlating all the variables to assess the inter-factor correlations, factor loadings, and inter-item correlations. In addition to the main variables of interest (i.e., ethnic identification, cultural brokering frequency, negative cultural brokering attitudes, adult parentification, problem-solving parentification, acculturation stress, English reading speeds, last-30-days alcohol use, last-30-days cigarette use, last-30-days marijuana use, last-30-days risky behaviors, and grades), covariates (prior alcohol, cigarette, and marijuana use, prior risky behaviors, prior perceived grades, and language primarily spoken with family) were included in this full measurement model because they are included in the full structural model when testing the hypotheses. The full measurement model fit the data well ( $\chi^2 [129] = 207.2, p < .05$ ; RMSEA = 0.02; CFI = .96; WRMR = .78). As seen in Tables 2.7 and 2.8, the inter-factor correlations and

factor loadings were provided. All of the factor loadings were greater than .60 except for three indicators measuring risky behaviors at Wave 3. For inter-item correlations based on this larger CFA model, see Appendix B.

Table 2.6

*Bivariate Correlations between the Main Variables of Interest*

Factor	1	2	3	4	5	6	7	8	9	10	11	12
1. ETHID	--											
2. CBFRE	.17**	--										
3. NCBAT	.01	.04	--									
4. ADULT	.19**	.10*	-.02	--								
5. PROB	.08	.03	-.04	.43**	--							
6. STRESS	-.14*	.06	.09	-.06	-.02	--						
7. RSPEED	.15**	-.01	-.10	.15**	.11*	-.18**	--					
8. ALC	.05	-.04	-.04	.14**	.09	.10*	.07	--				
9. CIG	-.03	-.08	-.07	.04	.04	.18**	.07	.38**	--			
10. MAR	.03	-.10*	-.02	.11*	.07	.10*	.07	.48**	.40**	--		
11. RISK	-.04	-.15**	.05	.06	.05	.13*	.03	.32**	.17**	.38**	--	
12. GRADE	.23**	.07	-.02	.12*	.09	-.06	.27**	-.07	-.09*	-.11**	-.28**	--

\*\* $p < .01$ , \* $p < .05$  (two-tailed).

Note. Variables with multiple indicators were formed by taking the composite scores. ETHID = ethnic identification, CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RSPEED = English reading speed, ALC = last-30-days alcohol use, CIG = last-30-days cigarette use, MAR = last-30-days marijuana use, RISK = last-30-days risky behaviors, and GRADE = grades.

Table 2.7

*Inter-Factor Correlations from the Full CFA Measurement Model*

FACTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. ETHID	--																				
2. LANG1	-.08	--																			
3. LANG2	.06	-.16	--																		
4. LANG3	-.04	-.09	-.09	--																	
5. LANG4	-.05	-.13	-.13*	-.07	--																
6. CBFRE	.17*	.13	.05	-.18	-.37*	--															
7. NCBAT	-.02	.09	-.01	-.03	-.01	-.01	--														
8. ADULT	.23*	-.01	.02	.01	.07	.12	-.08*	--													
9. PROB	.10	-.02	-.01	.02	.05	.04	-.08	.61*	--												
10. STRESS	-.21*	.19	-.02	-.08	-.19*	.11	.20	-.11	-.05	--											
11. RSPEED	.18*	-.20*	-.04	.10	.28*	-.03	-.15	.20*	.13*	-.28*	--										
12. ALC6	.06	.01	-.02	-.03	.03	.01	-.09	.19*	.13*	.13	.09	--									
13. CIG6	-.08	.12	-.06	.01	-.05	-.13	-.18	.08	.06	.35*	.17	.60*	--								
14. MAR6	-.01	.01	-.10	-.06	.09	-.11	-.01	.18*	.10	.23*	.08	.62*	.68	--							
15. RISK6	-.08	.01	-.02	.05	.02	-.18	.08*	.11	.09	.30*	.04	.47*	.39*	.60*	--						
16. GRADE6	.24*	-.08	.07	.02	-.02	.07	.03	.15	.13	-.14	.31*	-.11*	-.14	-.20*	-.31	--					
17. ALC1	.04	-.01	.04	-.03	.06	-.01	-.11	.04	.12	.04	-.04	.11	.06	.15	.08	.05	--				
18. CIG1	.01	.03	-.03	-.04	.08*	-.01	-.06	.04	.08	.06	-.07	.07*	.06	.10	.10*	.01	.50*	--			
19. MAR1	.03	-.02	-.03	-.03	.04	-.03	-.02	.01	.10*	-.01	-.07	.06*	.10	.10	.07	.03	.38*	.58*	--		
20. RISK3	-.12*	.03	.01	.01	.02	-.07	-.04	.07*	.01*	.09	-.05	.20*	.13*	.32*	.42*	-.15*	.15*	.11*	.12*	--	
21. GRADE1	-.02	.05	.03	-.04	.02	.04	.02	-.01	.03	.09	-.04	-.01	.02	.01	-.02	.03	.00	-.05	-.04	.04	--

Note. \* $p < .05$  (two-tailed). ETHID = ethnic identification, LANG1 = language primarily spoken with family members (1 = Spanish only, 0 = both English and Spanish), LANG2 = (1 = mostly Spanish, 0 = both English and Spanish), LANG3 = (1 = mostly English, 0 = both English and Spanish), LANG4 = (1 = English only, 0 = both English and Spanish), CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RSPEED = English reading speed, ALC6 = last-30-days alcohol use at W6, CIG6 = last-30-days cigarette use at W6, MAR6 = last-30-days marijuana use at W6, RISK6 = last-30-days risky behaviors at W6, GRADES = perceived grades, ALC1 = last-30-days alcohol use at W1, CIG1 = last-30-days cigarette use at W1, MAR1 = last-30-days marijuana use at W1, RISK3 = last-30-days risky behaviors at W3, GRADE1 = grades at W1.



Table 2.8

*Factor Loadings from the Full CFA Measurement Model*

Items	Standardized Factor Loadings	Items	Standardized Factor Loadings
ETHID		RISK (W6)	
ETHID1	0.88	RISK1	0.63
ETHID2	0.80	RISK2	0.77
ETHID3	0.90	RISK3	0.72
ETHID4	0.75	RISK4	0.85
		RISK5	0.69
NCBAT		RISK6	0.77
NCBAT1	0.99		
NCBAT2	0.63	RISK (W3)	
		RISK1	0.57
ADULT		RISK2	0.66
ADULT1	0.75	RISK3	0.59
ADULT2	0.79	RISK4	0.68
		RISK5	0.59
PROB		RISK6	0.68
PROB1	0.72		
PROB2	0.89		
STRESS			
STRESS1	0.76		
STRESS2	0.83		
STRESS3	0.89		
STRESS4	0.80		
STRESS5	0.79		

Note. ETHID = ethnic identification, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RISK6 = last-30-days risky behaviors at W6, and RISK3 = last-30-days risky behaviors at W3 (used as a covariate).

### *Testing a Hypothesized Model of Cultural Brokering Frequency and Negative Cultural Brokering Attitudes*

To test the hypotheses, structural equation modeling (SEM) in *Mplus* 5.1 was used with WLSMV. The latent factors and their corresponding indicators that were inspected with CFAs were included in the full structural model, replacing correlations among factors with structural paths. Program effects were controlled for in the full structural model by examining paths from the dummy-coded variable to cultural brokering frequency, negative cultural brokering attitudes, adult parentification, problem-solving parentification, acculturation stress, English reading speed, last-30-days alcohol use, last-30-days cigarette use, last-30-days marijuana use, last-30-days risky behaviors, and grades. Prior alcohol, cigarette, and marijuana use, along with prior risky behaviors and grades were controlled for by examining paths from these variables to their corresponding variable at Wave 6. Finally, language primarily spoken with family also was controlled for in the full structural model by examining paths from language primarily spoken to ethnic identification, cultural brokering frequency, and negative cultural brokering attitudes.

As the Mexican-heritage youth in this study attended one of the 23 participating schools, this study took into consideration the multi-level structured data (students nested in schools). The clustering variable (i.e., school), however, had missing data, which *Mplus* does not allow on a cluster variable (L. K. Muthén, January 25, 2009, personal communication). Instead of being able to control for the multilevel-structured data in *Mplus*, intraclass correlations (ICC) were examined for each variable to determine the amount of variance that could be attributed to school-level differences. As seen in Table 2.9, all but one variable (cultural brokering frequency) had an intraclass correlation value of .02 or less. Heck (2001) found some evidence that ICC

values less than .05 do not result in biased parameter estimates. The following sections, then, describe the results of the SEM analyses.

Table 2.9

*Intraclass Correlations*

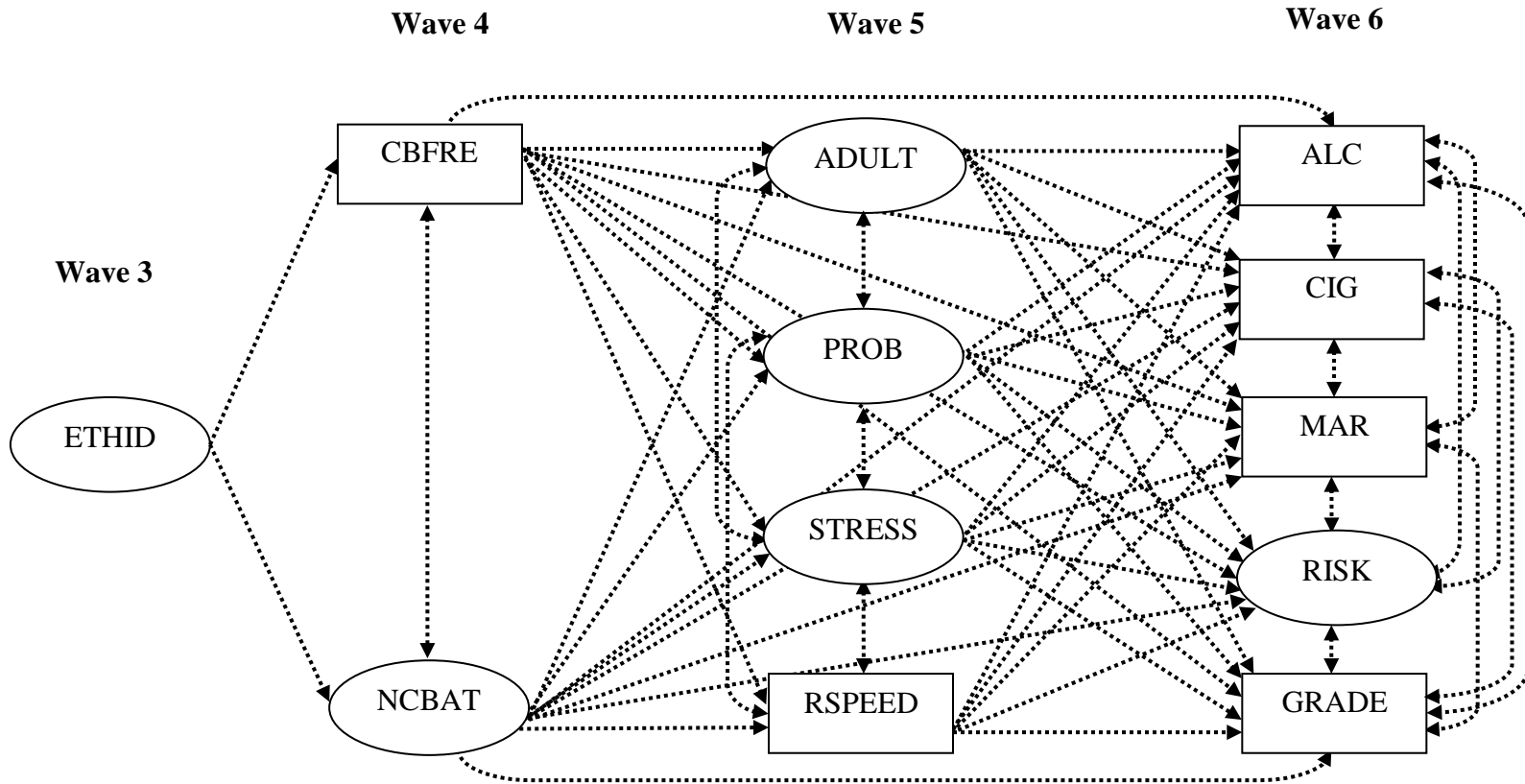
Factor	ICC Value	Factor	ICC Value	Factor	ICC Value
ETHID	0.00	PROB	0.02	CIG	0.01
CBFRE	0.03	STRESS	0.02	MAR	0.02
NCBAT	0.00	RSPEED	0.00	RISK	0.00
ADULT	0.01	ALC	0.00	GRADE	0.00

This study proposed a number of hypotheses to examine a theoretical model of cultural brokering's effects on Mexican-heritage youths' substance use, other risky behaviors, and grades. The model fit the data acceptably ( $\chi^2 [148] = 350.45$ ,  $p = <.05$ ; RMSEA = 0.04; CFI = .92; WRMR = 1.23). Furthermore, the model explained 23% of the variance in cultural brokering frequency, 22% in negative cultural brokering attitudes, 10% in adult parentification, 3% in problem-solving parentification, 18% in acculturation stress, 13% in English reading speed, 10% in last-30-days alcohol use, 25% in last-30-days cigarette use, 13% in last-30-days marijuana use, 30% in last-30-days risky behaviors, and 18% in grades (see Figure 2.6 for the complete model and Figure 2.7 for the model only showing significant paths and correlations). The effect sizes ( $R^2$ ) for adult parentification, problem-solving parentification, English reading speed, last-30-days alcohol use, and last-30-days marijuana use were small based on Cohen's (1988) recommendation and the effect sizes were medium for the other factors. Nevertheless, it

is important to note that the covariates in the model also contributed to a portion of the explained variances. The following sections describe the results for each hypothesis, starting with hypotheses 1-3 that posed direct effects (see Table 2.10), followed by hypotheses 4-7 that postulated indirect effects (see Table 2.11). Afterward, the results for hypothesis 8 are reported with respect to ethnic identification predicting brokering frequency and attitudes.

Figure 2.6

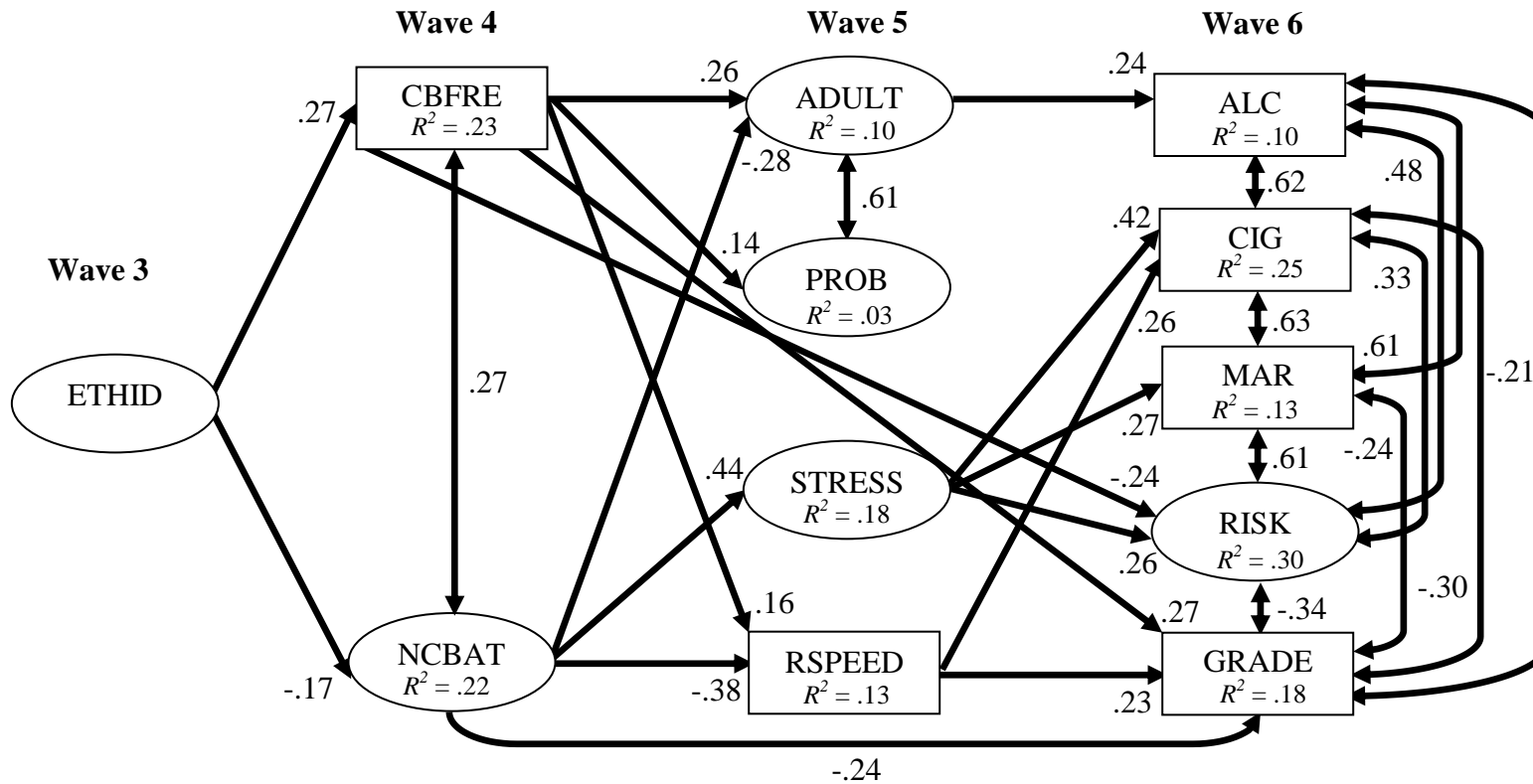
*A Full Structural Model of Cultural Brokering Frequency and Negative Cultural Brokering Attitudes*



Note. Program effects, prior substance use, prior risky behaviors, prior grades, and language primarily spoken with family were controlled for in this model. ETHID = ethnic identification, CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RSPEED = English reading speed, ALC = last-30-days alcohol use, CIG = last-30-days cigarette use, MAR = last-30-days marijuana use, RISK = last-30-days risky behaviors, and GRADE = grades.

Figure 2.7

*A Model of Cultural Brokering Frequency and Attitudes with Significant Predictor and Outcomes*



Note. For simplicity, non-significant paths and correlations were excluded from this figure. Path coefficients are completely standardized ( $\chi^2 [148] = 350.45, p < .05$ ; RMSEA = 0.04; CFI = .92; WRMR = 1.23). Program effects, prior substance use, prior risky behaviors, prior grades, and primary language spoken with family were controlled for in this model. ETHID = ethnic identification, CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RSPEED = English reading speed, ALC = last-30-days alcohol use, CIG = last-30-days cigarette use, MAR = last-30-days marijuana use, RISK = last-30-days risky behaviors, and GRADE = grades.

Table 2.10

*Direct Effects from the Full Structural Model*

Parameter	Unstd. (SE)	Std.	Parameter	Unstd. (SE)	Std.
Effect on CBFRE			Effect on CIG		
ETHID	0.45*** (.08)	0.27	RSPEED	0.35* (.16)	0.26
Effect on NCBAT			CBFRE	-0.20 (.13)	-0.20
ETHID	-0.28* (.12)	-0.17	NCBAT	-0.01 (.19)	-0.01
Effect on ADULT			Effect on MAR		
CBFRE	0.27*** (.07)	0.26	ADULT	0.22 (.14)	0.24
NCBAT	-0.29** (.12)	-0.28	PROB	-0.09 (.12)	-0.10
Effect on PROB			STRESS	0.27* (.13)	0.27
CBFRE	0.14* (.07)	0.14	RSPEED	0.15 (.11)	0.12
NCBAT	-0.15 (.10)	-0.15	CBFRE	-0.15 (.11)	-0.16
Effect on STRESS			NCBAT	0.05 (.17)	0.05
CBFRE	-0.14 (.09)	-0.15	Effect on RISK		
NCBAT	0.42** (.13)	0.44	ADULT	0.11 (.07)	0.16
Effect on RSPEED			PROB	0.01 (.06)	0.01
CBFRE	0.12** (.05)	0.16	STRESS	0.19* (.08)	0.26
NCBAT	-0.28*** (.08)	-0.38	RSPEED	0.05 (.06)	0.06
Effect on ALC			CBFRE	-0.16* (.07)	-0.24
ADULT	0.22* (.10)	0.24	NCBAT	0.08 (.10)	0.11
PROB	-0.05 (.09)	-0.05	Effect on GRADE		
STRESS	0.18 (.10)	0.18	ADULT	-0.03 (.10)	-0.03
RSPEED	0.09 (.08)	0.08	PROB	0.06 (.09)	0.06
CBFRE	-0.01 (.08)	-0.01	STRESS	0.02 (.10)	0.02
NCBAT	-0.03 (.12)	-0.03	RSPEED	0.30*** (.08)	0.23
Effect on CIG			CBFRE	0.26*** (.08)	0.27
ADULT	0.15 (.15)	0.16	NCBAT	-0.23† (.12)	-0.24
PROB	-0.06 (.12)	-0.06			
STRESS	0.44** (.16)	0.42			

† $p = .05$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Note. Unstd. = unstandardized estimate, SE = standard error, Std. = completely standardized estimates, ETHID = ethnic identification, CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RSPEED = English reading speed, ALC = last-30-days alcohol use, CIG = last-30-days cigarette use, MAR = last-30-day marijuana use, RISK = last-30-days risky behaviors, and GRADE = grades.

Table 2.11

*Indirect Effects of Cultural Brokering Frequency and Negative Cultural Brokering Attitudes*

Parameter	Unstd. (SE)	Std.	Parameter	Unstd. (SE)	Std.
CBFRE→ADULT→ ALC	0.06* (.03)	0.06	NCBAT→ADULT→ ALC	-0.07 (.04)	-0.07
CBFRE→PROB→ ALC	-0.01 (.01)	-0.01	NCBAT →PROB→ ALC	0.01 (.01)	0.01
CBFRE→STRESS→ ALC	-0.03 (.02)	-0.03	NCBAT →STRESS→ ALC	0.07 (.04)	0.08
CBFRE→RSPEED→ ALC	0.01 (.01)	0.01	NCBAT →RSPEED→ ALC	-0.03 (.02)	-0.03
CBFRE→ADULT→ CIG	0.04 (.04)	0.04	NCBAT →ADULT→ CIG	-0.04 (.05)	-0.04
CBFRE→PROB→ CIG	-0.01 (.02)	-0.01	NCBAT →PROB→ CIG	0.01 (.02)	0.01
CBFRE→STRESS→ CIG	-0.06 (.05)	-0.06	NCBAT →STRESS→ CIG	0.19* (.09)	0.18
CBFRE→RSPEED→ CIG	0.04 (.03)	0.04	NCBAT →RSPEED→ CIG	-0.10* (.05)	-0.10
CBFRE→ADULT→ MAR	0.06 (.04)	0.06	NCBAT →ADULT→ MAR	-0.06 (.05)	-0.07
CBFRE→PROB→ MAR	-0.01 (.02)	-0.01	NCBAT →PROB→ MAR	0.01 (.02)	0.02
CBFRE→STRESS→ MAR	-0.04 (.03)	-0.04	NCBAT →STRESS→ MAR	0.11 (.06)	0.12
CBFRE→RSPEED→ MAR	0.02 (.02)	0.02	NCBAT →RSPEED→ MAR	-0.04 (.03)	-0.04
CBFRE→ADULT→ RISK	0.01 (.01)	0.01	NCBAT →ADULT→ RISK	-0.03 (.02)	-0.05
CBFRE→PROB→ RISK	0.03 (.02)	0.04	NCBAT →PROB→ RISK	-0.01 (.01)	-0.01
CBFRE→STRESS→ RISK	-0.03 (.02)	-0.04	NCBAT →STRESS→ RISK	0.08 (.04)	0.12
CBFRE→RSPEED→ RISK	0.01 (.01)	0.01	NCBAT →RSPEED→ RISK	-0.02 (.02)	-0.02
CBFRE→ADULT→ GRADE	0.01 (.01)	0.01	NCBAT →ADULT→ GRADE	0.01 (.03)	0.01
CBFRE→PROB→ GRADE	-0.01 (.03)	-0.01	NCBAT →PROB→ GRADE	-0.01 (.01)	-0.01
CBFRE→STRESS→ GRADE	-0.01 (.02)	-0.01	NCBAT →STRESS→ GRADE	0.01 (.04)	0.01
CBFRE→RSPEED→ GRADE	0.04* (.02)	0.04	NCBAT →RSPEED→ GRADE	-0.09** (.03)	-0.09

\* $p < .05$ ; \*\* $p < .01$ .

Note. Unstd. = unstandardized estimate, SE = standard error, Std. = completely standardized estimates, CBFRE = cultural brokering frequency, NCBAT = negative cultural brokering attitudes, ADULT = adult parentification, PROB = problem-solving parentification, STRESS = acculturation stress, RSPEED = English reading speed, ALC = last-30-days alcohol use, CIG = last-30-days cigarette use, MAR = last-30-day marijuana use, RISK = last-30-days risky behaviors, and GRADE = grades.



### *H1-H3: Testing the Four Dominant Cultural Brokering Assumptions*

*Hypothesis 1.* This hypothesis predicted that cultural brokering frequency would be positively associated with parentification but negative cultural brokering attitudes would be negatively associated with parentification. Cultural brokering frequency was positively associated with both adult parentification (standardized  $\beta = .26, p < .05$ ) and problem-solving parentification (standardized  $\beta = .14, p < .05$ ). Negative cultural brokering attitudes were negatively associated with adult parentification (standardized  $\beta = -.28, p < .05$ ) but not significantly associated with problem-solving parentification (standardized  $\beta = -.15, ns$ ). This first hypothesis received partial support.

*Hypothesis 2.* The second hypothesis postulated that cultural brokering frequency and negative cultural brokering attitudes would be positively associated with acculturation stress. Negative cultural brokering attitudes were positively associated with acculturation stress (standardized  $\beta = .44, p < .05$ ) but cultural brokering frequency was not significantly associated with acculturation stress (standardized  $\beta = -.15, ns$ ). This hypothesis was partially supported.

*Hypothesis 3.* The third hypothesis predicted that cultural brokering frequency would be positively associated with English reading speed, but negative cultural brokering attitudes would be negatively associated with English reading speed. Cultural brokering frequency was positively associated with English reading speed (standardized  $\beta = .16, p < .05$ ) and negative cultural brokering attitudes were negatively associated with English reading speed (standardized  $\beta = -.38, p < .05$ ). Hypothesis 3 was supported.

### *Hypotheses 4-7: Extending the Four Assumptions by Examining Indirect Effects*

The following hypotheses proposed that cultural brokering frequency and negative cultural brokering attitudes would have indirect effects on last-30-days alcohol use, last-30-days

cigarette use, last-30-days marijuana use, last-30-days other risky behaviors, and grades through parentification, acculturation stress, and English reading speed. According to Preacher and Hayes (2008), testing multiple mediators requires that effects be modeled from independent variables  $X_1$  (cultural brokering frequency) and  $X_2$  (negative cultural brokering attitudes) to dependent variables  $Y_1$  (last-30-days alcohol use),  $Y_2$  (last-30-days cigarette use),  $Y_3$  (last-30-days marijuana use),  $Y_4$  (last-30-days risky behaviors),  $Y_5$  (grades) through potential mediators  $M_1$  (adult parentification),  $M_2$  (problem-solving parentification),  $M_3$  (acculturation stress),  $M_4$  (English reading speed). At the same time, direct effects must be modeled from the independent variables  $X_1$  (cultural brokering frequency) and  $X_2$  (negative cultural brokering attitudes) to the dependent variables  $Y_1$  (last-30-days alcohol use),  $Y_2$  (last-30-days cigarette use),  $Y_3$  (last-30-days marijuana use),  $Y_4$  (last-30-days risky behaviors),  $Y_5$  (grades). All of these paths were simultaneously estimated in one full SEM model (see Figure 2.6 for the complete model and Figure 2.7 with only the significant paths and correlations). The following sections first describe the results of the direct paths from the independent variables (cultural brokering frequency and negative cultural brokering attitudes) to the dependent variables (substance use, risky behaviors, and grades), followed by a section on the results from the Sobel indirect effects tests (Sobel, 1982).

*Cultural brokering frequency's direct effects.* To test the indirect effects of cultural brokering frequency, direct effects were modeled from cultural brokering frequency to last-30-days alcohol use (standardized  $\beta = -.01$ , *ns*), last-30-days cigarette use (standardized  $\beta = -.20$ , *ns*), last-30-days marijuana use (standardized  $\beta = -.16$ , *ns*), last-30-days risky behaviors (standardized  $\beta = -.24$ ,  $p < .05$ ), and grades (standardized  $\beta = .27$ ,  $p < .05$ ). As seen here, cultural brokering frequency was negatively associated with risky behaviors but positively associated with grades.

*Negative cultural brokering attitudes' direct effects.* To test the indirect effects of negative cultural brokering attitudes, direct effects also were examined of negative cultural brokering attitudes on last-30-days alcohol use (standardized  $\beta = -.03$ , *ns*), last-30-days cigarette use (standardized  $\beta = -.01$ , *ns*), last-30-days marijuana use (standardized  $\beta = .05$ , *ns*), last-30-days risky behaviors (standardized  $\beta = .11$ , *ns*), and grades (standardized  $\beta = -.24$ ,  $p = .05$ ). As seen here, negative cultural brokering attitudes were borderline negatively associated with grades.

*Hypothesis 4a.* The first part of the fourth hypothesis proposed that cultural brokering frequency would have indirect effects on last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors such that: (a) cultural brokering frequency would be positively associated with parentification, and (b) parentification would be positively associated with last-30-days alcohol use, cigarette use, marijuana use, and other risky behaviors. As previously described, cultural brokering frequency was positively associated with adult and problem-solving parentification. Adult parentification was positively associated with last-30-days alcohol use (standardized  $\beta = .24$ ,  $p < .05$ ) but not with cigarette (standardized  $\beta = .16$ , *ns*) or marijuana use (standardized  $\beta = .24$ , *ns*). Problem-solving parentification was not significantly associated with last-30-days alcohol (standardized  $\beta = -.05$ , *ns*), cigarette (standardized  $\beta = -.06$ , *ns*), or marijuana use (standardized  $\beta = -.10$ , *ns*). With respect to indirect effects, the Sobel Test revealed that cultural brokering frequency had a borderline significant indirect effect on last-30-days alcohol (standardized  $\beta = .06$ ,  $p = .05$ ) through adult parentification. In contrast, cultural brokering frequency did not have a significant indirect effect on cigarette (standardized  $\beta = .04$ , *ns*) or marijuana use (standardized  $\beta = .06$ , *ns*) through adult parentification. Similarly, cultural brokering frequency did not have a significant indirect effect on last-30-days alcohol

(standardized  $\beta = -.01$ , *ns*), cigarette (standardized  $\beta = -.01$ , *ns*), or marijuana use (standardized  $\beta = -.01$ , *ns*) through problem-solving parentification.

For risky behaviors, neither adult (standardized  $\beta = .16$ , *ns*) nor problem-solving parentification (standardized  $\beta = .01$ , *ns*) were significantly associated with risky behaviors. The Sobel Test revealed that cultural brokering frequency did not have a significant indirect effect on last-30-days risky behaviors through adult parentification (standardized  $\beta = .01$ , *ns*) or problem-solving parentification (standardized  $\beta = .04$ , *ns*). Hypothesis 4a was partially supported.

*Hypothesis 4b.* The second part of the fourth hypothesis postulated that cultural brokering frequency would have indirect effects on last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors such that: (a) cultural brokering frequency would be positively associated with acculturation stress, and in turn, (b) acculturation stress would be positively associated with last-30-days alcohol, cigarette, marijuana use, and other risky behaviors. Cultural brokering frequency was not significantly associated with acculturation stress and acculturation stress was not significantly associated with last-30-days alcohol use (standardized  $\beta = .18$ , *ns*). Acculturation stress was positively associated with last-30-days cigarette use (standardized  $\beta = .41$ ,  $p < .05$ ) and marijuana use (standardized  $\beta = .27$ ,  $p < .05$ ). Based on the Sobel Test, cultural brokering frequency did not have a significant indirect effect on last-30-days alcohol use (standardized  $\beta = -.03$ , *ns*), cigarette use (standardized  $\beta = -.06$ , *ns*), or marijuana use (standardized  $\beta = -.04$ , *ns*) through acculturation stress.

With respect to last-30-days risky behaviors, acculturation stress was positively associated with risky behaviors (standardized  $\beta = .26$ ,  $p < .05$ ). Nevertheless, the Sobel Test revealed that cultural brokering frequency did not have a significant indirect effect on risky

behaviors through acculturation stress (standardized  $\beta = -.04$ , *ns*). Consequently, hypothesis 4b was not supported.

*Hypothesis 4c.* The last part of the fourth hypothesis set forth that cultural brokering frequency would have indirect effects on last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors such that: (a) cultural brokering frequency would be positively associated with English reading speed and (b) English reading speed would be negatively associated with last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors. Cultural brokering frequency was positively associated with English reading speed, but English reading speed was not significantly associated with last-30-days alcohol use (standardized  $\beta = .08$ , *ns*) or marijuana use (standardized  $\beta = .12$ , *ns*). Nevertheless, English reading speed was positively associated with last-30-days cigarette use (standardized  $\beta = .26$ ,  $p < .05$ ). The Sobel Test indicated that cultural brokering frequency did not have a significant indirect effect on last-30-days alcohol use (standardized  $\beta = .01$ , *ns*), last-30-days cigarette use (standardized  $\beta = .04$ , *ns*), or last-30-days marijuana use (standardized  $\beta = .02$ , *ns*) through English reading speed.

For last-30-days risky behaviors, English reading speed was not significantly associated with risky behaviors (standardized  $\beta = .06$ , *ns*). Similarly, cultural brokering frequency did not have a significant indirect effect on risky behaviors through English reading speed (standardized  $\beta = .01$ , *ns*). Hypothesis 4c was not supported.

*Hypothesis 5a.* The first part of the fifth hypothesis proposed that negative cultural brokering attitudes would have indirect effects on last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors such that: (a) negative cultural brokering attitudes would be negatively associated with parentification, and (b) parentification would be positively associated with last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors. As previously

described, negative cultural brokering attitudes were negatively associated with adult parentification, and adult parentification was significantly associated with last-30-days alcohol use. The Sobel Test, however, revealed that negative cultural brokering attitudes did not have a significant indirect effect on last-30-days alcohol (standardized  $\beta = -.07$ , *ns*), cigarette (standardized  $\beta = -.04$ , *ns*), or marijuana use (standardized  $\beta = -.07$ , *ns*) through adult parentification. Similarly, negative cultural brokering attitudes did not have a significant indirect effect on last-30-days alcohol (standardized  $\beta = .01$ , *ns*), cigarette (standardized  $\beta = .01$ , *ns*), or marijuana use (standardized  $\beta = .02$ , *ns*) through problem-solving parentification. In addition, the Sobel Test revealed that negative cultural brokering attitudes did not have a significant indirect effect on risky behaviors through adult parentification (standardized  $\beta = -.05$ , *ns*) or problem-solving parentification (standardized  $\beta = -.01$ , *ns*). Hypothesis 5a was not supported.

*Hypothesis 5b.* The second part of the fifth hypothesis postulated that negative cultural brokering attitudes would have indirect effects on last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors such that: (a) negative cultural brokering attitudes would be positively associated with acculturation stress, and in turn, (b) acculturation stress would be positively associated with last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors. As previously discussed, negative cultural brokering attitudes were positively associated with acculturation stress, and acculturation stress was positively associated with last-30-days cigarette and marijuana use. Acculturation stress, however, was not significantly associated with last-30-days alcohol use. Based on the Sobel test, negative cultural brokering attitudes did not have a significant indirect effect on last-30-days alcohol (standardized  $\beta = .08$ , *ns*) or marijuana use (standardized  $\beta = .12$ , *ns*) through acculturation stress. Negative cultural brokering attitudes had a significant indirect effect on last-30-days cigarette use (standardized  $\beta$

= .18,  $p < .05$ ) through acculturation stress. Further, negative cultural brokering attitudes nearly had a significant indirect effect on risky behaviors through acculturation stress (standardized  $\beta = .12$ ,  $p = .06$ ). Consequently, hypothesis 5b was partially supported.

*Hypothesis 5c.* The last part of the fifth hypothesis proposed that negative cultural brokering attitudes would have indirect effects on last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors such that: (a) negative cultural brokering attitudes would be negatively associated with English reading speed, and (b) English reading speed would be negatively associated with last-30-days alcohol use, cigarette use, marijuana use, and risky behaviors. As previously stated, negative cultural brokering attitudes were negatively associated with English reading speed, but English reading speed was not significantly associated with last-30-days alcohol use or marijuana use. English reading speed, however, was positively associated with last-30-days cigarette use. The Sobel Test indicated that negative cultural brokering attitudes did not have a significant indirect effect on last-30-days alcohol use (standardized  $\beta = -.03$ ,  $ns$ ), marijuana use (standardized  $\beta = -.04$ ,  $ns$ ), or risky behaviors (standardized  $\beta = -.02$ ,  $ns$ ) through English reading speed. Yet, negative cultural brokering attitudes had a significant indirect effect on last-30-days cigarette use (standardized  $\beta = -.10$ ,  $p < .05$ ) through English reading speed. Hypothesis 5c was partially supported.

*Hypothesis 6a.* The first part of the sixth hypothesis proposed that cultural brokering frequency would have an indirect effect on grades such that: (a) cultural brokering frequency would be positively associated with parentification, and in turn, (b) parentification would be negatively associated with grades. As previously discussed, cultural brokering frequency was positively associated with both adult and problem-solving parentification; however, neither adult parentification (standardized  $\beta = -.03$ ,  $ns$ ), nor problem-solving parentification (standardized  $\beta =$

.06, *ns*) were significantly associated with grades. Similarly, the Sobel Test revealed that cultural brokering frequency did not have a significant indirect effect on grades through adult parentification (standardized  $\beta = .01$ , *ns*) or problem-solving parentification (standardized  $\beta = -.01$ , *ns*). Hence, hypothesis 6a was not supported.

*Hypothesis 6b.* The second part of the sixth hypothesis set forth that cultural brokering frequency would have an indirect effect on grades such that: (a) cultural brokering frequency would be positively associated with acculturation stress, and in turn, (b) acculturation stress would be negatively associated with grades. As cultural brokering frequency was not significantly associated with acculturation stress, neither was acculturation stress with grades (standardized  $\beta = .02$ , *ns*). Similarly, the Sobel Test revealed that cultural brokering frequency did not have a significant indirect effect on grades through acculturation stress (standardized  $\beta = -.01$ , *ns*). Hypothesis 6b was not supported.

*Hypothesis 6c.* The third part of the sixth hypothesis proposed that cultural brokering frequency would have an indirect effect on grades such that: (a) cultural brokering frequency would be positively associated with English reading speed, and in turn, (b) English reading speed would be positively associated with grades. Cultural brokering frequency was positively associated with English reading speed, and English reading speed was positively associated with grades (standardized  $\beta = .23$ ,  $p < .05$ ). Further, the Sobel Test revealed that cultural brokering frequency had a significant indirect effect on grades through English reading speed (standardized  $\beta = .04$ ,  $p < .05$ ). Nevertheless, because cultural brokering frequency was positively associated with grades, as previously discussed, English reading speed partially mediated the association between cultural brokering frequency and grades. Hypothesis 6c was supported.



*Hypothesis 7a.* The first part of the seventh hypothesis proposed that negative cultural brokering attitudes would have an indirect effect on grades such that: (a) negative cultural brokering attitudes would be negatively associated with parentification, and in turn, (b) parentification would be negatively associated with grades. As previously discussed, negative cultural brokering attitudes were only negatively associated with adult parentification, and neither types of parentification were significantly associated with grades. Further inspection with the Sobel Test revealed that negative cultural brokering attitudes did not have a significant indirect effect on grades through adult parentification (standardized  $\beta = .01, ns$ ) or problem-solving parentification (standardized  $\beta = -.01, ns$ ). Hence, hypothesis 7a was not supported.

*Hypothesis 7b.* The second part of the seventh hypothesis proposed that negative cultural brokering attitudes would have an indirect effect on grades such that: (a) negative cultural brokering attitudes would be positively associated with acculturation stress, and in turn, (b) acculturation stress would be negatively associated with grades. As previously discussed, negative cultural brokering attitudes were positively associated with acculturation stress; however, acculturation stress was not significantly associated with grades. The Sobel Test revealed that negative cultural brokering attitudes did not have a significant indirect effect on grades through acculturation stress (standardized  $\beta = .01, ns$ ). Hypothesis 7b was not supported.

*Hypothesis 7c.* The third part of the seventh hypothesis postulated that negative cultural brokering attitudes would have an indirect effect on grades such that: (a) negative cultural brokering attitudes would be negatively associated with English reading speed, and in turn, (b) English reading speed would be positively associated with grades. Negative cultural brokering attitudes were negatively associated with English reading speed, and in turn, English reading speed was positively associated with grades. Consistent with these associations, the Sobel Test

revealed that negative cultural brokering attitudes had a significant indirect effect on grades through English reading speed (standardized  $\beta = -.09, p < .05$ ). Nevertheless, because negative cultural brokering attitudes were negatively associated with grades, as previously discussed, English reading speed partially mediated the association between negative cultural brokering attitudes and grades. Consequently, hypothesis 7c was supported.

#### *H8: Predicting Cultural Brokering Frequency and Negative Cultural Brokering Attitudes*

This study's eighth hypothesis examined the relation between ethnic identification and cultural brokering frequency and negative cultural brokering attitudes. Results revealed that ethnic identification was positively associated with cultural brokering frequency (standardized  $\beta = .27, p < .05$ ) and negatively associated with negative cultural brokering attitudes (standardized  $\beta = -.17, p < .05$ ). Hypothesis 8 was supported.

### Discussion

Four dominant themes emerged from previous literature regarding the effects of cultural brokering. Those taking a negative perspective argue that cultural brokering is a source of parentification and stress resulting in harmful consequences (Mercado, 2003; Weisskirch & Alva, 2002). Others, taking a more positive perspective, argue that cultural brokering does not lead to parentification but is instead a natural way to help family members (Dorner et al., 2008) that enhances youths' cognitive and linguistic skills and improving their school performance (Buriel et al., 1998; Orellana et al., 2007). The current study tested aspects of these assumptions using role theory, GST, independent/interdependent scripts, and a translation-based theory to provide guiding rationales. In addition, this study distinguished between cultural brokering frequency and negative cultural brokering attitudes, revealing that these two aspects of brokering operate differently with respect to certain factors. Finally, this study extended the assumptions on

cultural brokering by using longitudinal data accompanied by structural equation modeling to examine whether cultural brokering frequency and negative cultural brokering attitudes had indirect effects on Mexican-heritage youths' substance use, other risky behaviors, and grades through parentification, acculturation stress, and English reading speed.

Overall, this study found that cultural brokering frequency exhibited harmful health-related behavioral effects through adult parentification and negative cultural brokering attitudes exerted harmful health-related behavioral effects through acculturation stress. More specifically, as Mexican-heritage engaged in more frequent cultural brokering they were more likely to report adult parentification and, in turn, were more likely to consume alcohol. As Mexican-heritage youth reported higher levels of negative cultural brokering attitudes, they were more likely to experience acculturation stress and, in turn, were more likely to smoke cigarettes. With respect to academic performance, Mexican-heritage youth engaging in more frequent cultural brokering reported reading English faster and earning higher grades. In contrast, Mexican-heritage youth reporting negative cultural brokering attitudes were less likely to read English fast, and in turn, less likely to report higher grades.

The following sections discuss: (1) the conditions in which cultural brokering frequency and negative cultural brokering attitudes exert harmful and beneficial effects, (2) what these findings mean for the four assumptions and their corresponding theories, and (3) possible coping mechanisms and factors to target. A summary of each theory, along with its corresponding assumption, finding, and conclusion are provided in Table 2.12 to aid in the discussion.

Table 2.12

*A Table Summary of the Four Theoretical Perspectives, along with their Corresponding Assumptions, Findings, and Conclusions*

Theory	Assumption	Finding	Conclusion
Role Theory (RT)	Cultural Brokering → Parentification	<ul style="list-style-type: none"> <li>• Cultural brokering frequency was positively associated with adult and problem-solving parentification.</li> <li>• Negative cultural brokering attitudes were negatively associated with adult parentification.</li> <li>• Negative cultural brokering attitudes were not significantly associated with problem-solving parentification.</li> </ul>	<ul style="list-style-type: none"> <li>• RT received support with respect to cultural brokering frequency.</li> <li>• RT did not receive support with respect to negative cultural brokering attitudes.</li> <li>• RT requires revisions incorporating negative cultural brokering attitudes.</li> </ul>
General Strain Theory (GST)	Cultural Brokering → Stress (e.g., Acculturation Stress) → Problem Behaviors (e.g., Substance Use and Other Risky Behaviors)	<ul style="list-style-type: none"> <li>• Negative cultural brokering attitudes had indirect effects on cigarette use through acculturation stress (NCBAT → more acculturation stress → more cigarette use).</li> </ul>	<ul style="list-style-type: none"> <li>• GST did not receive support with respect to cultural brokering frequency → acculturation stress → substance use.</li> <li>• GST received support with respect to negative cultural brokering attitudes → acculturation stress → cigarette use.</li> </ul>

Independent/ Interdependent Scripts (IIS)	Cultural Brokering <i>Does Not</i> → Parentification	<ul style="list-style-type: none"> <li>• Cultural brokering frequency was positively associated with adult and problem-solving parentification.</li> <li>• Negative cultural brokering attitudes were negatively associated with adult parentification.</li> <li>• Negative cultural brokering attitudes were not significantly associated with problem-solving parentification.</li> </ul>	<ul style="list-style-type: none"> <li>• IIS did not receive support with respect to cultural brokering frequency.</li> <li>• IIS requires revisions incorporating negative cultural brokering attitudes in relation to parentification.</li> </ul>
Translation-Based Theory (TBT)	Cultural Brokering → Cognitive and Linguistic Skills (e.g., English Reading Speed) → Academic Performance (e.g., Grades)	<ul style="list-style-type: none"> <li>• Cultural brokering frequency had an indirect effect on grades through English reading speed (CBFRE → faster English reading speed → higher grades).</li> <li>• Negative cultural brokering attitudes had indirect effects on grades through English reading speed (NCBAT → slower English reading speed → lower grades).</li> </ul>	<ul style="list-style-type: none"> <li>• TBT received support with respect to cultural brokering frequency → English reading speed → grades.</li> <li>• TBT requires revisions incorporating negative cultural brokering attitudes.</li> </ul>

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### *The Harmful Effects of Cultural Brokering Frequency*

This study's findings revealed that cultural brokering frequency has the potential to exert a negative effect on the psychological and behavioral health of Mexican-heritage youth. Overall, the results regarding cultural brokering frequency supported role theory.

*Cultural brokering frequency's direct effect on parentification.* As hypothesized, the more Mexican-heritage youth engaged in cultural brokering, the more likely they were to experience adult parentification and problem-solving parentification. This finding was consistent with that reported by Mercado (2003) who found total cultural brokering positively associated with parentification, along with Díaz-Lázaro (2002) who found cultural brokering positively associated with problem-solving skills. The positive associations between cultural brokering frequency and adult parentification and problem-solving parentification have implications for the debate regarding whether a role reversal occurs when children act as cultural brokers for adult family members. Based on role theory, family members adhere to a hierarchical structure that are accompanied by expectations associated with the positions that each member fills (cf. Biddle, 1986). When engaging in brokering, younger family members adopt adult responsibilities, interact in adult situations, and interpret adult content, while making decisions that impact the entire family. Thus, one assumption maintains that cultural brokering children are likely to experience parentification (Mercado, 2003). This study's findings provide some evidence for this assumption. The Mexican-heritage youth in this study felt more like an adult than a child, were described as mature for their age, had family members approach them for advice, and had family members share their problems with them as though they were another adult.

The positive association between cultural brokering frequency and parentification does not fall in line with the independent/interdependent scripts perspective that suggests

parentification does not occur. In contrast to role theory and the parentification assumption, proponents (Dorner et al., 2008) of independent/interdependent scripts argue that the act of cultural brokering does not threaten adult-child roles but is instead a natural way of helping family members successfully maneuver within mainstream U.S. culture. The current study did not directly test this perspective by including measures of whether Mexican-heritage youth perceived cultural brokering as a normal behavior or as a way of helping family members. Nevertheless, cultural brokering frequency's significant associations with adult and problem-solving parentification indirectly address one aspect of the independent/interdependent scripts perspective. Furthermore, this perspective frames cultural brokering in a more positive light, deemphasizing the negative consequences of this act. The current study's findings, however, revealed that engaging in cultural brokering placed Mexican-heritage youth at risk for alcohol consumption through adult parentification. In short, the independent/interdependent scripts perspective may be correct in that cultural brokers perceive this communication process as a natural way to help their family; this assumption was not directly tested in the current study. Yet, it is possible that cultural brokers can perceive the act as a natural contribution to the family while still experiencing parentification and being at greater risk for alcohol consumption.

*Cultural brokering frequency's indirect effect on alcohol use.* By examining cultural brokering frequency's indirect effect on alcohol use through parentification, this study's results extended the parentification assumption to health-related behaviors. Cultural brokering frequency not only predicted parentification, as posited by role theory and the parentification assumption, but experiencing adult parentification also placed Mexican-heritage youth at risk for alcohol consumption. Thus, the significant indirect effect that cultural brokering frequency had

on alcohol use through adult parentification was evidence of another way in which cultural brokering frequency can have a harmful effect among Mexican-heritage youth.

This significant indirect effect has implications for role theory and the parentification assumption within the cultural brokering context, but it also sheds light on the detrimental effects of parentification. Interestingly, Stein et al. (1999) documented that among adolescents, parental-role taking (e.g., parents asking for input regarding decisions and seeking advice from children) at the beginning of the study predicted alcohol and marijuana use three to nine months later. Yet, a long-term follow up six years later (Stein et al., 2007) found that early parentification actually predicted decreases in alcohol and tobacco use. The current study considered substance use approximately one year after measuring parentification. Given this time frame, this study found similar findings to Stein et al. (1999). In the context of cultural brokering frequency, these Mexican-heritage youth were more likely to consume alcohol as they experienced adult parentification stemming from cultural brokering more often.

#### *The Beneficial Effects of Cultural Brokering Frequency*

Despite the negative effects that cultural brokering frequency exhibited through parentification, this aspect of brokering had several positive effects for Mexican-heritage youth. Cultural brokering frequency was mainly beneficial in its associations with lower levels of risky behaviors and higher levels of reported grades.

*Cultural brokering's direct effect on risky behaviors.* Interestingly, this study found that as Mexican-heritage youth engaged in cultural brokering more often, they were less likely to participate in risky behaviors such as partaking in physical fights, dangerous dares, skipping school, or stealing. In the past, Chao (2006) found that cultural brokering frequency was a risk factor for externalizing behaviors (e.g., aggression and delinquent behavior) among some



adolescents (i.e., Korean) but not for others (i.e., Chinese and Mexican). The current study garnered different results. Instead, among Mexican-heritage youth, cultural brokering frequency was associated with lower levels of risky behaviors. One explanation for the contradicting results may be related to the research design. Chao's study included cross-sectional data comprising of 9<sup>th</sup> grade adolescents, whereas the current study included longitudinal data of cultural brokering measured at Wave 4 (i.e., 6<sup>th</sup> grade) predicting risky behaviors at Wave 6 (i.e., 8<sup>th</sup> grade). Another explanation may lie in the measurement of externalizing behaviors in Chao's study compared to risky behaviors in the current study. Chao used the Aggression subscale and the Delinquency subscale from the Youth Self-Report Form of the Child Behavioral Checklist (Achenbach, 1999). In contrast, the current study used the Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 2005).

Further inspection into the negative association between cultural brokering frequency and other risky behaviors reveals that this association may be attributed to cultural brokering monopolizing much of these Mexican-heritage youths' free time. With less free time, these youth are less likely to have opportunities or the desire to engage in other risky behaviors. Free time has been linked to deviant behavior among adolescents (Caldwell & Smith, 2006). Cultural brokering is likely to decrease these youths' free time, given that previous research (e.g., Orellana et al., 2003) revealed the many ways in which youth assist their family members, whether it is going with family members to a medical appointment or staying home to translate documents. Not only do cultural brokers have less free time, but more of their time may be spent with family than peers. Cultural brokering frequency may decrease these youths' opportunities for engaging in risky behaviors.

The negative association between cultural brokering frequency and risky behaviors implies that cultural brokering frequency may primarily be harmful when Mexican-heritage youth develop adult parentification, and in turn, are more likely to consume alcohol. Aside from parentification, cultural brokering frequency may actually act as a protective factor against risky behaviors. With respect to substance use, cultural brokering frequency did not have a significant direct effect on any of the substance use behaviors, but their associations were in the same direction. Cultural brokering frequency was negatively associated (but not significantly) with alcohol, cigarette, and marijuana use. In short, it is possible that cultural brokering frequency may be a protective factor against unhealthy behaviors except through adult parentification.

*Cultural brokering frequency's direct and indirect effects on grades.* Another positive aspect of engaging in cultural brokering was the effect it had on grades through English reading speed. As Mexican-heritage youth participated in cultural brokering, they were more likely to read English faster, and in turn, more likely to report higher grades. In addition to this significant indirect effect, cultural brokering frequency had a direct effect on grades; therefore, English reading speed partially mediated the association between cultural brokering frequency and grades. This partial mediation may be attributed to the sole consideration of English reading speed as a proxy for Mexican-heritage youths' cognitive and linguistic skills. Yet, Buriel et al. (1998) suggest that cultural brokers engage in complex cognitive and linguistic interactions that carry over to their academic performance. With English reading speed as only one indicator of cognitive and linguistic complexity, perhaps more complete measures of cognitive and linguistic complexity also would act as mediators between cultural brokering frequency and grades.

With partial mediation, this study found that cultural brokering frequency was beneficial to Mexican-heritage youths' English reading speed, and in turn, their grades in school. This

significant result supports Burriel et al.'s (1998) translation-based theory suggesting that engaging in cultural brokering more often enhances youths' cognitive and linguistic skills, which helps improve academic performance. Based on this theoretical perspective, the types of complex interactions that cultural brokers engage in and the advanced vocabulary level that they have to develop are the types of skills valued in the educational system. Further, cultural brokering over time enhances these skills and enables them to do better in school. Dorner et al. (2007) found that increased cultural brokering was associated with increased standardized reading test scores among 5<sup>th</sup> and 6<sup>th</sup> grade Mexican immigrants. The current study's findings provide further support for the academic benefits to cultural brokering frequency among a sample of 6<sup>th</sup> through 8<sup>th</sup> grade Mexican-heritage youth.

*Overall, Is Cultural Brokering Frequency More Harmful or More Beneficial?*

The results indicate that overall, cultural brokering frequency appears less problematic for Mexican-heritage youth than previously anticipated, except when having an effect on adult parentification and problem-solving parentification. Contrary to the brokering-as-a-stressor assumption, the results indicated that cultural brokering frequency was not significantly associated with acculturation stress. Instead, as Mexican-heritage youth participated in cultural brokering more often, they were more likely to read English faster, more likely to report higher grades, and less likely to engage in risky behaviors. The main condition in which brokering frequency appeared most problematic was with adult parentification and problem-solving parentification, as posited by the parentification assumption. The frequency in which Mexican-heritage youth engaged in brokering was positively associated with both types of parentification. Cultural brokering frequency, however, exerted the most detrimental effect through adult parentification. As Mexican-heritage youth participated in brokering more often, they were more

likely to experience adult parentification, and in turn, more likely to consume alcohol. In short, this study's findings shed light on one condition, adult parentification, in which brokering frequency is more likely to threaten Mexican-heritage youth's health-related behaviors.

#### *The Harmful Effects of Negative Cultural Brokering Attitudes*

Similar to cultural brokering frequency, negative cultural brokering attitudes exhibited several detrimental effects on Mexican-heritage youth. Negative cultural brokering attitudes appeared most problematic through acculturation stress and on grades.

*Negative cultural brokering attitudes' direct effect on acculturation stress.* As the Mexican-heritage youth in this study experienced negative cultural brokering attitudes, they were more likely to report acculturation stress. This finding sheds light on the debate as to whether cultural brokering is a stressor for children. Although cultural brokering frequency was not associated with stress, as originally posited, negative cultural brokering attitudes were positively associated with acculturation stress. This finding may explain Mercado's (2003) non-significant association between total cultural brokering, measured globally, and stress for Latino undergraduate students. Perhaps Mercado would have found a significant association if the study had distinguished brokering attitudes and frequency. Further, Mercado's measure of stress was a general operationalization of perceived stress (e.g., "feeling blue," "how often have you felt nervous and 'stressed'?"). The current study considered acculturation stress, a type of stress particularly relevant to cultural brokering and the acculturation process. As these youth felt embarrassed and nervous to engage in cultural brokering for family members, these youth were more likely to feel embarrassed about the way they spoke English, feel like they did not belong in the U.S., and feel like their friends and teachers did not understand their culture. This finding corresponds to Weisskirch's (2005) suggestion that stress may emerge when youth have

difficulty cultural brokering with or feeling uncomfortable with a particular content or situation. The same is likely to be true for the Mexican-heritage youth in the current study.

*Negative cultural brokering attitudes' indirect effect on cigarette use.* The positive association between negative cultural brokering attitudes and acculturation stress supported one of the primary assumptions – cultural brokering predicts higher levels of stress (but only with respect to negative cultural brokering attitudes). The current study, however, used GST to extend this assumption to the context of health-related behaviors. General strain theorists (Agnew, 1992; Agnew & White, 1992; Broidy, 2001) suggest that individuals are at risk for engaging in problematic behaviors when they develop negative affect from a strain. This tenet received support in regard to negative cultural brokering attitudes. The results indicated that as Mexican-heritage youth experienced negative cultural brokering attitudes (i.e., strain), they were more likely to develop acculturation stress (i.e., negative affect or stress), and in turn, more likely to use cigarettes (i.e., problem behavior).

Acculturation stress was significantly associated with cigarette use, marijuana use, and other risky behaviors; however, negative cultural brokering attitudes only had a significant indirect effect on cigarette use. A possible explanation for this finding may be that cigarettes are more easily accessible to 7<sup>th</sup> and 8<sup>th</sup> grade Mexican-heritage youth compared to having access to marijuana, an illegal substance for any age. Youth typically have easier access to cigarettes from their family members and peers and are exposed to cigarettes in many public venues, whereas marijuana use may be more difficult to obtain and often kept from public view. Further, these youth may not have engaged in other risky behaviors when they experienced acculturation stress because of their obligations to their family members, thereby discouraging them from engaging in other risky behaviors (e.g., fighting, stealing, or participating in dangerous dares).

*Negative cultural brokering attitudes' direct and indirect effects on grades.* Another way in which negative cultural brokering attitudes exhibited harmful effects was with English reading speed and grades. The more embarrassed or nervous Mexican-heritage youth were about cultural brokering, the slower they read English and the lower grades they reported earning in school. Buriel et al.'s (1998) translation-based theory set forth that as youth engage in cultural brokering, they are more likely to develop their cognitive and linguistic skills, and in turn, perform better in school. Yet, Buriel et al. (1998) did not specify how this process would unfold in relation to negative cultural brokering attitudes. This study provides a more complex representation of the translation-based theory, given that negative cultural brokering attitudes appear to inhibit Mexican-heritage youths' English reading speed and grades.

An explanation for negative cultural brokering attitudes' effects on English reading speed and grades may be rooted in Mexican-heritage youths' academic self-efficacy. Having negative cultural brokering attitudes are likely to inhibit Mexican-heritage youths' feelings of self-efficacy, and in turn, hinder their academic performance. Buriel et al. (1998) did not specifically examine mediation, but they found through bivariate correlations that having more positive feelings about cultural brokering was positively associated with academic self-efficacy, and academic self-efficacy was positively associated with academic performance. Hence, as the Mexican-heritage youth in the current study developed negative attitudes toward brokering, they may have experienced a weaker sense of academic self-efficacy, and in turn, earned lower grades in school. Future research, then, should consider academic self-efficacy as another potential mediator between negative cultural brokering attitudes and grades.

### *The Beneficial Effects of Negative Cultural Brokering Attitudes*

The results from the current study suggest that negative cultural brokering attitudes displayed several beneficial effects for Mexican-heritage youth. Generally, negative cultural brokering attitudes (e.g., feeling embarrassed or nervous when brokering) are likely to manifest as unpleasant experiences, yet they managed to have positive effects under certain conditions examined within this study.

*Negative cultural brokering attitudes' direct effect on adult parentification.* As hypothesized, the more embarrassed or nervous Mexican-heritage youth were about brokering (i.e., negative cultural brokering attitudes), the less likely they were to feel like an adult more than a child. As these youth felt embarrassed or nervous about brokering, their family members were less likely to treat them as an adult in the family. Interestingly, however, negative attitudes toward cultural brokering were not significantly related to problem-solving parentification. Perhaps the Mexican-heritage youth in this study had family who approached them for advice regardless of how these youth felt about brokering. Despite their attitudes toward brokering, family members had no choice but to approach these youth for problem-solving assistance.

The negative association between negative cultural brokering attitudes and adult parentification reveals that the parentification assumption requires some revision. Based on this assumption, cultural brokering results in children adopting adult responsibilities to the point where it inhibits their natural development. Yet, when referring to cultural brokering, the term remains general, which means cultural brokering researchers (e.g., Mercado, 2003; Trickett & Jones, 2007) in the past have not hypothesized how different aspects of cultural brokering are related to parentification. Postulations regarding negative cultural brokering attitudes' association with parentification were unknown. This study's findings, however, reveal that

negative cultural brokering attitudes were associated with lower levels of adult parentification. Thus, the assumption that cultural brokers develop parentification must take into consideration various aspects of brokering, given that they may operate differently with parentification.

*Negative cultural brokering attitudes' indirect effect on cigarette use.* Another potential benefit to brokering was apparent in regard to negative cultural brokering attitudes and cigarette use. English reading speed mediated the association between negative cultural brokering attitudes and last-30-days cigarette use, such that as Mexican-heritage youth felt embarrassed or nervous about brokering, they were less likely to read English fast, and in turn, less likely to use cigarettes. Stated differently, the less they felt embarrassed or nervous about brokering, the faster they read English, and the more likely they were to use cigarettes. This finding may seem puzzling, with reading English faster placing Mexican-heritage youth at risk for cigarette use. Yet, acculturation may be an explanation for this association. The rate at which these youth read English may be an indicator of their acculturation level. Becoming more acculturated to U.S. mainstream culture has been positively associated with substance use (Allen et al., 2008). Among Mexican American adolescents in Cavanagh's (2007) study, recent immigrants were less likely to report consuming alcohol or binge drinking compared to U.S. born Mexican American adolescents. Alcohol consumption increased across generations. In the current study, the more negative attitudes that Mexican-heritage youth formed toward brokering, the slower they read in English, and the less likely they were to use cigarettes. Although negative cultural brokering attitudes more often than not is harmful to Mexican-heritage youths' health behaviors (e.g., through acculturation stress), its negative association with English reading speed actually shows how in this situation youth are at lower risk for cigarette use.



### *Overall, Are Negative Cultural Brokering Attitudes More Harmful or Beneficial?*

Similar to cultural brokering frequency, negative cultural brokering attitudes exerted both detrimental and favorable effects for Mexican-heritage youth. Negative cultural brokering attitudes appeared most problematic through acculturation stress, placing youth at risk for cigarette smoking. The role that English reading speed played as a mediator appeared contradicting, with negative cultural brokering attitudes having harmful effects on grades through English reading speed but beneficial effects on cigarette use through English reading speed. Another positive effect was in the negative association between negative cultural brokering attitudes and adult parentification. Yet, contrary to cultural brokering frequency, negative cultural brokering attitudes did not have a significant indirect effect on alcohol use through adult parentification. Having negative attitudes toward brokering may have been associated with lower levels of adult parentification, but lower levels of adult parentification were not in turn, associated with lower levels of alcohol use because of negative cultural brokering attitudes. Stated differently, regardless of negative cultural brokering attitudes, adult parentification was associated with alcohol use.

### *Cultural Brokering Frequency versus Negative Cultural Brokering Attitudes*

In distinguishing between cultural brokering frequency and negative cultural brokering attitudes, the current study was able to demonstrate how these two experiences each had unique associations with the variables included in the hypothesized model. The difference between cultural brokering frequency and negative cultural brokering attitudes lies in their behavioral versus attitudinal representations of brokering (cf. Buriel et al., 1998). The current study demonstrated how the communication process of culturally mediating for several parties (frequency) versus the negative evaluation of the act (attitudes) displayed different effects on

Mexican-heritage youth. These unique associations that cultural brokering frequency and negative cultural brokering attitudes have with various factors call for further research to identify how to address the specific needs of each brokering experience. For instance, because cultural brokering frequency appears to exert most of its harmful effects through adult parentification, yet the act of brokering is an inevitable experience among many immigrant families, researchers need to identify certain coping mechanisms for parentified youth. The limited professional translators available to immigrant families and the spontaneity in requiring this type of assistance (Weisskirch, 2006) mean the behavioral act of cultural brokering is likely unpreventable. Researchers, then, need to determine how to intervene in preventing parentification or in establishing coping strategies for parentified youth. When preventing the harmful effects of negative cultural brokering attitudes, researchers may develop intervention programs to target predictors of negative cultural brokering attitudes to decrease the likelihood that youth will engage in cigarette use. Changing the attitudes and identifying coping mechanisms for acculturation stress may be several possible solutions to alleviating the potentially detrimental effects of negative cultural brokering attitudes.

*Targeting ethnic identification to decrease negative cultural brokering attitudes.* This study's results demonstrated that as Mexican-heritage youth experienced more ethnic identification, they were more likely to engage in cultural brokering but less likely to report negative attitudes toward brokering. Stated differently, the prouder and more involved they were with their ethnic heritage, the more often they participated in brokering but the less likely they were to feel embarrassed or nervous about brokering. Programs that encourage youth to appreciate their ethnic heritage may decrease negative attitudes toward brokering, and in turn, reduce acculturation stress and prevent cigarette use. This study's findings, however, reveal that

encouraging ethnic identification means youth are more likely to engage in brokering. With increased brokering, they may be at risk for adult parentification, and in turn, alcohol consumption. Further research must explore other factors to target to prevent adult parentification or help youth cope with their adult parentification in effective ways, while also decreasing negative cultural brokering attitudes.

### Concluding Remarks

This study's findings revealed that both cultural brokering frequency and negative cultural brokering attitudes have potentially harmful and beneficial effects on Mexican-heritage youth. This conclusion is consistent with past research that found contradicting results with respect to brokering. Yet, the current study extended past research on this communication phenomenon by: (1) distinguishing between cultural brokering frequency and negative cultural brokering attitudes' effects, (2) testing aspects of the four dominant assumptions while integrating theory, (3) extending the four assumptions to health-related behaviors, and (4) shedding light on the conditions in which brokering may be more harmful or beneficial.

Based on four dominant assumptions that emerged across the cultural brokering literature, this study found mixed support for role theory and the parentification assumption, GST, and the translation-based theory depending on certain factors. Overall, the results demonstrated the importance in considering multiple aspects of brokering, given that they may have different effects on Mexican-heritage youth's health-related behaviors and academic performance. Thus, this study's findings call for the development, implementation, and evaluation of culturally-grounded prevention programs that decrease negative cultural brokering attitudes and encourage youth to use healthier coping mechanisms.

## CHAPTER 3

### A GROWTH CURVE ANALYSIS OF A CULTURALLY-GROUNDED SUBSTANCE USE PREVENTION PROGRAM'S EFFECTS ON CULTURAL BROKERING YOUTH

In 2000, the U.S. Census Bureau reported that 12 million individuals were linguistically isolated because no one in their household over the age of 14 spoke English “very well” (Shin & Bruno, 2003; Weisskirch, 2007). Linguistic isolates - often immigrant families or members of linguistic-minority communities - tend to rely on younger family members to help them manage within the U.S. legal, educational, and institutional system (Agustí-Panareda, 2006). Younger family members interact within the U.S. education system more frequently; therefore, they often become familiar with the English language and the mainstream U.S. culture at a faster rate than their adult family members. Thus, these younger members help their families communicate in English and negotiate within the mainstream U.S. culture. In this situation, younger family members serve as cultural brokers - individuals often with less authority and no formal training who linguistically and culturally mediate for two or more parties (Mercado, 2003; Tse, 1995).

Cultural brokers typically do more than translate. In negotiating between cultures they may alter the messages and make decisions that impact the family (Tse, 1995). Furthermore, the situations in which young family members find themselves cultural brokering typically occur among adults (Weisskirch, 2005), thereby creating a challenge for dealing with adult situations and adult content. For young cultural brokers, adopting adult responsibilities means having to participate in communicative exchanges in which they do not usually engage (Love & Buriel, 2007). Cultural brokering children often assist their parents and other adults at the bank, medical appointments, post office, and school, along with a variety of other institutional contexts.

Brokering may involve face-to-face interactions or it may involve explaining and responding to documents that family members receive (Jones & Trickett, 2005).

Results on the effects of cultural brokering are mixed. Although some research finds cultural brokering to be positively associated with self-esteem (Weisskirch, 2007), respect for parents (Chao, 2006), English reading speed (Kam, 2009; Chapter 2), and standardized reading scores (Dorner et al., 2007). Other cultural brokering scholars, however, document negative effects including increased acculturation stress (Weisskirch & Alva, 2002), depression (Love & Buriel, 2007), internalizing symptoms (e.g., depression, anxiety, somatic complaints; Chao, 2006), externalizing symptoms (e.g., aggression and delinquency; Chao, 2006), family conflict (Trickett & Jones, 2007), parentification (Mercado, 2003), problems at home (Jones & Trickett, 2005), and lower school membership (Jones & Trickett, 2005). More specifically, Kam (2009; Chapter 2) found that as Mexican-heritage youth engaged in cultural brokering more often, they were more likely to experience adult parentification and, in turn, were more likely to consume alcohol. As these youth formed negative attitudes toward brokering, they also were more likely to develop acculturation stress and decreased English reading speed, and in turn, more likely to smoke cigarettes and report lower grades. In short, despite the potentially beneficial aspects to engaging in cultural brokering, this phenomenon can have a variety of harmful effects.

Consequently, researchers must determine the conditions that predict these outcomes for cultural brokers, with the goal of targeting these factors to prevent negative outcomes from occurring.

The potential for cultural brokering to have positive and negative effects means it is important to determine how to ameliorate the negative effects while promoting positive effects through prevention interventions. One promising avenue is through ethnic identification. Kam (2009; Chapter 2) found that ethnic identification influenced the brokering process, with

Mexican-heritage youth more likely to engage in cultural brokering and less likely to form negative attitudes toward brokering the more they identified with their ethnic group. Targeting ethnic identification may be one way of decreasing negative cultural brokering attitudes and ultimately reduce the degree to which Mexican-heritage youth experience acculturation stress, engage in cigarette use, or report lower grades.

To date, none of the prevention interventions directly addresses this key process; however, there are some that focus on acculturation in general. Intervention programs that address issues surrounding the acculturation process are likely to have an effect on cultural brokering because this communication phenomenon transpires within the acculturation process. Younger family members often acculturate at a faster rate than adult family members; therefore, they often serve as linguistic and cultural mediators for those family members with low levels of acculturation (Weisskirch & Alva, 2002). Hence, the current study draws upon the Drug Resistance Strategies Project, a culturally-grounded school-based substance use prevention program for elementary and middle school students that specifically addresses Mexican-heritage youths' cultural values, beliefs, norms, and experiences (Hecht, Graham, & Elek, 2006). This program is likely to impact young cultural brokers because it promotes an appreciation for ethnic identification and acculturation processes, while also promoting decision-making skills, resistance strategies, self-efficacy, and anti-substance use norms. Previous research (Kam, 2009: Chapter 2) suggests this may be a productive avenue for ameliorating the negative effects and promoting the positive effects of cultural brokering, given that cultural brokering frequency had indirect effects on alcohol use through adult parentification and negative cultural brokering attitudes had indirect effects on cigarette smoking through acculturation stress. The current study, then, examines whether this culturally-grounded substance use prevention program has

effects on initial levels and growth of ethnic identification, and whether ethnic identification in turn, has effects on the initial levels and growth of cultural brokering frequency and negative cultural brokering attitudes. This evaluation of a culturally-grounded prevention program may identify a potential factor to target, with the purpose of decreasing brokering's harmful effects.

### The Drug Resistance Strategies Project

The Drug Resistance Strategies (DRS) project, a culturally-grounded substance use prevention program, began in Phoenix, AZ in the late 1980s and has been introduced to elementary- and middle-school students nationwide. The DRS project includes the curriculum, *keepin' it REAL (kiR)*, which was originally developed for middle-school students but later adapted to elementary-school students. The National Registry of Effective Programs and Practices (NREPP) recognizes the middle-school version of *kiR* as an evidence-based program.

*kiR* draws upon communication competence theory (cf. Spitzberg & Cupach, 1984) which refers to having the motivation, knowledge, and skills to behave appropriately and effectively in a given context. The program developers of *kiR* addressed motivation, knowledge, and skills in several ways. First, interviews were conducted to obtain narratives from adolescents in middle schools throughout Phoenix, AZ to learn the “who, what, where, when, and how” regarding their experiences related to alcohol, tobacco, and other drugs (Hecht & Miller-Day, 2007, p. 345). These narratives contributed to the knowledge component of the curriculum. Second, the program developers used norm focus theory (Reno, Cialdini, & Kallgren, 1993) to incorporate descriptive norms (perceptions of how others in similar situations behave), injunctive norms (perceptions of how others believe one should behave), and personal norms (one's own perceptions of how one should behave), which previous research (e.g., Donaldson, Graham, & Hansen, 1994) found to predict substance use. To address skills, the narratives that were obtained

from students in the Phoenix middle schools provided insight into the resistance strategies that would be effective for youth. The resistance skills from the narratives were termed, Real, Explain, Avoid, and Leave, thereby forming the acronym, REAL (Hecht & Marsiglia, 2006).

#### *A Description of the keepin' it REAL Curriculum*

As the *kiR* curriculum is rooted in communication competence theory, project developers also based the program on culturally relevant issues. With a large percentage of the Phoenix schools consisting of Mexican-heritage youth, the lessons incorporate issues such as ethnic identity, biculturalism, and acculturation stress - key issues that are relevant to this group (Hecht et al., 2003). The curriculum lessons represent the youths' culture in visual images, language, values, norms, and experiences, yet also acknowledge cultural variation. Consequently, the *kiR* lessons avoid stereotypical representations or homogenizing youths' cultural differences. By using motivation, knowledge, and skills that are rooted in communication competence theory, norm focus theory, and the REAL strategies, students learn how to resist substance use offers in a culturally appropriate manner (Hecht et al., 2006).

In the current iteration of *kiR*, two versions exist: a multicultural (MC) and an acculturation enhancement (AE) version. Both the MC and AE conditions include 12 lessons and five video presentations teaching the negative outcomes of substance use, anti-substance use norms, communication skills, refusal efficacy, decision-making skills, resistance strategies, and support networks. In addition to the 12 lessons and five videos, students receive five booster activities in 6<sup>th</sup> grade and then again in 8<sup>th</sup> grade. Both conditions incorporate elements from Mexican American, European American, and African American cultural values. The distinction lies in two lessons during which the AE condition emphasizes elements more representative of Mexican culture and experiences such as biculturalism, cultural diversity, ethnic identification,



and bilingualism (Gosin et al., 2002). The AE lessons highlight pre-existing anti-substance use cultural values, norms, and beliefs, and are aimed at building confidence in refusing substances. Students, however, also are encouraged to perceive their culture and ethnic identity as part of their strengths, promoting ethnic pride. Lessons also include discussions on the acculturation process, exploring possible changes in identity, language choice, and other cultural elements that may transpire during the acculturation process. In contrast, the MC condition includes lessons encouraging youth to take responsibility for their decisions, understanding the decision-making process, and distinguishing between dependence and independence.

#### *keepin' it REAL's Effects on Ethnic Identification*

Given the content of the MC and AE curricula, Mexican-heritage youth participating in the *kiR* program are likely to have higher levels of ethnic identification and increases in ethnic identification over time. In particular, ethnic identification is defined as the degree to which Mexican-heritage youth feel connected with their ethnic group and the culture associated with their ethnic group (Donthu & Cherian, 1992). Maintaining a high level of ethnic identification means Mexican-heritage youth are proud of their ethnic background, have a sense of belongingness to their ethnic group, and participate in their ethnic group's cultural customs (Phinney, 1990). With respect to cultural brokering frequency and negative cultural brokering attitudes, Kam (2009; Chapter 2) found that as Mexican-heritage youth experienced greater ethnic identification, they were more likely to engage in cultural brokering and less likely to report negative cultural brokering attitudes. Having pride in their ethnic heritage meant they were less likely to feel embarrassed or nervous about engaging in cultural brokering. As the MC and AE conditions are culturally grounded curricula, they are likely to have an effect on Mexican-heritage youths' ethnic identification, and in turn, their initial level and changes in ethnic

identification are likely to have an effect on how often they act as cultural brokers and the attitudes they have toward brokering. Thus, the following hypotheses were set forth:

H1: Compared to youth in the control condition, students participating in the program will demonstrate a faster growth in ethnic identification, which in turn, will affect growth in cultural brokering frequency and negative cultural brokering attitudes.

H2: Compared to youth in the control condition, students participating in the program will demonstrate higher initial levels of ethnic identification, which in turn, will affect initial levels and growth in cultural brokering frequency and negative cultural brokering attitudes.

When developing *kiR*, the AE, MC, and control conditions were intended to be conceptually distinct; therefore, it is likely that one condition will have a stronger effect on Mexican-heritage youths' initial levels of ethnic identification and increases in ethnic identification over another condition. The AE condition incorporates lessons that encourage ethnic pride and that discuss issues surrounding the acculturation process such as language choice and experiencing changes in identity that are particularly relevant to the cultural brokering experience. The MC condition, however, mainly teaches students to take responsibility for their decisions, understand the decision-making process, and know the difference between dependence and independence. Because the AE condition addresses issues that appear more applicable to the acculturation process, ethnic identification, and cultural brokering experience, the AE condition is likely to have a stronger effect on ethnic identification than the MC or control conditions. The following hypotheses were set forth:

H3: Compared to youth in the control or the MC conditions, the AE condition will have a stronger effect on the changes in ethnic identification, which in turn, will affect changes in cultural brokering frequency and negative cultural brokering attitudes.

H4: Compared to youth in the control or the MC conditions, the AE condition will have a stronger effect on the initial levels of ethnic identification, which in turn, will affect the initial levels and changes in cultural brokering frequency and negative cultural brokering attitudes.

### Method

The current study comprised of self-report longitudinal data from a randomized clinical trial of the *kiR* curriculum. Although the overall evaluation of *kiR* included a total of six waves, the current study comprised of Waves 4-6 because the cultural brokering measures were only included in these last three waves. The following sections provide a more detailed description of the participants, recruitment process, research design, and measures.

#### *Participants*

At Wave 4, the sample consisted of 676 Mexican-heritage 7<sup>th</sup> and 8<sup>th</sup> grade youth from 23 public middle schools in Phoenix, AZ. Based on Wave 4 data, 220 youth self-identified as Mexican and 443 self-identified as Mexican American youth. Forty-seven percent were male and 53% were female and the mean age was 12.30 years ( $SD = .58$ ). Among these Mexican-heritage youth, 79% participated in the free lunch program, 15% participated in the reduced-lunch-cost program, and 6% did not participate in the free or reduced lunch program at school. Seventy-three percent were born in the U.S. and 28% were born in Mexico. In contrast, 73% had a mother born in Mexico and 74% had a father born in Mexico. Based on the mother's country of origin, approximately 25% of the Mexican-heritage youth were of immigrant status (both mother and

child were born outside of the U.S.), 46% were first generation (mother born outside the U.S. and child born in the U.S.), 21% were second generation (both mother and child were born in the U.S.), and 8% were unknown (i.e., child did not know or did not answer item).

### *Recruitment*

Schools were recruited by DRS project personnel who met with superintendents and then principals in person. Project personnel gave presentations before several school boards and community/parent school boards. This recruitment process was repeated in each subsequent school year to maintain participation. Liaisons also developed and maintained relationships with school administrators and teachers through weekly interactions and participation in school fundraisers. Control schools received \$1,000 for each year that they participated in the study except for the last year of the study because of budget constraints. Intervention schools received the curriculum materials and teacher training during and after the completion of the study.

### *Research Design*

Schools were randomly assigned to seven conditions: control, 5<sup>th</sup> grade MC, 7<sup>th</sup> grade MC, 5<sup>th</sup>/7<sup>th</sup> grade MC, 5<sup>th</sup> grade AE, 7<sup>th</sup> grade AE, and 5<sup>th</sup>/7<sup>th</sup> grade AE (see Table 3.1). At the first wave, 29 schools were randomly assigned to these seven conditions, but by the fourth wave, 23 schools participated in the study. Of the original 29 schools, two schools declined to participate by Wave 4 because they lacked time and one school declined because of the desire to be an implementation school. In addition, three other schools dropped out by Wave 4 because they were elementary schools. These schools could no longer be included in Waves 4-6 when students were then in 7<sup>th</sup> and 8<sup>th</sup> grades (i.e., middle school). Nevertheless, most of those original elementary schools fed into the participating middle schools; therefore, some students from the original elementary schools attended the middle schools and were included in the study.

Table 3.1

*A Summary of the Research Design for the Eight Conditions*

	Wave 1		Wave 2		Wave 3	Wave 4		Wave 5		Wave 6
	Sept 2004 – Jan 2005		Feb – June 2005		Feb – May 2006	Sept – Dec 2006		Feb – May 2007		Jan – March 2008
Condition	5 <sup>th</sup> Grade	5 <sup>th</sup> Grade	5 <sup>th</sup> Grade	6 <sup>th</sup> Grade	6 <sup>th</sup> Grade	7 <sup>th</sup> Grade	7 <sup>th</sup> Grade	7 <sup>th</sup> Grade	8 <sup>th</sup> Grade	8 <sup>th</sup> Grade
Control	O		O		O	O		O		O
5 <sup>th</sup> MC	O	MC	O	B	O	O		O		O
7 <sup>th</sup> MC	O		O		O	O	MC	O	B	O
5 <sup>th</sup> /7 <sup>th</sup> MC	O	MC	O	B	O	O	MC	O	B	O
5 <sup>th</sup> AE	O	AE	O	B	O	O		O		O
7 <sup>th</sup> AE	O		O		O	O	AE	O	B	O
5 <sup>th</sup> /7 <sup>th</sup> AE	O	AE	O	B	O	O	AE	O	B	O

Note. *O* = Observation; *MC* = Multicultural Intervention; *AE* = Acculturation Enhanced Intervention; *B* = Boosters

Among the school conditions at Wave 4, 157 Mexican-heritage youth were from the control condition, 166 received the 5<sup>th</sup> grade MC condition, 62 received the 7<sup>th</sup> grade MC condition, 69 received the 5<sup>th</sup>/7<sup>th</sup> grade MC condition, 94 received the 5<sup>th</sup> grade AE condition, 101 received the 7<sup>th</sup> grade AE condition, and 27 received the 5<sup>th</sup>/7<sup>th</sup> grade AE condition. At Wave 4, five schools comprised the control condition, five schools had received the 5<sup>th</sup> grade MC condition, three schools had received the 5<sup>th</sup> grade AE condition, three schools received the 7<sup>th</sup> grade MC condition, four schools received the 7<sup>th</sup> grade AE condition, two schools received the 5<sup>th</sup>/7<sup>th</sup> AE condition, and one school had received the 5<sup>th</sup>/7<sup>th</sup> grade MC condition.

Because only 676 Mexican-heritage youth participated in Wave 4 but attended a school that had been randomly assigned to one of seven different conditions, the sample size per condition was small. Consequently, the conditions were collapsed from seven to three conditions: control, MC (5<sup>th</sup> grade, 7<sup>th</sup> grade, and 5<sup>th</sup>/7<sup>th</sup> grade combined), and AE (5<sup>th</sup> grade, 7<sup>th</sup> grade, and 5<sup>th</sup>/7<sup>th</sup> grade combined). To justify collapsing the conditions, a MANOVA was conducted examining whether significant differences existed between conditions in regard to ethnic identification, cultural brokering frequency, and negative cultural brokering attitudes at Waves 4-6. For ethnic identification across waves 4-6, significant differences did not exist among conditions: Wilk's Lambda  $F(18, 1271) = 1.15, p = .30$ . Similarly, significant differences did not exist between conditions for cultural brokering frequency across waves 4-6: Wilk's Lambda  $F(18, 1134) = 1.57, p = .06$ , nor negative cultural brokering attitudes: Wilk's Lambda  $F(18, 744.36) = 1.16, p = .29$ .

Prior to implementing the program, teachers received 16 hours of training by project personnel over a 2-day period. Training included an emphasis on knowing each lesson and learning how to successfully manage the class activities. The training sessions introduced

teachers to DRS, the questionnaire process, videos, and each curriculum lesson. Teachers also participated in the activities similar to those in the lessons such as role plays, presentations, games, and group discussions. Upon receiving training, teachers obtained a manual with the curriculum lessons, student worksheets, and overheads. Preparation check lists, key terms and definitions, objectives, activities, examples, scenarios, vignettes, wrap-up reviews, and homework for each lesson were given to the teachers. For attending the training sessions, teachers received \$100.

Teachers executed 12 lessons of the *kiR* curriculum. For the schools receiving the program in 5<sup>th</sup> grade, the teachers introduced the curriculum to students from September, 2004 through May, 2005, with each teacher taking on average 13 weeks to teach all 12 lessons. In 6<sup>th</sup> grade, students participated in a booster implementation that occurred from September, 2005 to March, 2006, taking an average of 18 weeks. The 7<sup>th</sup> grade curriculum was taught from September, 2006 to April, 2007 and took an average of 16 weeks to complete. Students received a booster from September, 2007 to February, 2008, taking an average of 9 weeks to complete.

Prior to survey completion, students provided informed assent and one of their parents provided informed consent, agreeing to the voluntary and confidential nature of the study. At each wave, students completed the survey before project personnel in homeroom, science, or health class, while non-consented students participated in other activities directed by project personnel. Surveys took approximately 45 minutes to complete and were printed in English and Spanish, with scannable response forms. Based on Rogler's (1989) back-translation procedure, DRS project personnel translated the English version of the survey into Spanish and then translated the Spanish version of the survey back into English to increase the accuracy. For an incentive to complete the survey, students in the program schools received pens, highlighters,

frisbees, sun visors, or punch balls that had the *kiR* logo on them. Students from the control schools received pencils, highlighters, or pocket wallets with the name of the local university on them. If students were absent on the day of the survey implementation, DRS personnel followed-up with consented students who completed the survey on another date.

### *Measures*

Ethnic identification, cultural brokering frequency, and negative cultural brokering attitudes were measured at Waves 4-6 (see Appendix A for complete measures and see Table 3.2 for descriptive statistics). Because this study is based on self-report data, the measures of ethnic identification, cultural brokering frequency, and negative cultural brokering attitudes reflect the students' perceptions.

*Ethnic identification.* To measure ethnic identification, four items were taken from The Multigroup Ethnic Identity Measure (MEIM) from Phinney (1992). The introduction asked students, "Thinking about the ethnic group (race or culture) you just chose, do you agree or disagree that:" to which students responded using a 4-point scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). Sample items were "I am happy to be part of my ethnic group," or "I'm very proud of my ethnic group and its accomplishments." Three composite indices were constructed by averaging the four ethnic identification items at each wave.

*Cultural brokering frequency.* Cultural brokering frequency was measured with one item based on the person dimension from Tse's (1995) Language Brokering Scale. The item used a 5-point scale (1 = never, 2 = a little bit, 3 = undecided, 4 = a lot, 5 = always), and the item asked students, "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?" This one item was used at each wave.



*Negative cultural brokering attitudes.* Negative cultural brokering attitudes were measured with two items from the attitude dimension from the Language Brokering Scale (Tse, 1995). The items were on a 5-point scale (1 = never, 2 = a little bit, 3 = undecided, 4 = a lot, 5 = always). The two items were: “I feel embarrassed when I translate for my family” or “I feel nervous when I translate for my family.” Three composite indices were constructed by averaging the two negative cultural brokering attitudes items at each wave.

Table 3.2

*Descriptive Statistics for Ethnic Identification, Cultural Brokering Frequency, and Negative Cultural Brokering Attitudes*

Variable	Mean (SD)	Cronbach's $\alpha$
Ethnic Identification		
(4 items at each wave)		
Wave 4	3.37 (.73)	$\alpha = .91$
Wave 5	3.47 (.71)	$\alpha = .91$
Wave 6	3.57 (.62)	$\alpha = .86$
Cultural Brokering Frequency		
(1 item at each wave)		
Wave 4	2.74 (1.4)	--
Wave 5	2.63 (1.3)	--
Wave 6	2.59 (1.3)	--
Negative Cultural Brokering Attitudes		
(2 items at each wave)		
Wave 4	1.76 (.86)	$\alpha = .66$

Wave 5	1.84 (.93)	$\alpha = .62$
Wave 6	1.78 (.86)	$\alpha = .62$

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### *Handling Data Distribution, Missingness, and Multilevel Structure*

As previously described, the composite scores were calculated for ethnic identification and negative cultural brokering attitudes at each wave, which means the distribution of these data were continuous. Because cultural brokering frequency was measured with one item at each wave and based on a 5-point scale (1 = never to 5 = always), the distribution was considered ordinal. Consequently, the latent growth curve models were examined in *Mplus* 5.1 (Muthén & Muthén, 2007) using the full-information maximum likelihood (FIML) method with robust maximum likelihood (MLR), while identifying the cultural brokering frequency items at Waves 4-6 as categorical. FIML also was applied because this study encountered missingness across Waves 4-6. At Wave 4, 676 Mexican-heritage youth participated in the study, 586 in Wave 5 (87% of Wave 4), and 508 in Wave 6 (87% of Wave 5 and 75% of Wave 4). Wave 5 survey completion occurred two to eight months after Wave 4, and Wave 6 survey completion took place eight to 13 months after Wave 5. Based on the students' data and incomplete cases, the FIML procedure calculates the parameter estimates, and based on the observed information matrix, FIML also calculates the standard errors (Schafer & Graham, 2002).

The Mexican-heritage youth in this study attended one of the 23 participating schools; therefore, the multilevel structure of the data (i.e., students nested within schools) also was controlled for when examining the measurement and structural models. *Mplus* 5.1 controlled for the multilevel-structured data by including the command TYPE=COMPLEX under the ANALYSIS command, while CLUSTER = sch14 was included under the VARIABLE command.

Schl4 refers to the variable used in this study to identify the clustering information (i.e., the school that each student attended; Muthén & Muthén, 2007).

#### *Coding the Three Conditions*

To represent the three conditions (control, MC, and AE), two dummy variables were created. For the first dummy variable, students were assigned a -2 if they participated in the control condition and 1 if they participated in the MC or AE condition. This first dummy variable represented any program (MC or AE) versus the control condition. For the second dummy variable, students were assigned a 0 if they participated in the control condition, a 1 if they participated in the AE condition, and a -1 if they participated in the MC condition. This second dummy variable represented the AE condition in comparison to the MC condition. Both of these dummy variables were included at the same time to examine program effects.

#### *Results*

The longitudinal data in the current study provides the opportunity to use latent growth curve modeling (LGM), an analysis that offers insight into rates of change among ethnic identification, cultural brokering frequency, and negative cultural brokering attitudes (T. E. Duncan, S. C. Duncan, & Stoolmiller, 1994). LGM investigates the changes across time and accounts for predictors that are constant over time or that are time-varying (Pires & Jenkins, 2007). To test the hypotheses, univariate LGMs were initially conducted, followed by several multivariate models.

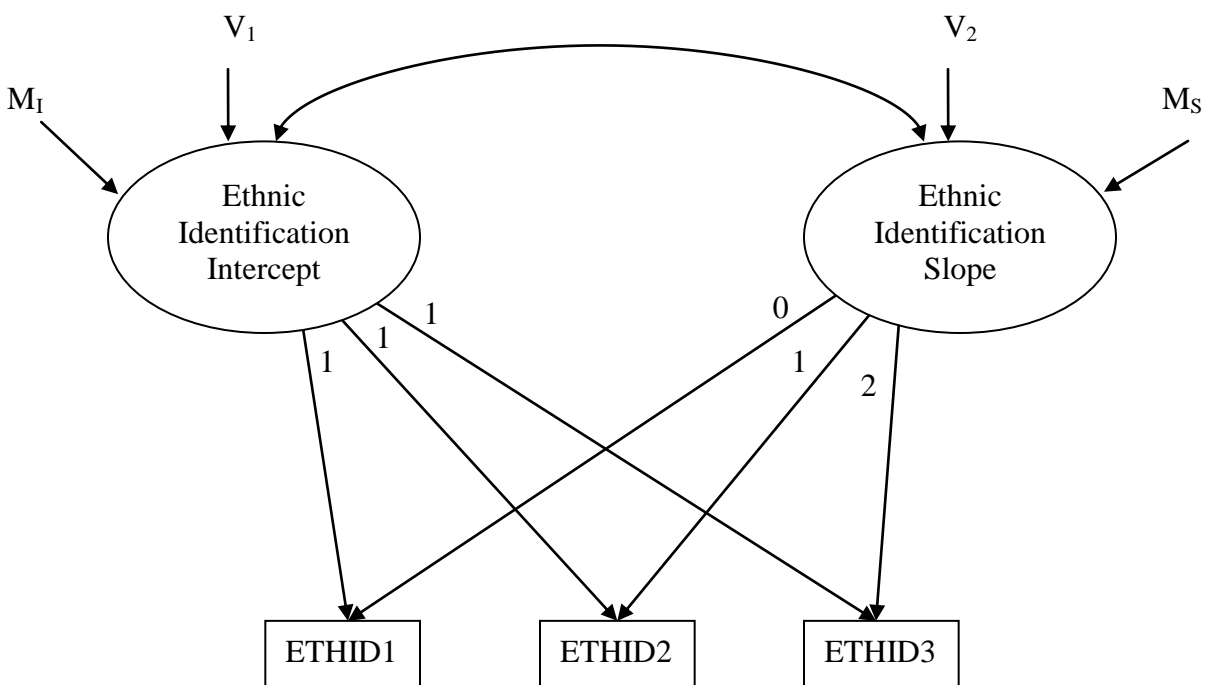
#### *Univariate Latent Growth Curve Models*

In each univariate LGM, the intercept was fixed at 1.0, which means the intercept was constant for all individuals over the three waves (cf. T. E. Duncan & S. C. Duncan, 1995). The slope represented Mexican-heritage youth's trajectories based on the three repeated measures.

The slope factor loadings were set to 0, 1, and 2, meaning that the change was specified as linear. Using *Mplus* 5.1 (Muthén & Muthén, 2007), univariate LGMs were examined separately for ethnic identification, cultural brokering frequency, and negative cultural brokering attitudes. Both the intercept and slope had means and variances (for an example, see Figure 3.1).

Figure 3.1

*An Example of a Univariate LGM*



A univariate LGM was conducted to determine whether Mexican-heritage youths' ethnic identification changed over the three waves. The model fit criteria were based on Kline (2005) and Bentler and Bonett (1980). An acceptable root mean square approximation (RMSEA) should be less than .08, where less than or equal to .05 indicates a close fit of approximation. The comparative fit index (CFI) should be greater than .90 and the standardized root mean square

residual (SRMR) should be less than .10. This model fit the data well ( $\text{FIML}\chi^2 [1] = .99, p = .32$ ; RMSEA = 0.0; 90% CI = .00, .10; CFI = 1.0; SRMR = .02). The mean intercept ( $M_i = 3.38, SE = .03, z = 112.67, p < .05$ ) and the mean slope ( $M_s = .05, SE = .01, z = 5.00, p < .05$ ) were significant. The intercept variance ( $\text{Variance}_i = .26, SE = .06, z = 4.33, p < .05$ ) was significant but the slope variance ( $\text{Variance}_s = .01, SE = .03, z = .333, ns$ ) was not significant, indicating that individual differences existed for these youths' initial levels but not for their trajectories of ethnic identification. The relation between the intercept and slope for ethnic identification was not significant (standardized  $\psi = -.65, SE = .39, z = -1.67, ns$ ), revealing that initial scores were not associated with trajectories.

A univariate LGM was conducted to determine whether Mexican-heritage youths' cultural brokering frequency changed over the three waves. Because the cultural brokering frequency items were ordinal, these items were identified as categorical in *Mplus*, while using the MLR estimator. Consequently, *Mplus* provided a different set of fit statistics: ( $\chi^2_{\text{for Ordinal Outcomes}} [116] = 272.41, p < .05$ ; Loglikelihood H0 = -2343.95; AIC = 4703.89; BIC = 4739.79). The mean intercept ( $M_i = 2.73, SE = .07, z = 39.00, p < .05$ ) and the mean slope ( $M_s = -.17, SE = .07, z = -2.43, p < .05$ ) were significant. The intercept variance ( $\text{Variance}_i = 5.6, SE = 1.1, z = 5.09, p < .05$ ) was significant but not the slope variance ( $\text{Variance}_s = .19, SE = .25, z = .76, ns$ ), indicating that individual differences existed for these youths' initial levels but not for their trajectories of cultural brokering frequency. The relation between the intercept and slope for cultural brokering frequency was significant (standardized  $\psi = -.46, SE = .23, z = -2.00, p < .05$ ), revealing that initial scores were associated with trajectories.

A univariate LGM was conducted to determine whether Mexican-heritage youths' negative cultural brokering attitudes changed over the three waves. This model fit the data well

(FIML $\chi^2$  [1] = 3.45,  $p$  = .80; RMSEA = 0.07; 90% CI = .00, .15; CFI = .96; SRMR = .02). The mean intercept ( $M_i$  = 1.77,  $SE$  = .04,  $z$  = 44.25,  $p$  < .05) was significant but not the mean slope ( $M_s$  = .01,  $SE$  = .02,  $z$  = .500,  $ns$ ). The intercept variance ( $Variance_i$  = .29,  $SE$  = .07,  $z$  = 4.14,  $p$  < .05) was significant but the slope variance ( $Variance_s$  = .02,  $SE$  = .04,  $z$  = .500,  $ns$ ) was not significant, indicating that individual differences existed for these youths' initial levels but not for their trajectories of negative cultural brokering attitudes. The relation between the intercept and slope for negative cultural brokering attitudes was not significant (standardized  $\psi$  = -.62,  $SE$  = .44,  $z$  = -1.41,  $ns$ ), revealing that initial scores were not associated with trajectories.

Prior to testing the hypotheses for the multivariate LGMs, examining the univariate LGMs provides insight into whether individual variations exist among Mexican-heritage youths' initial scores and their trajectories. Estimating these univariate LGMs also reveals whether Mexican-heritage youth reported changes in ethnic identification, cultural brokering frequency, or negative cultural brokering attitudes over time. The mean slopes for ethnic identification and cultural brokering frequency were significant, with increases in ethnic identification and decreases in cultural brokering frequency over the three waves. In contrast, the mean slope of negative cultural brokering attitudes was not significant. Nevertheless, the results from the univariate LGMs justify testing other paths in multivariate models.

### *Testing the Hypotheses*

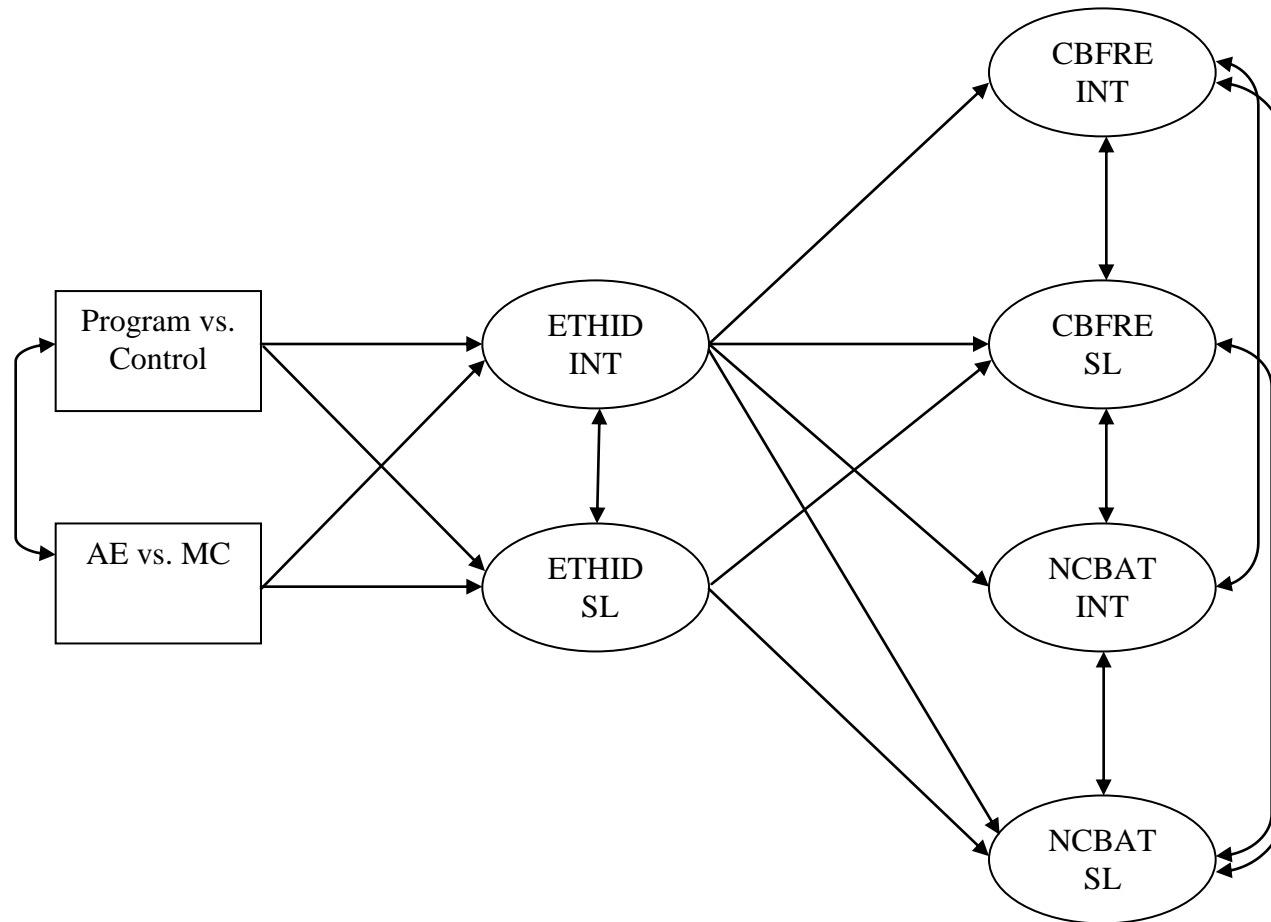
Hypotheses 1 and 2 postulated that compared to the control condition, the MC and AE conditions would have an effect on the intercept and slope of ethnic identification, which in turn, would be associated with the intercept and slope of cultural brokering frequency and negative cultural brokering attitudes. Hypotheses 3 and 4 set forth that compared to the MC and control conditions, the AE condition would have a stronger effect on the intercept and slope of ethnic

identification, which in turn, would be associated with the intercepts and slopes of cultural brokering frequency and negative cultural brokering attitudes. To test these hypotheses, several models were examined. Although this study attempted to examine one multivariate LGM model (see Figure 3.2), this model would not converge despite increasing the starting values and number of iterations. This non-convergence problem was likely a result of the limited sample sizes across waves ( $N_{W4} = 676$ ,  $N_{W5} = 586$ ,  $N_{W6} = 508$ ) and the complexity of the model. This study examined a number of less complex models to test the hypotheses.

First, program effects were inspected by examining a univariate LGM of ethnic identification, while including the two dummy variables as predictors of the intercept and the slope. The model fit the data well: (FIML $\chi^2$  [3] = 4.20,  $p = .24$ ; RMSEA = 0.02; 90% CI = .00, .07; CFI = .99; SRMR = .02). Neither of the dummy variables were significant predictors of the intercept (standardized  $\beta_{Dummy1} = -.03$ ,  $SE = .05$ ,  $z = -.600$ , *ns*; standardized  $\beta_{Dummy2} = -.06$ ,  $SE = .06$ ,  $z = -1.00$ , *ns*) or the slope of ethnic identification (standardized  $\beta_{Dummy1} = .02$ ,  $SE = .12$ ,  $z = .167$ , *ns*; standardized  $\beta_{Dummy2} = -.11$ ,  $SE = .22$ ,  $z = -.500$ , *ns*).

Figure 3.2

*A Multivariate LGM of Ethnic Identification in Relation to Cultural Brokering Frequency and Attitudes*



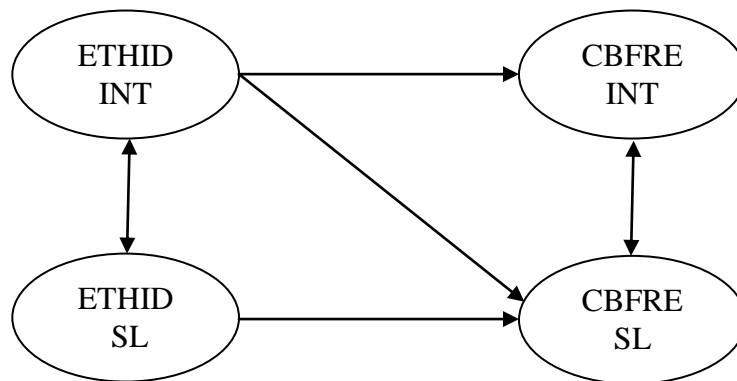
*Note.* ETHID INT = ethnic identification intercept, ETHID SL = ethnic identification slope, CBFRE INT = cultural brokering frequency intercept, CBFRE SL = cultural brokering frequency slope, NCBAT INT = negative cultural brokering intercept, NCBAT SL = negative cultural brokering slope.



Second, a multivariate LGM was conducted to examine ethnic identification in relation to cultural brokering frequency (see Figure 3.3). Because the cultural brokering frequency items were ordinal, these items were identified as categorical in *Mplus*. Consequently, *Mplus* provided a different set of fit statistics: ( $\chi^2_{\text{for Ordinal Outcomes}}$  [108] = 264.85,  $p < .05$ ; Loglikelihood H0 = -4004.13; AIC = 8042.25; BIC = 8118.88). Initial levels of ethnic identification were positively associated with the initial levels of cultural brokering frequency (standardized  $\beta = .35$ ,  $SE = .07$ ,  $z = 5.00$ ,  $p < .05$ ). Having higher initial levels of ethnic identification predicted higher initial levels of cultural brokering frequency. Neither initial levels of ethnic identification (standardized  $\beta = -.04$ ,  $SE = 1.9$ ,  $z = .002$ , *ns*), nor the slope of ethnic identification (standardized  $\beta = .97$ ,  $SE = 1.5$ ,  $z = .647$ , *ns*) were significantly associated with the slope of cultural brokering frequency. Mexican-heritage youths' initial levels of ethnic identification and changes in ethnic identification were not associated with changes in their cultural brokering frequency. This model explained 12% of the variance in the cultural brokering frequency intercept.

Figure 3.3

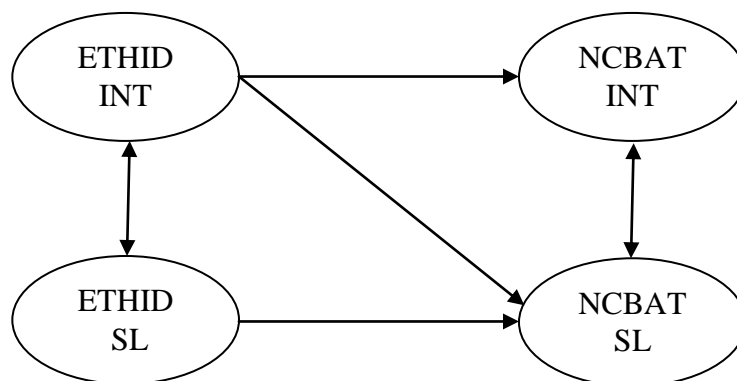
*A Multivariate LGM of Ethnic Identification in Relation to Cultural Brokering Frequency*



Third, a multivariate LGM was conducted to examine ethnic identification in relation to negative cultural brokering attitudes (see Figure 3.4). The model fit the data well: (FIML $\chi^2$  [8] = 5.39,  $p$  = .72; RMSEA = 0.00; 90% CI = .00, .03; CFI = 1.0; SRMR = .03). Initial levels of ethnic identification were negatively associated with the initial levels of negative cultural brokering attitudes (standardized  $\beta$  = -.33,  $SE$  = .11,  $z$  = -3.00,  $p$  < .05). Having higher initial levels of ethnic identification predicted lower initial levels of negative cultural brokering attitudes. Neither initial levels of ethnic identification (standardized  $\beta$  = .15,  $SE$  = .72,  $z$  = .208,  $ns$ ), nor the slope of ethnic identification (standardized  $\beta$  = -.50,  $SE$  = .87,  $z$  = -.575,  $ns$ ) were significantly associated with the slope of negative cultural brokering attitudes. Mexican-heritage youths' initial levels of ethnic identification and changes in ethnic identification were not associated with changes in their negative cultural brokering attitudes. This model explained 11% of the variance in the negative cultural brokering attitudes intercept.

Figure 3.4

*A Multivariate LGM of Ethnic Identification in Relation to Negative Cultural Brokering Attitudes*



In short, neither the MC nor the AE conditions had significant effects on the intercept or slope of ethnic identification. Similarly, neither the intercept nor the slope of ethnic identification was significantly associated with the slope of cultural brokering frequency and negative cultural brokering attitudes. Only the intercept of ethnic identification was significantly associated with the intercepts of cultural brokering frequency and negative cultural brokering attitudes. Consequently, this study's hypotheses were not supported.

#### *Post Hoc Analyses*

Originally, this study hypothesized that *kiR* would have an effect on ethnic identification, which in turn, would have effects on cultural brokering frequency and negative cultural brokering attitudes. This hypothesis was not supported. As a result, a truncated version of the model was tested, examining program effects on cultural brokering frequency and negative cultural brokering attitudes without ethnic identification. This modification makes sense because the AE condition included lessons on the acculturation process that focused on changes in identity, language choices, ethnic identity, and biculturalism, and the MC condition was culturally-grounded. Accordingly, post hoc analyses were conducted to examine whether the MC or AE conditions had direct effects on cultural brokering frequency and negative cultural brokering attitudes. Although neither condition had an effect on ethnic identification, it was theoretically possible that an effect would be present for the two cultural brokering factors.

Program effects were first inspected by examining a univariate LGM of cultural brokering frequency, while including the two dummy variables as predictors of the intercept and slope. Again, because the cultural brokering frequency items were ordinal, these items were identified as categorical in *Mplus*: (Loglikelihood  $H_0 = -2340.32$ ; AIC = 4704.64; BIC = 4758.49). Neither of the dummy variables were significant predictors of the intercept

(standardized  $\beta_{Dummy1} = -.04$ ,  $SE = .05$ ,  $z = -.800$ ,  $ns$ ; standardized  $\beta_{Dummy2} = -.09$ ,  $SE = .07$ ,  $z = -1.29$ ,  $ns$ ) or the slope of cultural brokering frequency (standardized  $\beta_{Dummy1} = -.16$ ,  $SE = .19$ ,  $z = -.842$ ,  $ns$ ; standardized  $\beta_{Dummy2} = .04$ ,  $SE = .15$ ,  $z = .267$ ,  $ns$ ). With respect to negative cultural brokering attitudes, program effects were inspected by examining a univariate LGM of negative cultural brokering attitudes, while including the two dummy variables as predictors of the intercept and slope. The model fit the data well: (FIML $\chi^2$  [3] = 4.03,  $p = .89$ ; RMSEA = 0.02; 90% CI = .00, .07; CFI = .99; SRMR = .02). Neither of the dummy variables were significant predictors of the intercept (standardized  $\beta_{Dummy1} = .06$ ,  $SE = .07$ ,  $z = .857$ ,  $ns$ ; standardized  $\beta_{Dummy2} = .06$ ,  $SE = .07$ ,  $z = .857$ ,  $ns$ ) or the slope of negative cultural brokering attitudes (standardized  $\beta_{Dummy1} = -.07$ ,  $SE = .24$ ,  $z = -.292$ ,  $ns$ ; standardized  $\beta_{Dummy2} = .11$ ,  $SE = .22$ ,  $z = .500$ ,  $ns$ ). In short, post hoc analyses revealed that neither the MC nor the AE conditions had a significant effect on initial levels or changes in cultural brokering frequency or negative cultural brokering attitudes.

## Discussion

Past research found that cultural brokering can have harmful effects on the psychological and physical health of adolescents engaging in this communication process, as well as their academic performance (e.g., Chao, 2006; Kam, 2009; Love & Buriel, 2007). Thus, the current study examined whether the culturally-grounded school-based substance use prevention program, *keepin' it REAL*, had an effect on Mexican-heritage youths' ethnic identification, with the hopes that increases in ethnic identification would be associated with decreases in negative cultural brokering attitudes.

### *Testing the Effects of keepin' it REAL on Ethnic Identification*

The study's findings did not support the hypotheses that, compared to the control condition, the MC and AE conditions would have effects on initial levels and growth in ethnic identification. Neither intervention altered the initial levels or trajectories of Mexican-heritage youths' ethnic identification over the three waves. Several explanations may exist for the lack of a significant program effect in this study.

The non-significant program effects may be a result of a number of factors. First, the control schools implemented other evidence-based substance use prevention programs. Subsequent to the initial study design, Arizona's State Safe & Drug Free Program and Tobacco Coalition began providing funding for schools if they chose to implement a model substance use prevention program. Such programs included Project ALERT (SAMSHA, 2005) and Gonzo's 20 Ground Rules (a local program; Communities in Schools of Arizona, 2007). The structure of the programs and the emphasis on encouraging anti-substance use norms, self-esteem, self control, respect for others, and taking responsibility were similar to the AE and MC curricula. More specifically, Gonzo's 20 Ground Rules promoted being proud of one's heritage, respecting family, and respecting others, which are topics that the AE condition specifically addressed (The Sports Philanthropy Project, 2009). Because control schools were free to implement other model programs, potential effects of the AE or the MC conditions may have been attenuated.

In addition to the potentially confounding effect of control schools, there were some problems with the *kiR* curriculum. First, the curriculum was based on research beginning in the late 1980s, with lessons and videos created in the early 1990s. The lessons and videos were most likely outdated. The videos produced independent effects in a previous trial (Warren et al, 2006),

but the overall effects of that trial were modest. The datedness of the videos may have been enough to reduce the overall impact in the current study.

Another explanation may lie in the distinction between the AE and MC curricula. The major differences between these two conditions were only in two of the 12 lessons developed by the Arizona State subcontractee. Both conditions had similar curricula with respect to lessons 1-9 and 12, but lessons 10 and 11 were substantially different for the two conditions. The AE condition's lesson 10 emphasized ethnic identity, biculturalism, and the acculturation process, whereas the MC condition concentrated on taking responsibility. For both AE and MC conditions, lesson 11 taught youth about involving their parents; however, the AE highlighted parental rules associated with Mexican American culture, whereas the MC condition taught youth to include parents as allies. With only two out of the 12 lessons differentiating the AE condition from the MC condition, it is likely that a greater distinction must be developed throughout the lessons to have an effect on ethnic identification.

#### *The Relation between Ethnic Identification and Cultural Brokering*

Despite previous research (Kam, 2009, Chapter 2; Weisskirch, 2005) finding significant associations between cultural brokering and ethnic identification, the current study did not support this association when using latent growth curve modeling and examining the relation between slopes. Like previous findings, initial levels of ethnic identification predicted initial levels of cultural brokering frequency and negative cultural brokering attitudes. Yet, the difference between the current study and past studies is that changes in ethnic identification over the three waves were not significantly related to changes in cultural brokering frequency or negative cultural brokering attitudes. An explanation for the non-significant finding may be a result of the Mexican-heritage youth in this sample only completing surveys at three waves.

Although three waves is the minimum for modeling change, Henry and Slater (2008) suggest four or more waves is ideal because change over time may be difficult to assess with only three waves. The time between different measurements and the duration of the longitudinal study also may result in undetectable associations (Collins & Graham, 2002). In addition, obtaining more waves of data would allow for assessing whether quadratic growth was more appropriate than linear growth (Henry & Slater, 2008). With more measurement occasions and different intervals, changes in ethnic identification may be significantly associated with changes in cultural brokering frequency and negative cultural brokering attitudes among Mexican-heritage youth.

Another reason for the non-significant associations between the slopes of ethnic identification and brokering frequency and attitudes may be attributed to the small mean slope (.05) of ethnic identification. This mean slope indicates that on average, ethnic identification was only slightly increasing over the three waves, but perhaps not enough to be significantly associated with the slopes of frequency and attitudes. Furthermore, negative cultural brokering attitudes' mean slope was not significant, making it even more difficult for the slope of ethnic identification to be significantly associated with the slope of brokering attitudes. Perhaps with further research, more substantial changes in these experiences would result in significant associations between the slopes.

#### *A Developmental Perspective on Brokering*

Despite this study's non-significant findings with respect to the hypotheses, the results provide a developmental perspective to understanding cultural brokering frequency and negative cultural brokering attitudes over time. Dorner et al. (2007) called for more longitudinal research applied to cultural brokering, which the current study provided through LGM analyses, thereby shedding light on the rate of change within Mexican-heritage youth and between Mexican-

heritage youth. As a whole, Mexican-heritage youth experienced significant decreases in cultural brokering frequency over the three waves. Furthermore, individual differences existed among Mexican-heritage youth with respect to their initial levels and changes in cultural brokering frequency. In contrast, Mexican-heritage youth did not experience a significant increase or decrease in negative cultural brokering attitudes over the three waves. Individual differences were only apparent among Mexican-heritage youths' initial levels but not among their changes in negative cultural brokering attitudes.

### Concluding Remarks

Despite the lack of effects uncovered in this study, cultural brokering frequency and negative cultural brokering attitudes continue to have potentially harmful effects for Mexican-heritage youth. With the increasing immigrant population within the U.S., it is inevitable that families will rely on younger members to engage in brokering for them. Although attempts have been made to hire professional translators in various institutional settings, a professional translator cannot be available at all times (Morales & Hanson, 2005). Given that cultural brokering among younger family members is not likely to stop, researchers must further investigate the factors that predict negative brokering attitudes, identify coping mechanisms that brokers may use, and develop culturally-grounded programs to target these factors.



## CHAPTER 4

### EXTENDING CULTURAL BROKERING THEORY, RESEARCH, AND PRACTICE

Immigrant and linguistic-minority families often have no choice but to rely on younger family members to engage in cultural brokering for them (Weisskirch, 2006). Yet, pre-existing literature has produced inconclusive evidence on the effects of this communication phenomenon (Morales & Hanson, 2005). To provide more clarity, the current research project examined the conditions under which cultural brokering has harmful and beneficial effects on Mexican-heritage youth. Chapter 2 included a study that developed and tested a theoretical model that incorporated the four dominant assumptions of cultural brokering's effects, distinguished between cultural brokering frequency and negative cultural brokering attitudes, and extended the four assumptions to the context of health-related behaviors and academic performance. Next, Chapter 3 comprised of a study that investigated whether a culturally-grounded school-based substance use prevention program had effects on changes in ethnic identification, and whether ethnic identification in turn, had effects on changes in cultural brokering frequency and negative cultural brokering attitudes. Chapter 4 now summarizes the major findings and conclusions, along with the theoretical and methodological contributions. Afterward, Chapter 4 concludes with a discussion of practical contributions, while uncovering gaps within this area of research that warrant further investigation.

#### Theoretical Contributions

The research on cultural brokering has burgeoned within the last two decades; however, it remains in its infancy with respect to formal theory development, application, and testing (Morales & Hanson, 2005). A review of the cultural brokering literature revealed that four

primary assumptions exist with respect to brokering's effects on parentification, stress, and cognitive and linguistic skills. Yet, the current research project is one of the first to formally apply theory to guide each assumption, simultaneously test aspects of each assumption, and extend these assumptions to health-related behaviors and academic performance.

#### *Role Theory and the Parentification Assumption vs. Independent/Interdependent Scripts*

From a role theory perspective on family processes, healthy families maintain a hierarchical role structure in which each member fulfills the behavioral expectations associated with his/her role as a parent, child, grandparent, grandchild, or sibling. Adult family members are often expected to provide care and guidance to younger family members (Jacobvitz, Riggs, & Johnson, 1999). When this hierarchical role structure becomes blurred, younger family members may adopt adult roles, thereby engaging in certain behaviors that are usually expected of adults and may even seem inappropriate for children to enact. This type of role reversal, also known as parentification, transpires when adult family members rely on younger family members for various types of support to the extent to which it may inhibit these younger family members' natural developmental process (Castro et al., 2004). Young family members experience parentification when they give up their own needs to accommodate their adult family members' needs (Chase, 1999). Researchers tend to perceive parentification as a negative experience that results in detrimental effects for the children because of the burden to meet their adult family members' needs. This view of parentification as a problematic experience is rooted in the suppositions that parentification is a stressful experience and that children undergo developmentally inappropriate separation and individuation from adult family members.

The traditional view of parentification as a threat to children's separation and individuation may be based on a Western cultural perspective. Dorner et al. (2008) developed an

alternative theoretical perspective based on a different cultural standpoint. The Western developmental perspective suggests that adopting more responsibilities is an act of independence; however, Dorner et al. (2008) proposed that such an act reflects both independence and interdependence. Moreover, the act of cultural brokering by which younger family members adopt adult responsibilities to assist other family members is perceived as a natural and appropriate behavior. Here, interdependence means taking responsibility for others. Cultural brokering, then, is a way for younger family members to contribute to their family's success without threatening traditional adult-child roles (Orellana et al., 2003).

With role theory and independent/interdependent scripts, two of the key theoretical questions are whether cultural brokering acts as an impetus for parentification and, if so, what are the implications of cultural brokering for adolescents' psychological health and health-related behaviors? Competing perspectives exist with regard to cultural brokering's association with parentification. The limited research (e.g., Mercado, 2003; Dorner et al., 2008; Orellana et al., 2003) that considered these two theoretical perspectives yielded empirical contradictions. These mixed findings perhaps reflect the duality of the immigrant experience, given that cultural brokering is rooted in traditional culture but immersed within the mainstream U.S. culture. Such duality suggests that cultural brokering and parentification may have a more complex relation than implied by the original assumption that cultural brokering leads (or does not lead) to parentification. Instead, this dissertation argues that cultural brokering is a complex multifaceted phenomenon, and different aspects of brokering may relate to parentification in unique ways and have different positive and negative outcomes.

In the past, researchers represented the many aspects of cultural brokering by people for whom participants brokered (e.g., parents, siblings, other relatives, friends), places where they

brokered (e.g., home, school, store, hospital, bank), things they brokered (e.g., notes from school, credit card bills, insurance forms, bank statements), and affective responses toward brokering (e.g., embarrassment, nervousness, enjoyment) (Tse, 1995; Buriel et al., 1998). Most studies create a total cultural brokering score by summing the people, places, and things items and report on total cultural brokering in relation to the variables of interest (Buriel et al., 1998; Díaz-Lázaro, 2002; Mercado, 2003). This total cultural brokering score represents a behavior, whereas feelings toward cultural brokering represent an attitude. Yet, the measure of feelings only refers to any type of affective response to brokering; it does not distinguish between negative or positive affective responses (Díaz-Lázaro, 2002). Consequently, the studies in Chapters 2 and 3 focused on negative cultural brokering attitudes and cultural brokering frequency, postulating that the act of culturally and linguistically mediating for family members may be related to certain factors differently compared to the negative evaluation of the actual behavior.

The distinction between cultural brokering frequency and negative cultural brokering attitudes was used in Chapter 2 to examine the effects on parentification. More specifically, in Chapter 2, it was hypothesized that cultural brokering frequency would be positively associated with adult and problem-solving parentification; however, negative cultural brokering attitudes would be negatively associated with these two types of parentification. The more often young family members engage in brokering, the more likely they are to adopt adult roles, interact in adult situations, and make important decisions that impact the family; therefore, they are more susceptible to experiencing parentification (Mercado, 2003). Yet, when they feel embarrassed or nervous about brokering (negative cultural brokering attitudes), they are less likely to feel in control, mature, or adult-like; thus, they are less likely to experience parentification. In this way, the research in Chapter 2 extended role theory's parentification assumption and the assumptions

of independent/interdependent scripts by specifying unique associations depending on different aspects of brokering. The parentification assumption rooted in role theory was supported by the finding that cultural brokering frequency had significant positive associations with adult parentification and problem-solving parentification. The negative association between negative cultural brokering attitudes and adult parentification, however, did not support role theory and the parentification assumption.

Given the results described in Chapter 2, it appears that when considering cultural brokering frequency's effects on parentification, the role theory and parentification assumption garnered support. The findings in Chapter 2 support the more complex re-conceptualization that cultural brokering frequency and negative cultural brokering attitudes exert different effects on parentification. Nevertheless, neither role theory nor independent/interdependent scripts previously postulated how any aspect other than total cultural brokering would be associated with parentification. The association between negative cultural brokering attitudes and parentification was previously excluded from the two theoretical perspectives and their corresponding assumptions. The results in Chapter 2 revealed that higher levels of negative cultural brokering attitudes were associated with lower levels of adult parentification, which provided a new way of understanding the parentification assumption.

Despite the significant positive association between cultural brokering frequency and the two types of parentification, further research directly testing the independent/interdependent scripts perspective should be conducted before concluding which perspective more accurately represents the brokering experience. Measures of whether youth perceive brokering as a normal activity must first be included to fully capture the independent/interdependent scripts perspective

and to test this perspective. Future research may find that youth believe brokering is a natural way for them to help their family but still experience problematic outcomes.

### *General Strain Theory: Cultural Brokering and Health-Related Behaviors*

Across the cultural brokering literature, another assumption emerged that emphasized this phenomenon's potentially harmful effects on youth. Proponents of this assumption suggest that brokering creates feelings of stress because of the burden associated with this communication process (Jones & Trickett, 2005). Stress may develop from a number of sources associated with brokering such as having to balance between two cultures, participate in adult interactions, represent the entire family, learn sensitive information about family members, and think quickly and spontaneously under pressure (Love & Buriel, 2007; Mercado, 2003; Weisskirch & Alva, 2002). In the past, Jones and Trickett (2005) found that total cultural brokering was distressing for Russian adolescents and Love and Buriel (2007) found it was associated with depression among Mexican American adolescents. Among another sample of Latino youth, the less they thought translating helped them learn another language, the more acculturation stress they reported (Weisskirch & Alva, 2002). In contrast, Mercado (2003) did not find a significant association between total cultural brokering and stress among Latino undergraduate students.

To contribute to this body of literature, the study in Chapter 2 tested the assumption that cultural brokering places youth at risk for stress by predicting that cultural brokering frequency and negative cultural brokering attitudes would be positively associated with acculturation stress. The results in Chapter 2 provided support for this assumption with respect to negative cultural brokering attitudes; however, cultural brokering frequency was not significantly associated with acculturation stress. Cultural brokering frequency's non-significant association with acculturation stress is consistent with Mercado's (2003) non-significant finding. Again, the

findings in Chapter 2 demonstrate the complex nature of cultural brokering, revealing the importance in considering various aspects of this communication phenomenon.

In addition to investigating the assumption that cultural brokering is a stressor, Chapter 2 incorporated GST (Agnew, 1992) to apply this assumption to health-related behaviors.

Proponents of GST (Agnew, 2001) postulate that strains induce negative affect in various forms (e.g., anger, frustration) and to decrease the pressure from this negative affect, individuals may turn to unhealthy and problematic behaviors (e.g., substance use, crime). In the context of cultural brokering, frequency and negative attitudes may act as strains that result in negative affect (e.g., acculturation stress) and place youth at risk for engaging in problematic behaviors (e.g., substance use and other risky behaviors). The study reported in Chapter 2 examined GST and found that negative cultural brokering attitudes had an indirect effect on cigarette smoking through acculturation stress; however, cultural brokering frequency did not have a significant indirect effect on any of the substances through acculturation stress. With respect to negative cultural brokering attitudes, GST garnered support, but not in regard to cultural brokering frequency. In short, negatively evaluating cultural brokering, rather than the mere act itself, appeared more detrimental to Mexican-heritage youths' health-related behaviors.

#### *Translation-Based Theory: Cultural Brokering and Academic Performance*

When considering the potentially positive effects of cultural brokering, Buriel et al. (1998) used a translation-based theory to argue that cultural brokers develop cognitive and linguistic skills that help them do better academically compared to non-brokering peers. Based on this theoretical perspective, the types of complex interactions in which cultural brokers engage and the advanced vocabulary level that they have to develop are the types of skills valued in the educational system. Over time, cultural brokering enhances these skills and enables the

brokers to do better in school. The second chapter represents a more complex picture of this process. Based on Buriel et al.'s (1998) translation theory, the study in Chapter 2 proposed that cultural brokering frequency would be positively associated with English reading speed (a proxy for cognitive and linguistic skills), but negative cultural brokering attitudes would be negatively associated with English reading speed. The results supported this hypothesis. The association between cultural brokering frequency and English reading speed was consistent with the first part of Buriel et al.'s (1998) translation-based theory. Mexican-heritage youth were able to read English faster the more they participated in cultural brokering, most likely as a sign of the complex cognitive and linguistic processes that they developed when brokering. Similarly, McQuillan and Tse (1995) documented through interviews with bilingual adults that they reported a greater English language acquisition. The current study's findings, however, show how one aspect of cultural brokering, negative attitudes, may actually hinder Mexican-heritage youths' English reading speed. Feeling embarrassed or nervous about brokering may reduce youths' academic self-efficacy, thereby slowing their English reading down.

When considering the indirect effects of cultural brokering frequency on grades, English reading speed partially mediated the association. This finding supports Buriel et al.'s (1998) translation-based theory suggesting that engaging in cultural brokering enhances youths' cognitive and linguistic skills, which helps improve academic performance. Similarly, Dorner et al. (2007) found that increased cultural brokering was associated with increased standardized reading test scores among 5<sup>th</sup> and 6<sup>th</sup> grade Mexican immigrants. The results in Chapter 2 provide further support for the academic benefits of cultural brokering frequency among a sample of 6<sup>th</sup> through 8<sup>th</sup> grade Mexican-heritage youth. English reading speed also partially mediated the association between negative cultural brokering attitudes and grades. As Mexican-



heritage youth formed negative cultural brokering attitudes, they were less likely to read English quickly and less likely to report high grades. The findings described in Chapter 2 revealed the harmful effects of negative cultural brokering attitudes and the positive effects of cultural brokering frequency on Mexican-heritage youths' academic performance. Hence, these findings suggest that Buriel et al.'s (1998) translation-based theory would benefit from incorporating different aspects of cultural brokering, explaining how each aspect relates to cognitive and linguistic skills, and in turn, academic performance. Overall, however, the original postulation of the translation-based theory was supported – brokering improved cognitive and linguistic skills (i.e., English reading speed), which in turn, enhanced academic performance (i.e., grades).

#### Methodological Contributions

The results from Chapters 2 and 3 make several methodological contributions to previous cultural brokering research, while answering certain essential questions. The majority of studies conducted on cultural brokering are comprised of cross-sectional data and small sample sizes (e.g., Acoach & Webb, 2004; De Ment et al., 2005; Tse, 1995; Tse, 1996; Weisskirch & Alva, 2002; Weisskirch, 2005, 2006, 2007). Consequently, few studies have the statistical power or appropriate data to apply certain advanced methods to answer the types of research questions posed in this dissertation. Obtaining larger sample sizes and longitudinal data are most appropriate when attempting to simultaneously investigate multiple independent variables, mediators, and dependent variables in an SEM analysis or to examine the changes of ethnic identification in relation to changes of cultural brokering frequency with multivariate LGM analysis. All of the past studies have made important contributions to the literature on cultural brokering. Nevertheless, the studies in Chapters 2 and 3 contribute by incorporating longitudinal data and larger sample sizes to employ SEM and LGM for the purpose of simultaneously

examining the four dominant assumptions, extending these assumptions to health-related behaviors and academic performance, and investigating the growth of cultural brokering frequency and negative cultural brokering attitudes.

### *The Benefits to Obtaining Longitudinal Data*

Through acquiring longitudinal data, researchers can provide unique information and answer specific research questions that are impossible to do with cross-sectional data. First, longitudinal data allows researchers to determine cultural brokering's short-term and long-term effects. The results from Chapter 2 revealed that cultural brokering frequency measured at Wave 4 (7<sup>th</sup> grade) had indirect effects on alcohol use measured one year later at Wave 6 (8<sup>th</sup> grade). Negative cultural brokering attitudes measured in Wave 4 (7<sup>th</sup> grade) indirectly affected cigarette smoking approximately one year later (Wave 6; 8<sup>th</sup> grade). Additional research is warranted to determine whether these two aspects of brokering have even longer-lasting effects on Mexican-heritage youths' health-related behaviors. Yet, the study in Chapter 2 provides preliminary results that demonstrate brokering's effects at least one year later.

In addition to assessing short-term and long-term effects, longitudinal data allow researchers to test postulations of mediation such as those proposed in GST (Agnew, 1992). Although many researchers examine mediation with cross-sectional data, the theoretical conceptualization behind mediation assumes a specific time ordering of the variables. Theoretically, with mediation, researchers investigate whether *X* has an effect on *Y* through one or more intervening variables, *M* (Preacher & Hayes, 2008). Longitudinal data allow for a more accurate representation of mediation compared to cross-sectional data. The study in Chapter 2 consisted of longitudinal data with ethnic identification measured at Wave 3, cultural brokering frequency and negative brokering attitudes at Wave 4, adult parentification, problem-solving

parentification, acculturation stress, and English reading speed at Wave 5, and substance use, other risky behaviors, and grades at Wave 6, all corresponding to their theoretically proposed ordering. In proposing a mediation model ultimately predicting substance use, other risky behaviors, and grades, longitudinal data also allowed the analyses reported in Chapter 2 to control for prior behaviors. These analyses examined the indirect effects of cultural brokering frequency and negative brokering attitudes on substance use, other risky behaviors, and grades, while controlling for prior alcohol use, cigarette use, marijuana use, risky behaviors, and grades.

Finally, longitudinal data allowed analyses in Chapter 3 to examine whether changes in one factor (e.g., ethnic identification) were associated with changes in another factor (e.g., cultural brokering frequency). In addition, researchers can assess whether within-individual changes (e.g. Does the rate of cultural brokering among individuals decrease over time?) occurred over time (Fitzmaurice, Laird, & Ware, 2004). Collecting longitudinal data enables researchers to answer a number of questions that shed light on the complex nature of cultural brokering and its effects.

### *Multiple Mediation with Structural Equation Modeling*

One of the benefits to using SEM in the analyses reported in Chapter 2 was the ability to examine multiple mediators in one analysis. Analyzing one mediator at a time may result in biased parameter estimates because a variable was not included in the model. Further, including multiple mediators in a model allows researchers to compare different theoretical perspectives (Preacher & Hayes, 2008). In the cultural brokering literature, few, if any, studies have examined single or multiple mediators. The study in Chapter 2, however, revealed that adult parentification mediated the association between cultural brokering frequency and alcohol use when taking into consideration (controlling for) other potential mediators (e.g., problem-solving parentification,

acculturation stress, English reading speed) in the model. Similarly, acculturation stress mediated the association between negative cultural brokering attitudes and cigarette use, while controlling for other potential mediators (e.g., both types of parentification and English reading speed). The results described in Chapter 2 do not provide adult parentification or acculturation stress' unique effect as single mediators but instead reveal their effects in conjunction with all the other potential mediators included in the model. Examining multiple mediators in one SEM analysis reveals that one theory or assumption does not exist alone, but instead, multiple theories and assumptions can operate simultaneously.

### *Latent Growth Curve Modeling*

The study reported in Chapter 3 considered the effects of a culturally-grounded substance use prevention program in influencing the rates of change and the initial levels of ethnic identification in relation to those of cultural brokering frequency and negative cultural brokering attitudes. Although the study in Chapter 3 did not find support for program effects or changes in ethnic identification predicting changes in cultural brokering frequency and negative cultural brokering attitudes, univariate LGMs provided a picture of each individual pattern of change. Ethnic identification's significant positive mean slope revealed that on average, Mexican-heritage youths' ethnic identification increased over time. The significant negative mean slope of cultural brokering frequency revealed that over the three waves, Mexican-heritage youth's rate of cultural brokering decreased. In contrast, the univariate LGM revealed that on average, negative cultural brokering attitudes did not significantly change over time.

In the past, cultural brokering researchers suggested that this communication act is likely to change over time. Cultural brokering may begin at any age and at any time, depending on whether individuals engage in intercultural interactions that require such assistance (Harris,

1977; McQuillan & Tse, 1995). Further, cultural brokering may begin or continue into adulthood if family members require a linguistic and cultural mediator (Buriel et al., 2006). As parent(s) or other family members live in the U.S. for a longer period of time, they may rely less on youth to cultural broker (Jones & Trickett, 2005). Thus, cultural brokering may occur temporarily, periodically, everyday, or at almost any age, depending on their family members' interactions and transactions with the U.S. mainstream culture (Weisskirch, 2006). Despite these likely changes, longitudinal data accompanied by the appropriate analyses have been absent from the cultural brokering literature. The results of Chapter 3 provided initial support for what cultural brokering researchers have suspected - cultural brokering frequency changed over time, but more specifically, decreased over time for the Mexican-heritage youth in Chapter 3's study.

#### *Examining Ethnic Identification with SEM and LGM*

In comparing Chapters 2 and 3, the results from Chapter 2 revealed that higher levels of ethnic identification were associated with higher levels of cultural brokering frequency but lower levels of negative cultural brokering attitudes. The study in Chapter 3 described LGM results in which initial (i.e., mean) levels of ethnic identification were positively associated with initial levels of cultural brokering frequency and negatively associated with initial levels of negative cultural brokering attitudes. Yet, when assessing change, the slope of ethnic identification was not significantly associated with either slopes of cultural brokering frequency or negative cultural brokering attitudes. The non-significant association may be attributed to ethnic identification's small significant mean slope of .05; this small mean reveals that on average, ethnic identification only slightly increased over time. Another explanation for the non-significant associations between the slopes may be due to the number of measurement occasions, with Chapter 3's study only comprising of three waves. Researchers in the future should obtain more measurement

occasions to determine whether changes in ethnic identification are related to changes in cultural brokering frequency and negative cultural brokering attitudes. In short, despite the non-significant associations between slopes described in Chapter 3, the possibility of such an association should not be disregarded.

### Practical Contributions and Future Directions

The study in Chapter 2 revealed that cultural brokering frequency and negative cultural brokering attitudes may exhibit harmful influences on Mexican-heritage youth; however, these two aspects of brokering may not inevitably lead to negative outcomes. Protective factors may exist that can ameliorate these effects (Agnew, 1992; Broidy, 2001). Further inspection into protective factors led the study in Chapter 3 to examine whether a culturally-grounded substance use prevention program exerted effects on changes in ethnic identification associated with changes in cultural brokering frequency and negative cultural brokering attitudes. Unfortunately, the analyses reported in Chapter 3 did not reveal any significant program effects. Consequently, further efforts must be made to identify potential factors to target, with the goal of decreasing negative cultural brokering attitudes and teaching Mexican-heritage youth healthy coping strategies. Next, Chapter 4 turns to a discussion of these potential protective factors.

### *Decreasing Negative Cultural Brokering Attitudes*

The study in Chapter 2 revealed that negative cultural brokering attitudes may be problematic for Mexican-heritage youths' psychological health, health-related behaviors, and grades, which has implications for culturally-grounded prevention programs. The findings reported in Chapter 2 suggest that promoting strong ethnic identification may be beneficial to Mexican-heritage youth with negative cultural brokering attitudes. The results demonstrated that the prouder and more involved Mexican-heritage youth were with their ethnic heritage, the more

often they brokered but the less likely they were to feel embarrassed or nervous about brokering. Programs that encourage youth to appreciate their ethnic heritage may decrease negative attitudes toward brokering, and in turn, reduce acculturation stress and cigarette use.

The results described in Chapter 2, however, revealed that encouraging ethnic identification means youth are more likely to engage in brokering. With increased brokering, a contradiction exists with respect to garnering positive and negative effects. As brokering occurred more often, the Mexican-heritage youth in Chapter 2 were less likely to engage in risky behaviors and more likely to perform better in school. In contrast, these youth also were at risk for adult parentification, and in turn, alcohol consumption. Overall, ethnic identification, as examined in the first study, seems to exert more positive than negative effects among Mexican-heritage youth. Nevertheless, further research must explore multiple aspects of ethnic identity to determine how they predict cultural brokering frequency and negative cultural brokering attitudes and whether certain aspects of ethnic identity are more beneficial than others.

More specifically, ethnic identity comprises of multiple dimensions - ethnic pride and ethnic typicality – with only ethnic pride captured in Chapters 2 and 3 (Marsiglia, Kulis, & Hecht, 2001). In Marsiglia et al.'s study, Mexican American 7<sup>th</sup> grade students with a strong sense of ethnic pride were less likely to use substances or be exposed to substances. Yet, as students believed their actions, speech, and appearance were consistent with their ethnic group (i.e., ethnic typicality), they were more likely to use substances. Hence, various aspects of ethnic identity may have different effects on cultural brokering frequency and negative cultural brokering attitudes, meaning that perhaps only certain aspects of ethnic identity have more positive effects. Prevention researchers may learn that encouraging ethnic pride is more

beneficial than promoting ethnic typicality, but this strategy has not been applied or examined with respect to cultural brokering frequency, attitudes, and other aspects of brokering.

### *Decreasing Cultural Brokering Frequency*

The results conveyed in Chapter 2 revealed that as Mexican-heritage youth participate in cultural brokering more frequently, they were more likely to experience adult parentification that put them at greater risk for alcohol consumption. Given that cultural brokering frequency may be a risk factor, one may think an appropriate solution would be to decrease cultural brokering. Often, however, immigrant and language-minority families must rely on younger family members to linguistically and culturally mediate for them because of the limited professional assistance available (Morales & Hanson, 2005). Cultural brokering also occurs spontaneously, where waiting to locate and hire a professional translator may at times be inefficient or impractical. Thus, attempting to completely do away with cultural brokering would be a lofty and most likely impossible goal to achieve. One way to handle the potentially negative effects of cultural brokering is to examine healthy coping strategies.

### *Establishing Coping Mechanisms*

The literature on strains and parentification both suggest that it is possible to experience these phenomena without garnering detrimental effects (Hooper, 2007; Agnew, 2001). Not all strained and parentified youth turn to substances or perform poorly in school. The question, then, is what makes some youth more resilient than others to the potentially harmful effects of strains? With GST, Agnew (2001) suggested that individuals have multiple coping resources that they may rely on, thereby decreasing the likelihood that they will engage in problem behaviors to reduce strain. Youth may use a variety of coping mechanisms, some of which may be cognitive adjustments, as well as receiving support from parents, peers, and teachers. In particular, youth



may rely on cognitive adjustments such as convincing themselves that the burden from cultural brokering is not significant (i.e., that it is bearable) or that they deserve to experience such responsibilities (cf. Agnew, 1992). In addition, youth may turn to family, friends, teachers, or other people in their lives for support. Although youth may have a host of coping mechanisms, the following sections focus on parent-child communication and the parent-child relationship as a potential coping resource.

#### *Parent-Based Resources as Coping Mechanisms*

Considering the role of parents among Mexican-heritage youth is particularly relevant because of the unique cultural values that researchers in the past found salient among these youth (Guilamo-Ramos et al., 2007; La Roche & Shriberg, 2004). Adherence to these cultural values means parents play an important and influential role among Mexican-heritage youth (Halgunseth, Ispa, & Rudy, 2006). Parents may socialize their children about their culture, ethnicity, and race that not only influence how these children perceive their own identities, but how they perceive others who adhere to mainstream U.S. culture. Their perceptions of their own cultural, ethnic, and racial identity in relation to others are likely to influence how they evaluate the cultural brokering experience. In addition to cultural, ethnic, and racial socialization, youth who share a close bond with their parents and who receive supportive messages from their parents also may be more resilient to the potentially negative effects of brokering frequency and attitudes. In short, parents may act as coping mechanisms for cultural brokers (Love & Buriel, 2007), thereby decreasing the likelihood that they will handle their negative cultural brokering attitudes, parentification, or acculturation stress in unhealthy ways.

*Cultural, ethnic, and racial socialization.* Parents play an important role of enculturating or socializing their children with respect to their culture, ethnicity, and race. Ethnic socialization

refers to “how children acquire behaviors, perceptions, values, and attitudes of an ethnic group and come to see themselves as members of the group” (Umaña-Taylor, Alfaro, Bámaca, & Guimond, 2009, p. 48). The messages that family members convey about culture, ethnicity, and race influence their children’s identity and their worldview (Hughes et al., 2006; Neblett et al., 2008). In the context of brokering, parents may prepare their children for the role, conveying the expectations associated with the position, the types of settings they may find themselves in, and the types of reactions they may encounter from members of mainstream U.S. culture. A parent-child discussion on brokering may impact how children evaluate the entire experience, which in turn, may have an effect on their attitudes toward brokering. Further, negative cultural brokering experiences may stimulate more conversations about culture, ethnicity, and race, along with ways of dealing with any feelings of parentification or stress.

In the literature on racial socialization among African American parents, positive themes emerged such as teaching children about racial pride, overcoming racial barriers, egalitarianism, and self-worth. Negative themes also were apparent such as stereotyping (cf. Neblett et al., 2008). Cultural, ethnic, and racial socialization does not necessarily mean that parents convey positive messages; therefore, researchers must encourage positive socialization messages. In Neblett et al.’s (2008) study among African American adolescents, their finding provided some evidence that high positive racial socialization messages buffered against discrimination’s effects on stress and problem behaviors. Future research should assess whether parents’ positive cultural, ethnic, and racial socialization decrease negative brokering attitudes or act as protective factors against acculturation stress and adult parentification among Mexican-heritage youth.

*Parent-child closeness.* In addition to socialization efforts, the bond between parents and their children also may act as a buffer against the harmful effects of brokering. Parent-child

closeness refers to “the psychological bond a person feels toward his or her parent” (Golish, 2000, p. 80). Parents, who share a close relationship with their children, provide support by “being there” for their children, and expressing warmth, care, attention, and understanding (Golish, 2000; Miller-Day, 2002).

Love and Buriel (2007) suggested that “the stress associated with language [cultural] brokering may become overwhelming for children who do not receive additional support from the people expecting them to broker (e.g., the parents)” (p. 476). The findings in Chapter 2 revealed that Mexican-heritage youth were more likely to use alcohol or cigarettes to manage their parentification and acculturation stress from cultural brokering frequency and negative attitudes toward brokering. These youth may not have received additional support from the people for whom they brokered. GST (Agnew, 1992) sheds light on parents as a coping resource. General strain theorists suggest that individuals experiencing high quality parent-child relationships are less likely to engage in deviant behaviors (Ganem & Agnew, 2007). If cultural brokers develop parentification or acculturation stress, parent-child closeness in the form of providing care and understanding are likely to mitigate the negative impact of these experiences.

In the future, researchers should investigate the types of supportive and comforting messages that parents provide to their children with respect to the brokering experience. More specifically, researchers must examine how parents of Mexican heritage communicate support and comfort and whether such messages are effective in buffering the negative effects of brokering. By determining successful supportive and comforting messages for Mexican-heritage youth, culturally-grounded prevention programs can teach parents how to convey such messages.

*Including the parents’ perspectives.* Children’s perceptions of their communication and relationship with their parents are likely to influence how they evaluate brokering and how they

cope with any parentification or stress associated with brokering. Thus far, however, research reported in Chapters 2 and 3 only provide insight into the cultural brokering youths' perspective, excluding the family members for whom they broker. Further research is necessary to determine whether adult family members perceive any disruption in the power structure, how they feel relying on the younger family members, and whether they perceive brokering as potentially problematic. For instance, Vietnamese adolescents in Trickett and Jones' (2007) study thought that cultural brokering was associated with their family disagreement, but this association was not found among parents' reports. This finding reveals that adolescents and their parents may have different perceptions of cultural brokering, and research in this area would benefit from examining how each perspective differs and how each perspective influences the other's experiences and outcomes. Knowing the parents and children's needs would inform culturally-grounded preventionists in their efforts to include and assist both parties.

#### *Developing a Culturally-Grounded Program with a Parent Component*

The results described in Chapter 3 revealed that a modified version of *keepin' it REAL (kiR)*, a culturally-grounded substance use prevention program, did not have significant effects on initial levels and changes in ethnic identification, cultural brokering frequency, or negative cultural brokering attitudes. The non-significant effects may reveal that this approach to prevention cannot address cultural brokering without more direct attention to the communication and relationships among family members. Brokering involves more than one person. Orellana et al. (2003) highlighted this communication phenomenon as a team effort, with family members and brokers working as a team to help the family succeed in the U.S. Perhaps a culturally-grounded prevention program incorporating parents and their children may be more effective in decreasing negative cultural brokering attitudes and encouraging healthier coping strategies.

In particular, *Sembrando Salud* (Litrownik et al., 2000) is one example of a culturally-based substance use prevention program that includes a parent component. This program does not specifically address cultural brokering, nor does it examine cultural brokering's effects (Litrownik et al., 2000). Nevertheless, *Sembrando Salud* may be an appropriate prevention program that includes relevant information and that may have an effect on cultural brokering youth. *Sembrando Salud* acts as a school-based and family-based program that teaches youth and their parents information about social influences, refusal skills, parent-child communication, and the effects of tobacco and alcohol use on health outcomes, while incorporating traditional Latino cultural values such as familism and respect. The parent-child communication component teaches parents to be supportive of their children by listening, confirming, and reassuring when discussing health-related behaviors and decisions. In an evaluation of the program, both parents and adolescents in the intervention group experienced improved parent-child communication (Litrownik et al., 2000). Although not examined together, another evaluation of the program found that higher levels of parent-child communication were associated with decreases in lifetime tobacco and alcohol use (Elder et al., 2000). This program provides some preliminary evidence for parent-child communication as a protective factor against substance use but also provides a vehicle for improving this potential coping resource. Moreover, such a program that incorporates parents, along with traditional Latino cultural values may have an effect on decreases in negative cultural brokering attitudes.

The adapted version of *kiR* attempted to address traditional Mexican culture and the adaptation process through an acculturation enhancement (AE) condition. As described in Chapter 3, the program adopted the perspective that communication, norms, and social relationships differ by culture. This type of program targeted certain factors such as ethnic

identification, having pride in one's ethnic group, and valuing multiculturalism - factors that appeared relevant to cultural brokers. The non-significant program effects, however, reported in Chapter 3 reveal that further efforts must be made to address the needs of cultural brokering youth, and ultimately, decrease the potential for engaging in negative health-related behaviors. The findings in Chapter 3 demonstrated that the AE version of *kiR* would potentially benefit from incorporating lessons on ethnic identification, language choice, cultural brokering, cultural/ethnic/racial socialization, acculturation stress, and traditional Mexican values (e.g., familism, respect, personism) throughout all 12 lessons instead of only two. Further, including a parent component similar to *Sembrando Salud* may strengthen the effects.

#### *Incorporating More Measures to Fully Capture the Variables of Interest*

Prior to developing a culturally-based prevention program for brokering youth and their parents, new measures must be developed, validated, and incorporated to fully represent cultural brokering and its related processes and theories. The research in Chapters 2 and 3 are merely preliminary steps in determining the conditions under which brokering exhibits negative and positive effects. Further measurement development and integration can provide a more encompassing representation of the phenomenon.

#### *Cultural Brokering Measures*

In particular, the studies in Chapters 2 and 3 considered how often Mexican-heritage youth engaged in brokering for a family member, but the measure did not specifically identify for whom (e.g., parent, grandparent, sibling) these youth mediated. Negative cultural brokering attitudes only addressed how embarrassed or nervous these youth were about brokering. Not only does future research need to incorporate Tse (1995) and Buriel et al.'s (1998) measures of cultural brokering that specifies people, places, things, and feelings, but additional measures

must be developed to capture other aspects. For instance, measures should be included that assess brokering efficacy such as whether cultural brokers feel inadequate about their mediating abilities. Further, brokers do not necessarily provide word-for-word translation but instead alter the messages, sometimes to protect their family from conflict or embarrassment (Orellana et al., 2003). Measures should be developed to operationalize the extent to which cultural brokers intentionally alter or withhold the messages for the sake of the family or themselves.

To capture the independent/interdependent scripts perspective, researchers also must develop measures to operational whether these youth perceive brokering as a natural contribution to their family's success within the U.S. Orellana et al. (2003) and Dorner et al. (2008) found through qualitative data that youth report cultural brokering as a normal activity. Measures that capture this perception could be included in surveys to determine whether perceiving brokering as a normal activity acts as a protective factor against adult parentification's effects on alcohol use. Developing measures that capture more aspects of brokering allows researchers to investigate how these experiences relate to the four dominant assumptions and what kinds of indirect effects they may have on health-related behaviors and academic performance.

### *Parentification Measures*

In addition to developing more measures of cultural brokering, operationalizing parentification more fully would further clarify its association with brokering. The questionnaire used in Chapter 2 only included two items measuring adult parentification and two items measuring problem-solving parentification. Larger and more complex scales (e.g., Jurkovic et al., 2001; Mika et al., 1987) exist that measure other components such as instrumental parentification, emotional parentification, destructive parentification, parental role, and the spousal role (Hooper, 2007; Stein et al., 2007). Operationalizing the extent to which youth

sacrifice their needs for their family because of cultural brokering also should be assessed. For instance, Umaña-Taylor (2003) described how children may sacrifice their education and employment opportunities to take care of their family through brokering. Capturing the sacrifices that cultural brokers make and how this communication phenomenon actually jeopardizes their development will shed light on role theory and the parentification assumption.

### *Role Strain Measures*

Further inspection of role theory revealed that more measures should be included to assess other types of role strains, which refer to individuals' difficulty in meeting the expectations associated with one or more roles (Goode, 1960). Role conflict constitutes one type of role strain (Biddle, 1986). For instance, some parents who immigrate to the U.S. knowing minimal English may perceive their child's role is to participate in cultural brokering for them based on familial obligations. Nevertheless, these children may not wish to serve as cultural brokers or they may not perceive themselves as cultural brokers if they dislike acting as linguistic and cultural intermediaries. Depending on the role, individuals have certain expectations and a prescribed set of behaviors attached to these positions, which they may choose to cognitively and behaviorally accept or reject (Solomon et al., 1985). Measures that capture role conflicts with respect to brokering should be included to determine how these conflicts predict health-related behaviors and academic performance.

Similarly, role ambiguity and role overload are other types of role strains that may emerge as individuals attempt to manage their role obligations. Role ambiguity transpires when individuals lack the information necessary to fulfill the expected behaviors. For instance, some brokering children may not have the level of vocabulary required to enact their role, or if they have not participated in a particular interaction (e.g., performing bank transactions, completing



insurance forms, paying bills), they may not know how to carry out their role as a cultural broker in these situations. In addition to role ambiguity, role overload manifests when individuals have an overwhelming amount of behavioral expectations to carry out (Biddle, 1986). With role overload, individuals do not have enough resources to meet the role expectations (Burnette, 1999). When individuals have multiple roles to fulfill at one time, having to meet each role obligation may lead to role overload (Goode, 1960). In short, cultural brokers may experience these different types of role strains in addition to parentification. Operationalization of these role strains would benefit future research assessing the effects of cultural brokering.

### *Addressing the Needs of Specific Groups*

Because not every cultural broker may develop parentification and acculturation stress, read English slowly, engage in problematic behaviors, or earn poor grades, future research must examine whether the results in Chapters 2 and 3 differ for various groups. Perhaps some groups based on age, culture, ethnicity, or other factors may be at greater risk than others. Identifying groups that are more at risk for poor psychological health, problematic health-related behaviors, and weak academic performance can result in more targeted prevention programs. Programs may need to differ in the types of factors they address depending on the group.

### *Age Comparisons*

When investigating cultural brokering's effects, future research should consider different age groups, as well as developmental changes that may occur over time. Studies should follow the cultural brokering experience over an extended period of time from adolescence to adulthood to investigate whether changes occur over time. Alternatively, different age groups (adolescents, emerging adults, middle-aged adults) could report on their cultural brokering and parentification to determine whether differences in associations exist based on age. Questions emerge as to

whether cultural brokering predicts parentification for adult children or whether perceptions of familial roles change over time, thereby decreasing the harmful effects of cultural brokering.

The risk may be more prevalent and problematic among adolescents compared to adults in their midlife who engage in cultural brokering for an older parent.

### *Cultural and Ethnic Comparisons*

In addition to age, cultural brokering frequency and attitudes' effects may vary depending on cultural and ethnic groups. Chao (2006) provided some initial evidence for this group variation by revealing that Korean American adolescents were at greater risk for internalizing and externalizing behaviors when cultural brokering compared to Chinese American and Mexican American adolescents. She suggested that the ethnic differences may be attributed to different perceptions of cultural brokering as a normal activity. Thus, Chao's suggestion introduces the idea of a potential protective factor in which perceiving this behavioral act as normal might predict decreases in negative cultural brokering attitudes or attenuate the effects of cultural brokering frequency's effects on adult parentification. Further research must investigate whether the brokering experience and its effects vary based on culture and ethnicity. If certain cultural and ethnic groups are at greater risk than others, culturally-grounded prevention programs must take such differences into consideration. Perhaps certain groups that are more resilient engage in more effective coping mechanisms that can be taught to other groups.

### *Concluding Remarks*

Although many questions still remain regarding cultural brokering's effects on youth, this dissertation examined four dominant assumptions, using several theoretical perspectives as guiding rationales. Previous research (e.g., Mercado, 2003; Jones & Trickett, 2005; Orellana et al., 2003) found contradicting results with respect to these assumptions, which this dissertation

sought to clarify by distinguishing between cultural brokering frequency and negative cultural brokering attitudes. The findings showed that these two aspects of brokering - frequency and negative attitudes - had unique associations with Mexican-heritage youths' psychological health, health-related behaviors, and academic performance. Brokering frequency and attitudes operated as risk factors under certain conditions; therefore, this dissertation demonstrated the need for future research to investigate how to decrease negative cultural brokering attitudes and to provide healthy coping resources.

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## Appendix A

### English Version of the Questionnaire

<b>Ethnic Identification</b>	
(1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree)	
Thinking about the ethnic group (race or culture) you just chose, do you agree or disagree that:	
ETHID1	I have tried to learn more about my own ethnic group, such as its history and customs ( <i>removed</i> ).
ETHID2	I have often talked to other people, like my parents, to learn more about my ethnic group ( <i>removed</i> ).
ETHID3	I am happy to be part of my ethnic group.
ETHID4	I feel like I really belong to my own ethnic group.
ETHID5	I'm very proud of my ethnic group and its accomplishments.
ETHID6	I am involved in the customs of my own ethnic group, such as food, music, or celebrations.

<b>Cultural Brokering Frequency</b>	
(1 = never, 2 = a little bit, 3 = undecided, 4 = a lot, 5 = always)	
CBFRE1	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?

<b>Negative Cultural Brokering Attitudes</b>	
(1 = never, 2 = a little bit, 3 = undecided, 4 = a lot, 5 = always)	
NCBAT1	I feel embarrassed when I translate for my family.

NCBAT2	I have to translate for my family even when I don't want to ( <i>removed</i> ).
NCBAT3	I feel nervous when I translate for my family.

<b>Parentification</b>	
(1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree)	
PAREN1	I often feel more like an adult than a child in my family.
PAREN2	I am often described as mature for my age.
PAREN3	I provide support to my family when they are upset ( <i>removed</i> ).
PAREN4	When my family has a problem, they come to me for advice.
PAREN5	My family tells me about their problems as if I was another adult.

<b>Acculturation Stress</b>	
(1 = not a problem, 2 = small problem, 3 = big problem)	
STRESS1	I get upset at my parents because they don't know American ways ( <i>removed</i> ).
STRESS2	My family thinks I'm becoming 'too American' ( <i>removed</i> ).
STRESS3	I don't feel at home here in the United States.
STRESS4	I am embarrassed by the way I speak English.
STRESS5	I don't look like I belong in this country.
STRESS6	I argue with friends because we are from different cultures.
STRESS7	My teachers don't understand my culture.

<b>English Reading Speed</b>
(1 = slow, 2 = a little slow, 3 = average, 4 = fast, 5 = very fast)

RSPEED1	How fast can you <u>read</u> English?
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<b>Last-30-Days Alcohol Use</b>	
(1= none, 2= one drink (or part of it), 3= 2 or 3 drinks, 4= 4 to 7 drinks, 5 = 8 to 15 drinks, 6= 16 to 30 drinks, 7= more than 30)	
ALC1	How many <u>drinks of alcohol</u> (more than a sip of beer, wine, or liquor) have you had in the last 30 days?

<b>Last-30-Days Cigarette Use</b>	
(1= none, 2= one puff, 3= part or all of one cigarette, 4= 2 or 3 cigarettes, 5= 4 to 10 cigarettes, 6= 11 to 20 cigarettes (20=1 pack), 7= more than 20 cigarettes)	
CIG1	How many <u>cigarettes</u> have you smoked in the last 30 days?

<b>Last-30-Days Marijuana Use</b>	
(1 = none, 2 = one hit, 3 = 2 or 3 hits, 4 = 4 to 10 hits, 5 = 11 to 20 hits, 6 = 21 to 40 hits, 7= more than 40 hits)	
MAR1	How many <u>hits of marijuana</u> (pot, weed) have you had in the last 30 days?

<b>Risky Behaviors</b>	
(1 = never, 2 = once or twice, 3 = a few times, 4 = at least once a week, 5 = almost every day)	
RISK1	Got into a physical fight
RISK2	Did something dangerous on a dare
RISK3	Skipped school

RISK4	Used or carried a weapon (such as a knife or a gun)
RISK5	Hurt an animal
RISK6	Stole something

<b>Grades</b>	
(1= mostly F's, 2 = D's and F's, 3 = Mostly D's, 4 = C's and D's, 5 = mostly C's, 6 = B's and C's, 7 = mostly B's, 8 = A's and B's, 9 = mostly A's)	
GRADE1	What grades do you usually get in school?

## Appendix B

### Inter-Item Correlations from the Full CFA Measurement Model

Items	ETHID1	ETHID2	ETHID3	ETHID4	LANG1	LANG2	LANG3	LANG4
ETHID1	--							
ETHID2	.71	--						
ETHID3	.78	.73	--					
ETHID4	.64	.62	.68	--				
LANG1	-.10	-.03	-.10	-.09	--			
LANG2	.03	.06	.04	.08	-.16	--		
LANG3	-.06	-.02	-.06	-.06	-.09	-.09	--	
LANG4	-.01	-.06	-.06	-.07	-.13	-.13	-.08	--
CBFRE	.14	.13	.15	.15	.13	.05	-.18	-.37
NCBAT1	-.06	-.06	-.07	-.07	.10	.02	-.03	.01
NCBAT2	.10	.02	.05	.08	.06	-.05	-.02	-.03
ADULT1	.13	.12	.12	.13	.03	.07	-.01	.03
ADULT2	.15	.16	.20	.17	-.08	-.02	.02	.10
PROB1	-.02	-.01	.02	.03	-.01	-.01	.04	.02
PROB2	.10	.12	.14	.12	-.02	.01	.01	.07
STRESS1	-.12	-.04	-.12	.01	.25	.01	-.12	-.17
STRESS2	-.16	-.14	-.14	-.10	.20	.02	-.12	-.20
STRESS3	-.18	-.16	-.20	-.14	.27	.01	-.08	-.29
STRESS4	-.21	-.21	-.25	-.14	.13	-.07	-.07	-.10
STRESS5	-.13	-.13	-.18	-.06	.09	-.08	-.02	-.07
RSPEED	.19	.15	.14	.14	-.20	-.04	.10	.28
ALC6	.03	.05	.05	.07	.01	-.02	-.03	.03
CIG6	-.03	-.04	-.12	-.06	.12	-.06	.01	-.05
MAR6	.02	-.02	-.03	-.01	.01	-.10	-.06	.09
RISK1 (W6)	-.12	-.11	-.08	-.10	.01	-.01	.01	-.02
RISK2 (W6)	.01	.01	.01	-.07	-.01	-.05	.07	.08
RISK3 (W6)	-.07	-.06	-.06	-.09	-.03	-.02	.03	.01
RISK4 (W6)	-.05	-.03	-.06	-.01	.03	-.12	.09	.06
RISK5 (W6)	-.03	.02	.02	.04	-.09	.04	.07	-.05
RISK6 (W6)	-.07	-.07	-.06	-.01	.05	.06	.02	-.02
ALC1	.04	.02	.04	.06	-.01	.04	-.03	.06
CIG1	.02	-.02	.03	.02	.03	-.03	-.03	.08
MAR1	.01	-.03	.04	.03	-.02	-.03	-.03	.04
RISK1 (W3)	-.08	-.01	-.06	-.03	-.02	-.03	.04	-.02
RISK2 (W3)	-.07	-.04	-.07	-.02	-.06	.01	.03	.03
RISK3 (W3)	-.11	-.06	-.09	-.07	.05	-.03	.01	.01
RISK4 (W3)	-.06	-.03	-.04	-.02	.05	.03	-.02	.04
RISK5 (W3)	-.14	-.10	-.10	-.09	.05	.01	-.03	.01
RISK6 (W3)	-.09	-.05	-.06	-.05	.03	.03	.01	-.01
GRADE6	.22	.17	-.04	.20	-.08	.07	.02	-.02
GRADE1	.01	-.03	.21	.01	.05	.03	-.04	.02

Items	CBFRE	NCBAT1	NCBAT2	ADULT1	ADULT2	PROB1	PROB2	STRESS1	STRESS2	STRESS3	STRESS4	STRESS5	RSPEED
CBFRE	--												
NCBAT1	-.04	--											
NCBAT2	.05	.63	--										
ADULT1	.10	-.03	.05	--									
ADULT2	.08	-.12	-.06	.59	--								
PROB1	.02	-.03	-.07	.38	.33	--							
PROB2	.04	-.08	-.02	.40	.41	.65	--						
STRESS1	.19	.14	.04	-.01	-.12	-.03	-.05	--					
STRESS2	.10	.26	.23	-.15	-.21	-.07	-.08	.65	--				
STRESS3	.13	.22	.08	-.02	-.12	-.02	-.01	.70	.73	--			
STRESS4	-.01	.04	-.07	.05	-.06	.06	-.07	.55	.66	.71	--		
STRESS5	-.02	.13	.09	.01	-.02	-.04	-.02	.62	.66	.64	.68	--	
RSPEED	-.03	-.14	-.10	.10	.20	.07	.13	-.19	-.33	-.24	-.20	-.15	--
ALC6	.01	-.13	-.01	.18	.12	.09	.11	.11	.05	.08	.20	.13	.09
CIG6	-.13	-.18	-.11	.09	.04	.04	.06	.32	.07	.33	.27	.40	.17
MAR6	-.11	-.01	-.01	.14	.13	.06	.10	.16	.04	.15	.28	.30	.08
RISK1 (W6)	.01	.02	.03	.13	.03	.04	.08	.19	.12	.17	.17	.23	-.02
RISK2 (W6)	-.18	.10	-.03	.03	.02	.06	.06	.12	.14	.20	.09	.32	.07
RISK3 (W6)	-.07	.24	.11	.08	.03	.08	.07	.16	.22	.19	.19	.17	-.02
RISK4 (W6)	-.29	.14	-.08	.11	.10	.03	.12	.18	.08	.18	.07	.25	.04
RISK5 (W6)	-.22	.08	.11	.09	-.02	-.02	.11	.05	.06	.15	-.02	.22	-.03
RISK6 (W6)	-.03	-.07	-.05	.14	.01	-.03	.02	.24	.07	.29	.22	.25	.09
ALC1	-.01	-.13	-.03	.02	.04	.09	.11	.04	.06	.02	-.01	.03	-.04
CIG1	-.01	-.03	-.05	.03	.04	.07	.06	.02	.08	.06	.03	.04	-.07
MAR1	-.03	-.01	-.02	.01	-.01	.08	.09	-.05	.01	-.01	-.02	.01	-.07
RISK1 (W3)	-.01	-.06	-.06	.07	.06	-.03	-.02	.01	-.03	.09	.12	.04	-.03
RISK2 (W3)	-.05	-.06	-.05	.05	.03	-.07	-.03	.03	.01	.09	.08	.08	.04
RISK3 (W3)	-.02	.03	-.04	.01	.04	-.01	-.06	.06	-.01	.11	-.03	.09	-.10
RISK4 (W3)	-.10	-.07	-.03	.11	.16	.12	.03	.02	-.08	.01	-.01	-.03	.01
RISK5 (W3)	-.06	.07	-.01	-.05	.01	.04	.01	-.03	.01	.09	.06	.10	-.11
RISK6 (W3)	-.03	.01	-.04	.01	-.03	.04	-.01	.04	.03	.09	.05	.07	-.05
GRADE6	.07	.02	.03	.09	.14	.07	.13	-.07	-.13	-.19	-.01	-.10	.31
GRADE1	.04	.03	.01	-.05	.04	-.03	.07	.07	.10	.10	-.01	.09	-.04



Items	ALC6	CIG6	MAR6	RISK1 (W6)	RISK2 (W6)	RISK3 (W6)	RISK4 (W6)	RISK5 (W6)	RISK6 (W6)	ALC1	CIG1	MAR1
ALC6	--											
CIG6	.60	--										
MAR6	.62	.68	--									
RISK1 (W6)	.30	.23	.35	--								
RISK2 (W6)	.37	.30	.43	.54	--							
RISK3 (W6)	.35	.17	.53	.49	.53	--						
RISK4 (W6)	.40	.38	.51	.50	.66	.53	--					
RISK5 (W6)	.28	.11	.27	.48	.47	.59	.61	--				
RISK6 (W6)	.37	.41	.50	.48	.53	.55	.60	.63	--			
ALC1	.11	.06	.15	.01	.11	.01	.12	-.10	.05	--		
CIG1	.07	.06	.10	.08	.10	.01	.07	-.09	.07	.49	--	
MAR1	.05	.10	.10	-.02	.05	-.10	.09	.05	.04	.50	.58	--
RISK1 (W3)	.18	.17	.29	.24	.27	.16	.33	.13	.22	.38	.03	.15
RISK2 (W3)	.19	.07	.26	.17	.32	.21	.26	.08	.25	.14	.07	.06
RISK3 (W3)	.02	.04	.12	.02	.22	.18	.24	-.01	.16	.01	.05	.09
RISK4 (W3)	.21	.14	.16	.05	.26	.17	.35	.15	.23	.12	.09	.10
RISK5 (W3)	.01	-.04	.13	.08	.10	.07	.19	.17	.12	.04	.09	.08
RISK6 (W3)	.07	-.01	.22	.05	.16	.18	.25	.07	.27	.04	.08	.06
GRADE6	-.11	.02	-.20	-.25	-.21	-.25	-.20	-.27	-.21	.05	.01	.03
GRADE1	-.01	-.14	.01	.06	-.02	.03	-.06	-.12	-.04	.01	-.04	.04

Items	RISK1 (W3)	RISK2 (W3)	RISK3 (W3)	RISK4 (W3)	RISK5 (W3)	RISK6 (W3)	GRADE6	GRADE1
RISK1 (W3)	--							
RISK2 (W3)	.44	--						
RISK3 (W3)	.28	.41	--					
RISK4 (W3)	.36	.39	.43	--				
RISK5 (W3)	.32	.37	.34	.42	--			
RISK6 (W3)	.38	.42	.41	.47	.47	--		
GRADE6	-.05	-.04	-.11	-.11	-.01	-.12	--	
GRADE1	.04	-.02	.08	-.02	-.14	-.03	.03	--

VITAE  
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**EDUCATION**

Ph.D. The Pennsylvania State University, *Communication Arts & Sciences*, 2009  
M.A. San Diego State University, *Communication Studies*, 2004  
B.A. University of California, Davis, *Communication and English* (Double Major), 2002

**EMPLOYMENT**

Assistant Professor, The Ohio State University, 2009  
Research Assistant, The Pennsylvania State University, 2006-2009.  
Teaching Associate, The Pennsylvania State University, 2005-2009

**PUBLICATIONS**

Hopfer, S., Davis, D., **Kam, J. A.**, Shin, Y., Hecht, M. L. (in press). A review of elementary school-based substance use prevention programs: Identifying program attributes. *Journal of Drug Education*.

**Kam, J. A.**, & Hecht, M. L. (in press). Investigating the role of identity gaps among communicative and relational outcomes within the grandparent-grandchild relationship: The young-adult grandchildren's perspective. *Western Journal of Communication*.

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Jackson, R. L., & **Kam, J. A.** (in press). A cultural approach to understanding the communication between younger and older adults. In L. A. Samovar, R. E. Porter, & E. R. McDaniel (Eds.), *Intercultural Communication: A Reader*. Belmonte, CA: Thomson Wadsworth.

Miller-Day, M., & **Kam, J. A.** (in press). Investigating communication among families: Children, parents, and grandparents. In W. F. Eadie (Ed.), *21<sup>st</sup> century communication: A reference handbook* (vol. 2). Sage Publications.

**Kam, J. A.**, Matsunaga, M., Hecht, M. L., & Ndiaye, K. (2009). Extending the theory of planned behavior to predict alcohol, tobacco, and marijuana use among youth of Mexican heritage. *Prevention Science*, 10, 41-53.

Hecht, M. L., Elek, E., Wagstaff, D., **Kam, J. A.**, & Marsiglia, F., Dustman, P., Reeves, L., & Harthun, M. (2008). Short-term effects of the 5<sup>th</sup> grade version of the keepin' it REAL substance use prevention intervention. *The Journal of Drug Education*, 38, 223-249.

**Kam, J. A.** (2007). Nonverbal behaviors that contribute to healthy or destructive family functioning. In L. K. Guerrero & M. L. Hecht (Eds.), *The nonverbal communication reader: Classic and contemporary readings* (pp. 360-369). Long Grove, Illinois: Waveland Press.

**Kam, J. A.**, & Eidsmore, J. (2006). Applying burlesque rhetoric to create social change. In A. Kurt & M. Shockley (Eds.), *Diversity: New realities in a changing world* (pp. 111-124). England: Palgrave Macmillan.

**AWARDS**

**Pre-Doctoral Prevention and Methodology Training Grant Fellowship.** (2007-2009). Grant number T32 DA017629 (National Institute on Drug Abuse) Mark Greenberg, PI. The Pennsylvania State University. (\$43,544 plus tuition and health insurance).

**Carroll C. Arnold Award for Scholarly Excellence.** (2008-2009). Department of Communication Arts & Sciences.

**Top 4 Paper Award.** Communication and Aging Division. (2008). National Communication Association.

**Top 5 Paper Award.** Asian/Pacific American Communication. (2004). National Communication Association.